Supplemental Box

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1.2 Dependent Claims 2-7

1.2.1 Concerning Claim 2

The additional feature of claim 2 is identical to the feature of D1 in that the shoulder straps (132, 134) are flexible and the mounting panel (110) is rigid (see paragraph [0036] and figures 1, 2). Accordingly, claim 2 is anticipated by D1. Therefore, claim 2 lacks novelty under PCT Article 33(2).

1.2.2 Concerning Claim 3

The additional feature of claim 3 is characterized in that a base is rectangular and the base includes a length and a width, the length being longer than the width (feature 1), wherein first and second directions are parallel to the width (feature 2). D1 discloses that the mounting panel (110) may have a rectangular shape with a length and a width, the length being longer than the width, which corresponds to feature 1 (see paragraph [0047] and figure 3). In addition, feature 2 would be easily conceived from the disclosure of D1 considering that the first and second directions are parallel to the length (see figures 3, 6). Accordingly, claim 3 would have been obvious over D1. Therefore, claim 3 does not involve an inventive step under PCT Article 33(3).

1.2.3 Concerning Claim 4

The additional feature of claim 4 is characterized in that a tool storage container includes a lid and a body, wherein the lid is pivotally coupled to the body. This feature is not disclosed in D1. However, D2 discloses that an upper container includes a lid (8) and a body (6), wherein the lid (8) is pivotally coupled to the body (6) (see paragraphs [0050], [0053] and figures 2, 5). D1 and D2 are concerned with mutually related technical fields and there is no need for fundamental changes in the key features or for a new technical idea in combining the subject matters of D1 and D2. Accordingly, claim 4 would have been obvious over D1 in view of D2. Therefore, claim 4 does not involve an inventive step under PCT Article 33(3).

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1.2.4 Concerning Claim 5

The additional feature of claim 5 is identical to the feature of D2 in that the lid (8) and the body (6) are rigid (see figures 2, 5). Accordingly, claim 5 would have been obvious over D1 in view of D2. Therefore, claim 5 does not involve an inventive step under PCT Article 33(3).

1.2.5 Concerning Claim 6

The additional feature of claim 6 is characterized in that the body includes a bottom surface opposite the lid, wherein the bottom surface includes a projection, wherein a base includes a recess, and wherein the projection is received in the recess as a tool storage container slides in a first direction relative to the base to attach the tool storage container to the base. This feature would be easily conceived from the disclosure of D2 considering that the body (6) includes a bottom surface (56) opposite the lid (8), wherein the bottom surface (56) includes an engaging projection (55), wherein a lower container (1) includes an engaging recess (54, 54b), and wherein the engaging projection (55) is received in the engaging recess (54, 54b) as the upper container (1) slides in a first direction relative to the lower container (1) to attach the upper container (1) to the lower container (1) (see paragraphs [0056], [0095] and figures 3-5, 10, 11). Accordingly, claim 6 would have been obvious over D1 in view of D2. Therefore, claim 6 does not involve an inventive step under PCT Article 33(3).

1.2.6 Concerning Claim 7

The additional feature of claim 7 is characterized in further comprising a channel between the projection and the base, the channel including an open end and a closed end, wherein the recess of the base includes wings that are received in the channel when the tool storage container is attached to the base. This feature would be easily conceived from the disclosure of D2 considering that the projection (55) includes a locking foot (57b) having a rear-engaging section (62), wherein the rear-engaging section (62) comes into locking engagement with a rear-engaging projection (58) of the engaging recess (54b) when the upper container (1) is attached to the lower container (1) (see paragraphs [0103]-[0106] and figures 3-5, 10, 11). Accordingly, claim 7 would have been obvious over D1 in view of D2. Therefore, claim 7 does not involve an inventive step under PCT Article 33(3).

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1.3 Independent Claim 8

D3, which is considered to be the closest prior art to the subject matter of claim 8, discloses an apparatus (80) having a wheeled base (60), comprising: a pair of removable wheels (72) configured to support the wheeled base (60) on a surface such that the wheeled base (60) can roll along the surface; a frame (61) including a top side and a bottom side opposite the top side; and a storage container (21) removably coupled to the top side of the frame (61) (see paragraphs [0055], [0056] and figures 9, 11). Claim 8 differs from D3 in that: a plurality of wheels of claim 8 are adjacent a bottom side (difference 1); and a tool storage container of claim 8 slides in a first direction relative to a base and generally parallel to a top side to attach the tool storage container to the base, wherein the tool storage container slides in a second direction, opposite the first direction, relative to the base and generally parallel to the top side to remove the tool storage container from the base (difference 2). Difference 1 would be easily conceived from the disclosure of D3 considering that the pair of removable wheels (72) are between the top and bottom sides (see figure 9). In addition, difference 2 would be easily conceived from the disclosure of D2 considering that an upper container (1) slides a first direction relative to a lower container (1) and parallel to a top side to attach the upper container (1) to the lower container (1), wherein the upper container (1) slides in a second direction, opposite the first direction, relative to the lower container (1) and parallel to the top side to remove the upper container (1) from the lower container (1) (see paragraph [0050] and figures 10, 11). D3 and D2 are concerned with mutually related technical fields and there is no need for fundamental changes in the key features or for a new technical idea in combining the subject matters of D3 and D2. Accordingly, claim 8 would have been obvious over D3 in view of D2. Therefore, claim 8 does not involve an inventive step under PCT Article 33(3).

1.4 Dependent Claims 9-14

1.4.1 Concerning Claim 9

The additional feature of claim 9 is characterized in that the base is rectangular and the base includes a length and a width, the length being longer than the width, wherein the first and second directions are parallel to the width. This feature would be easily conceived from the disclosure of D2 considering that the lower container (1) is rectangular and includes a length

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and a width, the length being longer than the width, wherein the first and second directions are parallel to the width (see figures 7, 10, 11). Accordingly, claim 9 would have been obvious over D3 in view of D2. Therefore, claim 9 does not involve an inventive step under PCT Article 33(3).

1.4.2 Concerning Claim 10

The additional feature of claim 10 is identical to the feature of D2 in that the upper container includes a lid (8) and a body (6), wherein the lid (8) is pivotally coupled to the body (6) (see paragraphs [0050], [0053] and figure 2). Accordingly, claim 10 would have been obvious over D3 in view of D2. Therefore, claim 10 does not involve an inventive step under PCT Article 33(3).

1.4.3 Concerning Claim 11

The additional feature of claim 11 is identical to the feature of D2 in that the lid (8) and the body (6) are rigid (see figures 2, 5). Accordingly, claim 11 would have been obvious over D3 in view of D2. Therefore, claim 11 does not involve an inventive step under PCT Article 33(3).

1.4.4 Concerning Claim 12

The additional feature of claim 12 is characterized in that the tool storage container includes a lid and a body, wherein the body includes a bottom surface opposite the lid, wherein the bottom surface includes a projection, wherein the base includes a recess, and wherein the projection is received in the recess as the tool storage container slides in the first direction relative to the base to attach the tool storage container to the base. This feature would be easily conceived from the disclosure of D2 considering that the upper container (1) includes a lid (8) and a body (6), wherein the body (6) includes a bottom surface (56) opposite the lid (8), wherein the bottom surface (56) includes an engaging projection (55), wherein a lower container (1) includes an engaging recess (54, 54b), and wherein the engaging projection (55) is received in the engaging recess (54, 54b) as the upper container (1) slides in the first direction relative to the lower container (1) to attach the upper container (1) to the lower container (1) (see paragraphs [0050], [0056], [0095] and figures 3-5, 10, 11). Accordingly,

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claim 12 would have been obvious over D3 in view of D2. Therefore, claim 12 does not involve an inventive step under PCT Article 33(3).

1.4.5 Concerning Claim 13

The additional feature of claim 13 is characterized in further comprising a channel between the projection and the base, the channel including an open end and a closed end, wherein the recess of the base includes wings that are received in the channel when the tool storage container is attached to the base. This feature would be easily conceived from the disclosure of D2 considering that the projection (55) includes a locking foot (57b) having a rear-engaging section (62), wherein the rear-engaging section (62) comes into locking engagement with a rear-engaging projection (58) of the engaging recess (54b) when the upper container (1) is attached to the lower container (1) (see paragraphs [0103]-[0106] and figures 3-5, 10, 11). Accordingly, claim 13 would have been obvious over D3 in view of D2. Therefore, claim 13 does not involve an inventive step under PCT Article 33(3).

1.4.6 Concerning Claim 14

The additional feature of claim 14 is characterized in that the tool storage container is a first tool storage container, the tool cart further comprising a second tool storage container, the second tool storage container removably coupled to the first tool storage container (feature 1), wherein the second tool storage container slides in the first direction relative to the first tool storage container to attach the second tool storage container to the first tool storage container, and wherein the second tool storage container slides in the second direction relative to the first tool storage container to remove the second tool storage container from the first tool storage container (feature 2). D3 discloses that the storage container (21) is a first tool storage container (21), the apparatus (80) further comprising a second storage container (21') removably coupled to the first storage container (21), which corresponds to feature 1 (see paragraph [0056] and figure 11). In addition, D2 discloses that the upper container (1) slides the first direction relative to the lower container (1) to attach the upper container (1) to the lower container (1), wherein the upper container (1) slides in the second direction relative to the lower container (1) to remove the upper container (1) from the lower container (1), which corresponds to feature 2 (see paragraph [0050] and figures 10, 11). Accordingly, claim 14 would have been obvious over D3 in view of D2. Therefore, claim 14 does not involve an

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inventive step under PCT Article 33(3).

1.5 Independent Claim 15

D3, which is considered to be the closest prior art to the subject matter of claim 15, discloses an apparatus (80) having a wheeled base (60), comprising: a frame (61) including a top side, a bottom side opposite the top side, a first end, and a second end opposite the first end; an adjustable pulling handle (75) extending from the first end; a pair of removable wheels (72); and a storage container (21) removably coupled to the top side of the frame (61) (see paragraphs [0055], [0056] and figures 9, 11). Claim 15 differs from D3 in that: first and second wheels are adjacent a second end (difference 1); and a tool storage container of claim 15 slides in a first direction relative to a base and generally parallel to a top side to attach the tool storage container to the base, wherein the tool storage container slides in a second direction, opposite the first direction, relative to the base and generally parallel to the top side to remove the tool storage container from the base (difference 2). Difference 1 would be easily conceived from the disclosure of D3 considering that the pair of removable wheels (72) are adjacent the first end (see figures 9, 11). In addition, difference 2 would be easily conceived from the disclosure of D2 considering that an upper container (1) slides a first direction relative to a lower container (1) and parallel to a top side to attach the upper container (1) to the lower container (1), wherein the upper container (1) slides in a second direction, opposite the first direction, relative to the lower container (1) and parallel to the top side to remove the upper container (1) from the lower container (1) (see paragraph [0050] and figures 10, 11). D3 and D2 are concerned with mutually related technical fields and there is no need for fundamental changes in the key features or for a new technical idea in combining the subject matters of D3 and D2. Accordingly, claim 15 would have been obvious over D3 in view of D2. Therefore, claim 15 does not involve an inventive step under PCT Article 33(3).

1.6 Dependent Claims 16-20

1.6.1 Concerning Claim 16

The additional feature of claim 16 is characterized in that the base is rectangular and the base includes a length and a width, the length being longer than the width, wherein the first and second directions are parallel to the width. This feature would be easily conceived from

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the disclosure of D2 considering that the lower container (1) is rectangular and includes a length and a width, the length being longer than the width, wherein the first and second directions are parallel to the width (see figures 7, 10, 11). Accordingly, claim 16 would have been obvious over D3 in view of D2. Therefore, claim 16 does not involve an inventive step under PCT Article 33(3).

1.6.2 Concerning Claim 17

The additional feature of claim 17 is identical to the feature of D2 in that the upper container includes a lid (8) and a body (6), wherein the lid (8) is pivotally coupled to the body (6) (see paragraphs [0050], [0053] and figure 2). Accordingly, claim 17 would have been obvious over D3 in view of D2. Therefore, claim 17 does not involve an inventive step under PCT Article 33(3).

1.6.3 Concerning Claim 18

The additional feature of claim 18 is characterized in that the tool storage container includes a lid and a body, wherein the body includes a bottom surface opposite the lid, wherein the bottom surface includes a projection, wherein the base includes a recess, and wherein the projection is received in the recess as the tool storage container slides in the first direction relative to the base to attach the tool storage container to the base. This feature would be easily conceived from the disclosure of D2 considering that the upper container (1) includes a lid (8) and a body (6), wherein the body (6) includes a bottom surface (56) opposite the lid (8), wherein the bottom surface (56) includes an engaging projection (55), wherein a lower container (1) includes an engaging recess (54, 54b), and wherein the engaging projection (55) is received in the engaging recess (54, 54b) as the upper container (1) slides in the first direction relative to the lower container (1) to attach the upper container (1) to the lower container (1) (see paragraphs [0050], [0056], [0095] and figures 3-5, 10, 11). Accordingly, claim 18 would have been obvious over D3 in view of D2. Therefore, claim 18 does not involve an inventive step under PCT Article 33(3).

1.6.4 Concerning Claim 19

The additional feature of claim 19 is characterized in further comprising a channel between

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the projection and the base, the channel including an open end and a closed end, wherein the recess of the base includes wings that are received in the channel when the tool storage container is attached to the base. This feature would be easily conceived from the disclosure of D2 considering that the projection (55) includes a locking foot (57b) having a rear-engaging section (62), wherein the rear-engaging section (62) comes into locking engagement with a rear-engaging projection (58) of the engaging recess (54b) when the upper container (1) is attached to the lower container (1) (see paragraphs [0103]-[0106] and figures 3-5, 10, 11). Accordingly, claim 19 would have been obvious over D3 in view of D2. Therefore, claim 19 does not involve an inventive step under PCT Article 33(3).

1.6.5 Concerning Claim 20

The additional feature of claim 20 is characterized in that the tool storage container is a first tool storage container, the tool cart further comprising a second tool storage container, the second tool storage container removably coupled to the first tool storage container (feature 1), wherein the second tool storage container slides in the first direction relative to the first tool storage container to attach the second tool storage container to the first tool storage container, and wherein the second tool storage container slides in the second direction relative to the first tool storage container to remove the second tool storage container from the first tool storage container (feature 2). D3 discloses that the storage container (21) is a first tool storage container (21), the apparatus (80) further comprising a second storage container (21') removably coupled to the first storage container (21), which corresponds to feature 1 (see paragraph [0056] and figure 11). In addition, D2 discloses that the upper container (1) slides the first direction relative to the lower container (1) to attach the upper container (1) to the lower container (1), wherein the upper container (1) slides in the second direction relative to the lower container (1) to remove the upper container (1) from the lower container (1), which corresponds to feature 2 (see paragraph [0050] and figures 10, 11). Accordingly, claim 20 would have been obvious over D3 in view of D2. Therefore, claim 20 does not involve an inventive step under PCT Article 33(3).

2. Industrial Applicability

Claims 1-20 are industrially applicable under PCT Article 33(4).

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	15826232
Filing Date	2017-11-29
First Named Inventor	Yaron Brunner
Art Unit	3736
Examiner Name	G. R. Weinerth
Attorney Docket Number	55390-501C01US

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	1	Final Rejection issued November 28, 2018, in United States Application No. 15/826,201 (17 Pages).
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	Examiner Name	G. R. Weinerth
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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

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Docket No.: 55390-501C01US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Yaron Brunner et al.	Allowed: March 11, 2019
Application No.: 15/826,232	Confirmation No.: 1070
Filed: November 29, 2017	Art Unit: 3736
For: UTILITY ASSEMBLY AND COUPLING MECHANISM	Examiner: G. R. Weinerth

INFORMATION DISCLOSURE STATEMENT (IDS)

VIA EFS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98, the attention of the United States Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of the above-identified application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement, pursuant to 37 C.F.R. § 1.114(c), accompanies the Request for Continued Examination (37 C.F.R. § 1.114) submitted herewith.

In accordance with 37 C.F.R. § 1.98(a)(2)(ii), copies of U.S. patents and U.S. patent application publications are not submitted. Submitted herewith are copies of foreign patents and non-patent literature in accordance with 37 C.F.R. § 1.98(a)(2).

In accordance with 37 C.F.R. § 1.97(g), the filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made. In accordance with 37 C.F.R. § 1.97(h), the filing of this Information Disclosure Statement shall not be construed to be an admission that the information cited in this Information Disclosure Statement is, or is considered to be, material to the patentability as defined in 37 C.F.R. § 1.56(b).

It is submitted that the Information Disclosure Statement is in compliance with 37 C.F.R. § 1.98, and the Examiner is respectfully requested to consider the listed references.

Applicant believes no fee is due with this Information Disclosure Statement. However, if a fee is due, please charge our Deposit Account No. 50-0311, under Order No. 055390-501C01US from which the undersigned is authorized to draw.

Dated: April 17, 2019

Respectfully submitted,

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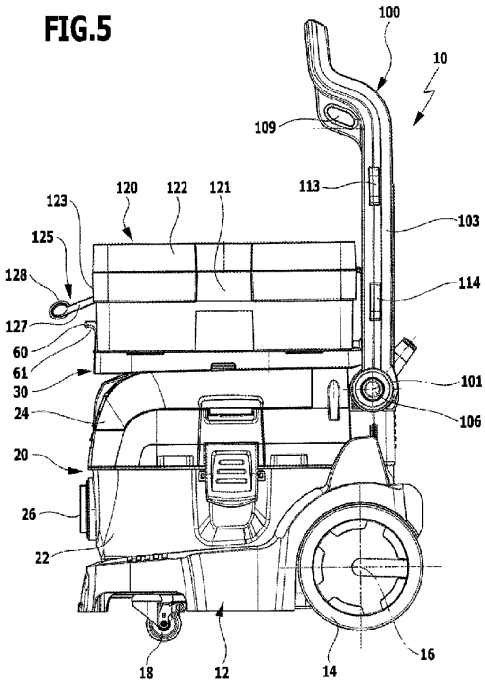
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[Fortsetzung auf der nächsten Seite]

(54) **Title**: CLEANING APPLIANCE WITH A STORAGE AREA FOR SETTING DOWN A CONTAINER

(54) **Bezeichnung** : REINIGUNGSGERÄT MIT STELLFLÄCHE ZUM ABSTELLEN EINES BEHÄLTERS

FIG.5



(57) **Abstract**: The invention relates to a cleaning appliance having a housing which has a storage area for setting down a container and having castors for moving the cleaning appliance. In order to develop the cleaning appliance in such a manner that the container can be fixed simply to the storage area, at least one retaining element is arranged on a first edge of the storage area, which retaining element projects out of the storage area and has a concave receptacle for a carrying handle which is articulated on one side of the container which is set down on the storage area, said receptacle being on the end face thereof which faces away from the storage area.

(57) **Zusammenfassung**: Reinigungsgerät, mit einem Gehäuse das eine Stellfläche zum Abstellen eines Behälters aufweist, und mit Laufrädern zum Verfahren des Reinigungsgerätes. Um das Reinigungsgerät derart weiterzubilden, dass der Behälter auf einfache Weise an der Stellfläche festgelegt werden kann, ist an einem ersten Rand der Stellfläche mindestens ein aus der Stellfläche hervorstehendes Halteelement angeordnet, das an seiner der Stellfläche abgewandten Stirnseite eine konkave Aufnahme für einen an eine Seite des auf der Stellfläche abgestellten Behälters angelenkten Tragegriff aufweist.

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Veröffentlicht:

— *mit internationalem Recherchenbericht (Artikel 21 Absatz 3)*

REINIGUNGSGERÄT MIT STELLFLÄCHE ZUM ABSTELLEN EINES BEHÄLTERS

Die Erfindung betrifft ein Reinigungsgerät mit einem Gehäuse, das eine Stellfläche zum Abstellen eines Behälters aufweist, und mit Laufrädern zum Verfahren des Reinigungsgerätes.

Derartige Reinigungsgeräte kommen beispielsweise in Form von Staubsaugern oder auch in Form von Hochdruckreinigungsgeräten zum Einsatz. Sie werden zum Beispiel auf Baustellen oder auch an sonstigen Einsatzorten benutzt. Die Reinigungsgeräte sind mit Laufrädern ausgestattet und können daher entlang eines Bodens verfahren werden.

Zum Transport zu einem Einsatzort werden die Reinigungsgeräte häufig in einem Transportfahrzeug positioniert. Oft ist der zu Verfügung stehende Stauraum im Transportfahrzeug beschränkt. Deshalb werden in vielen Fällen auf die im Stauraum positionierten Reinigungsgeräte Behälter abgestellt, beispielsweise Werkzeugkoffer oder auch sonstige Behälter, die Utensilien oder Zubehör aufnehmen. Erreicht das Transportfahrzeug sein Ziel, so werden die Behälter ebenso wie das Reinigungsgerät dem Transportfahrzeug entnommen und anschließend zum eigentlichen Einsatzort transportiert.

Aus der EP 0 916 302 B1 ist ein Reinigungsgerät in Form eines Staubsaugers bekannt, dessen Gehäuse oberseitig eine Stellfläche mit einer Vertiefung aufweist. In die Vertiefung kann der Behälter eingesetzt werden, der dadurch auf der Stellfläche gegen Verrutschen gesichert ist. Zusätzlich kann der Behälter mit Hilfe von Arretierungselementen in der Vertiefung arretiert werden. Die Arretierungselemente sind als verschiebbare Riegel ausgestaltet, die in korrespondierende Ausnehmungen des Behälters eingeschoben werden können. Die Arretierung des Behälters an der Stellfläche hat den Vorteil, dass der Staubsauger zusammen mit dem Behälter vom Benutzer in Form einer einzigen Transporteinheit bewegt werden kann. Allerdings ist es erforderlich, dass

der Behälter die Ausmaße der Vertiefung aufweist sowie Ausnehmungen, in die die verschiebbaren Riegel eingeschoben werden können.

Aufgabe der vorliegenden Erfindung ist es, ein Reinigungsgerät der eingangs genannten Art derart weiterzubilden, dass ein Behälter auf einfache Weise an der Stellfläche festgelegt werden kann.

Diese Aufgabe wird bei einem Reinigungsgerät der gattungsgemäßen Art erfindungsgemäß dadurch gelöst, dass an einem ersten Rand der Stellfläche mindestens ein aus der Stellfläche hervorstehendes Halteelement angeordnet ist, das an seiner der Stellfläche abgewandten Stirnseite eine konkave Aufnahme aufweist für einen an eine Stirnseite des auf der Stellfläche abgestellten Behälters angelenkten Tragegriff.

In die Erfindung fließt der Gedanke mit ein, dass Werkzeugkoffer ebenso wie sonstige Behälter für Utensilien oder Zubehörteile in den meisten Fällen an einer Seite einen Tragegriff aufweisen, der verschwenkbar gelagert ist. Zur Festlegung des Behälters wird beim erfindungsgemäßen Reinigungsgerät der Tragegriff des Behälters herangezogen. Hierzu ist an einem ersten Rand der Stellfläche, auf die der Behälter abgestellt werden kann, mindestens ein aus der Stellfläche hervorstehendes Halteelement angeordnet. Das Halteelement weist an seiner der Stellfläche abgewandten Stirnseite eine konkave Aufnahme auf. Der Behälter mit dem verschwenkbaren Tragegriff kann in einer derartigen Orientierung an der Stellfläche abgestellt werden, dass der schwenkbare Tragegriff eine Lage am ersten Rand der Stellfläche einnimmt. Er kann dann um seine Schwenkachse so weit verschwenkt werden, dass er in die konkave Aufnahme des mindestens einen Halteelementes eintaucht. Das Halteelement übergreift dann den Tragegriff, so dass der Behälter mit seinem Tragegriff am Halteelement fixiert ist.

Von Vorteil ist es, wenn am ersten Rand der Stellfläche im Abstand zueinander zwei Halteelemente angeordnet sind. Die Halteelemente weisen an ihrer der Stellfläche abgewandten Stirnseite jeweils eine konkave Aufnahme auf. Dies

gibt die Möglichkeit, den schwenkbaren Tragegriff des Behälters in beide Aufnahmen einzuführen und dadurch besonders zuverlässig festzulegen.

Der verschwenkbare Tragegriff des Behälters ist üblicherweise U-förmig ausgestaltet und umfasst zwei an einer Seite des Behälters angelenkte Tragschenkel, die mit ihren freien Enden über einen Tragsteg miteinander verbunden sind. Die beiden Halteelemente, die am ersten Rand der Stellfläche angeordnet sein können, können einen derartigen Abstand zueinander einnehmen, dass die Tragschenkel des Tragegriffs jeweils an eine Außenseite eines Halteelements anlegbar sind. Die Außenseiten der Halteelemente werden hierbei von den einander abgewandten Seiten der Halteelemente gebildet. Der U-förmige Tragegriff nimmt somit die beiden Halteelemente zwischen sich auf und sichert dadurch den Behälter gegen Verrutschen in Längsrichtung des Tragegriffs.

Das mindestens eine Halteelement ist vorzugsweise hakenförmig ausgestaltet. Es kann dann mit seinem bogenförmigen Endbereich den Tragegriff übergreifen.

Bevorzugt ist das mindestens eine Halteelement elastisch verformbar.

Bei einer besonders bevorzugten Ausgestaltung des erfindungsgemäßen Reinigungsgerätes ist das mindestens eine Halteelement als Rastelement ausgestaltet, mit dem der Tragegriff des an der Stellfläche abgestellten Behälters verrastbar ist. Mittels des Rastelementes kann somit eine lösbare Rastverbindung mit dem an der Stellfläche abgestellten Behälter erzielt werden. Dadurch kann der Behälter auf konstruktiv einfache Weise an der Stellfläche festgelegt werden.

Günstig ist es, wenn an einem zweiten Rand der Stellfläche, der dem ersten Rand abgewandt ist, mindestens ein aus der Stellfläche hervorstehendes erstes Anschlagelement angeordnet ist mit einer ersten Anschlagfläche. Das Anschlagelement bildet eine seitliche Stütze für den an der Stellfläche abge-

stellten Behälter. Der Behälter kann zwischen dem mindestens einen Halteelement, das am ersten Rand der Stellfläche angeordnet ist, und dem am zweiten Rand der Stellfläche angeordneten ersten Anschlagelement positioniert werden, wobei er an der ersten Anschlagfläche anliegt, und anschließend kann der Tragegriff in eine Haltestellung verschwenkt werden, in der er in die konkave Aufnahme des mindestens einen Halteelements eingreift.

Von Vorteil ist es, wenn am ersten Rand der Stellfläche mindestens ein zweites Anschlagelement angeordnet ist, das aus der Stellfläche hervorsteht und eine der ersten Anschlagfläche zugewandte zweite Anschlagfläche aufweist. Dies gibt die Möglichkeit, den Behälter am ersten Rand der Stellfläche nicht nur an dem mindestens einen Halteelement abzustützen sondern zusätzlich auch noch an dem zweiten Anschlagelement.

Hierbei ist es günstig, wenn das mindestens eine zweite Anschlagelement eine der zweiten Anschlagfläche abgewandte Außenseite aufweist und das mindestens eine Halteelement einen über die Außenseite des zweiten Anschlagelements hervorstehenden Halteabschnitt aufweist. Der Halteabschnitt kann den Tragegriff des Behälters übergreifen, der an die Außenseite des mindestens einen zweiten Anschlagelements angelegt werden kann, wobei er in die konkave Aufnahme des Halteelements eintaucht.

Das Halteelement überragt bei einer vorteilhaften Ausgestaltung der Erfindung das zweite Anschlagelement in Richtung der Flächennormale der Stellfläche. Der Halteabschnitt kann somit sowohl in Richtung der Flächennormale der Außenseite des zweiten Anschlagelements als auch in Richtung der Flächennormale der Stellfläche über das zweite Anschlagelement hervorstehen und dadurch den Tragegriff des Behälters zuverlässig erfassen.

Günstig ist es, wenn das mindestens eine zweite Anschlagelement starr mit einem Halteelement verbunden ist. Dies erhöht die mechanische Belastbarkeit sowohl des Halteelements als auch des Anschlagelements.

Bevorzugt sind am ersten Rand der Stellfläche zwei Halteelemente im Abstand zueinander angeordnet und an den einander abgewandten Außenseiten der Halteelemente ist jeweils ein zweites Anschlagelement positioniert.

Eine mechanisch besonders belastbare Festlegung des Behälters an der Stellfläche wird bei einer vorteilhaften Ausführungsform der Erfindung dadurch erzielt, dass sich an den ersten Rand der Stellfläche eine Seitenfläche anschließt, in die mindestens ein Mündungsbereich eines Aufbewahrungsraums einmündet, wobei im Aufbewahrungsraum in einer Aufbewahrungsstellung ein Spannelement angeordnet ist, das über den Mündungsbereich dem Aufbewahrungsraum zumindest teilweise entnehmbar und in eine Arbeitsstellung überführbar ist zur Festlegung des Behälters an der Stellfläche. Bei einer derartigen Ausgestaltung des erfindungsgemäßen Reinigungsgerätes kommt zur Festlegung des Behälters zusätzlich zu dem mindestens einen Halteelement, das mit dem Tragegriff des Behälters zusammenwirkt, mindestens ein Spannelement zum Einsatz, mit dessen Hilfe der Behälter an der Stellfläche festgelegt werden kann. Zum Festlegen des Behälters kann das Spannelement zumindest teilweise dem Aufbewahrungsraum entnommen werden. Der Aufbewahrungsraum weist einen Mündungsbereich auf, der in der Seitenfläche angeordnet ist, die sich an den ersten Rand der Stellfläche anschließt. Über den Mündungsbereich ist das Spannelement zumindest teilweise dem Aufbewahrungsraum entnehmbar. Das Spannelement kann um den an der Stellfläche abgestellten Behälter herumgeführt werden. Da der Mündungsbereich des Aufbewahrungsraums an der Seitenfläche angeordnet ist, die sich an den ersten Rand der Stellfläche anschließt, kann das Spannelement zur Festlegung des Behälters unter anderem auch um den Behälter-Tragegriff herumgeführt werden, der in die konkave Aufnahme des am ersten Rand angeordneten Halteelementes eintaucht. Dadurch wird der Tragegriff vom Spannelement in Richtung der konkaven Aufnahme mit einer Spannkraft beaufschlagt, die den Tragegriff an der konkaven Aufnahme festlegt.

Das Spannelement wird vom Reinigungsgerät im Aufbewahrungsraum mitgeführt und steht somit einem Benutzer jederzeit zur Festlegung eines Behälters

zur Verfügung. Nach Gebrauch kann das Spannelement wieder in den Aufbewahrungsraum zurückgebracht werden, in dem es aufbewahrt werden kann.

Es kann vorgesehen sein, dass das Reinigungsgerät nur einen einzigen Aufbewahrungsraum aufweist, der in die an den ersten Rand der Stellfläche anschließende Seitenfläche einmündet und in dem nur ein einziges Spannelement angeordnet ist. Es kann allerdings auch vorgesehen sein, dass das Reinigungsgerät mehrere in die an den ersten Rand der Stellfläche anschließende Seitenfläche einmündende Aufbewahrungsräume umfasst, die jeweils ein Spannelement aufnehmen. Darüber hinaus kann vorgesehen sein, dass in mindestens einem Aufbewahrungsraum des Reinigungsgerätes mehrere Spannelemente in einer Aufbewahrungsstellung angeordnet sind, aus der sie in eine Arbeitsstellung überführbar sind.

Günstig ist es, wenn der mindestens eine Aufbewahrungsraum unterhalb der Stellfläche angeordnet ist. Dies gibt die Möglichkeit, den auf der Stellfläche abgestellten Behälter auf konstruktiv einfache Weise mittels des mindestens einen Spannelementes an der Stellfläche zu fixieren, wobei er über den schwenkbaren Tragegriff zusätzlich eine Fixierung mittels des mindestens einen Halteelementes erfährt. Das Spannelement kann dem unterhalb der Stellfläche angeordneten Aufbewahrungsraum über den Mündungsbereich zumindest so weit entnommen werden, dass der Behälter mittels des Spannelementes an der Stellfläche fixiert werden kann. Zum Beispiel kann der Behälter einschließlich seines Tragegriffs in Umfangsrichtung zumindest teilweise vom Spannelement umgriffen werden.

Die Stellfläche ist vorzugsweise an der Oberseite des Gehäuses angeordnet. Dies erleichtert die Positionierung des Behälters an der Stellfläche.

Bei einer vorteilhaften Ausführungsform ist das Spannelement zumindest teilweise aus dem Aufbewahrungsraum herausziehbar. Dies erleichtert die Handhabung des Spannelementes.

Von Vorteil ist es, wenn das Spannelement entgegen der Wirkung einer Rückstellkraft aus dem Aufbewahrungsraum zumindest teilweise herausziehbar ist.

Eine besonders einfache Handhabung beim Festlegen eines Behälters an der Stellfläche des Gehäuses ergibt sich bei einer vorteilhaften Ausführungsform dadurch, dass das Spannelement ein erstes, im Aufbewahrungsraum festgelegtes Ende aufweist sowie ein zweites, über den Mündungsbereich von außerhalb des Aufbewahrungsraums zugängliches loses Ende. Das Spannelement kann vom Benutzer an seinem losen Ende ergriffen werden und dann zumindest teilweise dem Aufbewahrungsraum entnommen werden. Das dem losen Ende abgewandte Ende des Spannelementes ist im Aufbewahrungsraum festgelegt. Der Benutzer kann das lose Ende um den an der Stellfläche abgestellten Behälter und insbesondere um dessen Tragegriff herumführen und am Reinigungsgerät oder auch am Behälter befestigen.

Insbesondere bei Einsatz von zwei Spannelementen hat es sich als günstig erwiesen, wenn diese jeweils mit einem Ende in einem Aufbewahrungsraum fixiert sind und mit ihrem anderen Ende vom Benutzer ergriffen und aus dem Aufbewahrungsraum herausgezogen werden können.

Vorzugsweise ist am losen Ende des mindestens einen Spannelementes ein Befestigungselement angeordnet, beispielsweise ein Befestigungshaken. Mit Hilfe des Befestigungselements kann das Spannelement auf einfache Weise in einer Arbeitsstellung am Reinigungsgerät oder am Behälter befestigt werden, um den Behälter an der Stellfläche festzulegen.

Günstigerweise ist das Spannelement elastisch dehnbar. Vorzugsweise ist das Spannelement um mindestens 50 % dehnbar, das heißt es kann durch eine Dehnbelastung um mindestens 50 % verlängert werden. Besonders günstig ist es, wenn das Spannelement um 100 % dehnbar ist, das heißt durch eine Dehnbelastung auf eine doppelte Länge gedehnt werden kann.

Das Spannelement kann nach Art eines Spanngurts oder eines Spannseils ausgestaltet sein.

Das mindestens eine Spannelement ist bei einer vorteilhaften Ausführungsform der Erfindung in Form eines langgestreckten Bauteils im Aufbewahrungsraum angeordnet.

Alternativ kann vorgesehen sein, dass das mindestens eine Spannelement im Aufbewahrungsraum auf eine Haspel aufgewickelt ist.

Der mindestens eine Aufbewahrungsraum ist vorzugsweise kanalförmig ausgestaltet.

Es kann beispielsweise vorgesehen sein, dass das Gehäuse des Reinigungsgerätes eine Deckplatte aufweist, die auf ihrer Oberseite die Stellfläche ausbildet und am ersten Rand der Stellfläche das mindestens eine Halteteil umfasst, das zur Festlegung des Behälters an der Stellfläche mit dem Tragegriff des Behälters zusammenwirkt, wobei in die Deckplatte der mindestens eine Aufbewahrungsraum integriert ist.

Die Deckplatte ist günstigerweise an einem Gehäuseoberteil des Reinigungsgerätes angeordnet. Vorzugsweise ist die Deckplatte mit dem Gehäuseoberteil lösbar verbindbar.

Von besonderem Vorteil ist es, wenn die Deckplatte eine der Stellfläche abgewandte Unterseite aufweist, in die der mindestens eine Aufbewahrungsraum eingeformt ist.

Es kann beispielsweise vorgesehen sein, dass der mindestens eine Aufbewahrungsraum einen in die Unterseite der Deckplatte eingeformten Aufnahmekanal ausbildet. Der Aufnahmekanal kann in einer Unteransicht der Deckplatte beispielsweise einen U- oder einen C-förmigen Verlauf aufweisen. Aus dem Aufnahmekanal kann das Spannelement bei einer bevorzugten Ausgestaltung

der Erfindung in Kanallängsrichtung zumindest teilweise herausgezogen werden.

Von Vorteil ist es, wenn das Reinigungsgerät Befestigungselemente aufweist, an denen das Spannelement in seiner Arbeitsstellung festlegbar ist. Die Befestigungselemente können beispielsweise in Form von Befestigungsösen oder Befestigungshaken ausgebildet sein, an denen das Spannelement jeweils mit einem Ende befestigt werden kann, nachdem es um einen oder auch um mehrere an der Stellfläche abgestellte Behälter herumgeführt wurde.

Das Reinigungsgerät weist bevorzugt einen Griffbügel auf, denn dies erleichtert das Verfahren des Reinigungsgerätes entlang eines Bodens. Hierbei ist es günstig, wenn am Griffbügel mindestens ein Befestigungselement für das mindestens eine Spannelement angeordnet ist. Der Griffbügel kann vorzugsweise eine senkrecht zur Stellfläche ausgerichtete Stellung einnehmen und dadurch den an der Stellfläche abgestellten Behälter seitlich abstützen. Am Griffbügel können günstigerweise mehrere Befestigungselemente angeordnet sein, an denen jeweils ein Spannelement mit einem Ende befestigt werden kann. Die Befestigungselemente, beispielsweise Befestigungsösen oder –haken, sind vorteilhafterweise in unterschiedlichem Abstand zur Stellfläche angeordnet. Dies erleichtert die Festlegung von Behältern unterschiedlicher Größe mittels des Spannelements.

Wie bereits erläutert, mündet der mindestens eine Aufnahmeraum in eine Seitenfläche des Reinigungsgerätes, die sich an den ersten Rand der Stellfläche anschließt. Am ersten Rand der Stellfläche ist mindestens ein Halteelement angeordnet, das mit einem Tragegriff des Behälters zusammenwirkt. Von Vorteil ist es, wenn der Mündungsbereich des Aufbewahrungsraums einem Halteelement benachbart angeordnet ist, denn dies gibt die Möglichkeit, das über den Mündungsbereich dem Aufbewahrungsraum zumindest teilweise entnehmbare Spannelement unmittelbar am Halteelement entlang zu führen, wobei der Tragegriff des Behälters eine Position zwischen dem Spannelement und dem Halteelement einnehmen kann. Insbesondere kann vorgesehen sein, dass

der Tragegriff des Behälters vom Spannelement mit einer Spannkraft in Richtung der konkaven Aufnahme des Halteelementes beaufschlagbar ist. Dies sorgt für eine besonders belastbare Festlegung des Behälters an der Stellfläche.

Bevorzugt ist der Mündungsbereich des mindestens einen Aufbewahrungsraums unterhalb eines am ersten Rand der Stellfläche angeordneten zweiten Anschlagelements positioniert, das aus der Stellfläche hervorsteht und eine zweite Anschlagfläche aufweist. Unterhalb des zweiten Anschlagelementes kann somit ein Spannelement über den Mündungsbereich dem Aufbewahrungsraum so weit entnommen werden, dass das Spannelement den Behälter einschließlich dessen Tragegriff umgreifen kann zur Festlegung des Behälters an der Stellfläche.

Von besonderem Vorteil ist es, wenn das Reinigungsgerät zusammen mit einem an der Stellfläche angeordneten Behälter um eine gemeinsame Drehachse von zwei Laufrädern verschwenkbar ist. Das Reinigungsgerät kann dann zusammen mit dem Behälter nach Art einer Sackkarre verfahren werden. Der Behälter ist mittels des mindestens einen Halteelementes, das mit dem Tragegriff des Behälters im Sinne einer Rastverbindung zusammenwirkt, zuverlässig an der Stellfläche fixierbar und kann gemeinsam mit dem Reinigungsgerät verfahren werden.

Günstig ist es, wenn das Reinigungsgerät tragbar ist. Dies erleichtert den Transport des Reinigungsgerätes auf unebenem Boden oder auch über Stufen hinweg.

Von Vorteil ist es, wenn das Reinigungsgerät einen in die Stellfläche einschwenkbaren Gerätegriff aufweist. In einer Außerbetriebsstellung kann der Gerätegriff in die Stellfläche eingeschwenkt werden, wobei er dann von der Stellfläche nicht hervorsteht und ein Behälter auf die Stellfläche abgestellt werden kann, ohne vom Gerätegriff beeinträchtigt zu werden. Sofern kein Behälter auf der Stellfläche positioniert ist, kann der Gerätegriff aus der Stell-

fläche in eine Betriebsstellung ausgeschwenkt werden, in der er vom Benutzer ergriffen werden kann, um das Reinigungsgerät beispielsweise über eine Stufe zu tragen.

Wie bereits erwähnt, ist das Reinigungsgerät vorzugsweise in Form eines Staubsaugers oder eines Hochdruckreinigungsgerätes ausgestaltet.

Die nachfolgende Beschreibung einer bevorzugten Ausführungsform der Erfindung dient im Zusammenhang mit der Zeichnung der näheren Erläuterung. Es zeigen:

Figur 1: eine perspektivische Darstellung eines Reinigungsgerätes mit einer Deckplatte, die eine Stellfläche für einen oder auch für mehrere Behälter ausbildet;

Figur 2: eine perspektivische Darstellung der Deckplatte aus Figur 1 schräg von oben;

Figur 3: eine Unteransicht der Deckplatte aus Figur 1;

Figur 4: eine perspektivische Darstellung des Reinigungsgerätes aus Figur 1 beim Abstellen eines Behälters mit einem verschwenkbaren Tragegriff auf einer Stellfläche der Deckplatte;

Figur 5: eine Seitenansicht des Reinigungsgerätes aus Figur 1 beim Abstellen des Behälters auf der Stellfläche der Deckplatte;

Figur 6: eine perspektivische Darstellung eines Reinigungsgerätes aus Figur 1 mit dem auf der Stellfläche abgestellten Behälter, dessen Tragegriff von Rasthaken der Deckplatte übergriffen ist;

Figur 7: eine vergrößerte Darstellung von Detail A aus Figur 6 und

Figur 8: eine perspektivische Darstellung des Reinigungsgerätes aus Figur 1, wobei auf der Stellfläche zwei Behälter übereinander angeordnet und von zwei Spannelementen umgriffen sind.

In der Zeichnung ist schematisch ein erfindungsgemäßes Reinigungsgerät dargestellt in Form eines Staubsaugers 10. der Staubsauger 10 umfasst einen Sockel 12, an dem zwei Laufräder um eine gemeinsame Drehachse 16 drehbar gelagert sind. Zur Erzielung einer besseren Übersicht ist in der Zeichnung nur ein erstes Laufrad 14 dargestellt. Zusätzlich sind am Sockel 12 zwei Stützräder drehbar gelagert, wobei in der Zeichnung nur ein erstes Stützrad 18 erkennbar ist. Mittels der Laufräder 14 und der Stützräder 18 kann der Staubsauger 10 an einer Bodenfläche entlang verfahren werden.

Auf den Sockel 12 ist ein Saugaggregat 20 aufgesetzt mit einem Gehäuseunterteil 22 und einem Gehäuseoberteil 24. Das Gehäuseunterteil 22 bildet in üblicher Weise einen Schmutzsammelbehälter des Staubsaugers 10 aus. In den Schmutzsammelbehälter kann über einen Saugeinlass 26 Saugluft zusammen mit Sauggut eingesaugt werden. An den Saugeinlass 26 kann in üblicher Weise ein Saugschlauch angeschlossen werden, der an seinem freien Ende eine Saugdüse trägt. Derartige Saugschläuche und Saugdüsen sind dem Fachmann an sich bekannt und daher zur Erzielung einer besseren Übersicht in der Zeichnung nicht dargestellt.

Das Gehäuseoberteil 24 umgibt in üblicher Weise eine Saugturbine, die von einem Elektromotor angetrieben wird. Mittels der Saugturbine kann der Schmutzsammelbehälter des Gehäuseunterteils 22 mit Unterdruck beaufschlagt werden.

Auf dem Gehäuseoberteil 24 ist eine lösbar mit dem Gehäuseoberteil 24 verbunden Deckplatte 30 angeordnet, die im Wesentlichen rechteckförmig ausgestaltet ist und einen frontseitigen ersten Rand 31 und einen rückseitigen zweiten Rand 32 aufweist sowie einen dritten Rand 33 und einen vierten Rand 34, die entlang der Längsseiten der Deckplatte 30 verlaufen. In den frontseiti-

gen ersten Rand 31 ist mittig eine in der Draufsicht im Wesentlichen U-förmige Vertiefung 35 eingeformt.

Die Deckplatte 30 weist eine Oberseite auf, die eine Stellfläche 38 ausbildet zum Abstellen von einem oder mehreren Behältern auf dem Staubsauger 10. Dies wird insbesondere aus den Figuren 6 und 8 deutlich. Außerdem weist die Deckplatte 30 eine der Stellfläche 38 abgewandte Unterseite 40 auf, mit der sie auf dem Gehäuseoberteil 24 aufliegt.

Am rückseitigen zweiten Rand 32 der Stellfläche 38 ragt aus der Stellfläche 38 ein erstes Anschlagelement 42 hervor, das eine im Wesentlichen senkrecht zur Stellfläche 38 ausgerichtete erste Anschlagfläche 43 aufweist, die der Stellfläche 38 und dem frontseitigen ersten Rand 31 zugewandt ist.

Am frontseitigen ersten Rand 31 ist an einer ersten Seite der Vertiefung 35 ein aus der Stellfläche 38 hervorstehendes zweites Anschlagelement 45 angeordnet, das eine im Wesentlichen senkrecht zur Stellfläche 38 ausgerichtete zweite Anschlagfläche 46 aufweist. Die zweite Anschlagfläche 46 ist der ersten Anschlagfläche 43 zugewandt.

An einer zweiten Seite der Vertiefung 35 ist am frontseitigen ersten Rand 31 ein drittes Anschlagelement 48 angeordnet, das aus der Stellfläche 38 hervorsteht und eine im Wesentlichen senkrecht zur Stellfläche 38 ausgerichtete dritte Anschlagfläche 49 ausbildet. Die dritte Anschlagfläche 49 ist ebenso wie die zweite Anschlagfläche 46 der ersten Anschlagfläche 43 zugewandt.

Zwischen dem zweiten Anschlagelement 42 und der zentralen Vertiefung 35 ist am frontseitigen ersten Rand 31 ein erstes Halteelement in Form eines ersten Rasthakens 41 angeordnet, der einen aus der Stellfläche 38 im Wesentlichen senkrecht herausragenden Schaft 52 aufweist. Der Schaft 52 trägt an seinem freien Ende einen bogenförmigen Halteabschnitt 53. Der Halteabschnitt 53 definiert auf seiner der Stellfläche 38 abgewandten Stirnseite eine konkave Aufnahme 54 und ragt sowohl nach oben, das heißt in Richtung der Flächen-

normale der Stellfläche 38, als auch nach vorne, das heißt in Richtung der Flächennormale einer Außenseite 56 des zweiten Anschlagelementes 45, über das zweite Anschlagelement 45 hervor.

Zwischen der zentralen Vertiefung 35 und dem dritten Anschlagelement 48 ist am frontseitigen ersten Rand ein zweites Halteelement in Form eines zweiten Rasthakens 58 angeordnet. Der zweite Rasthaken 58 umfasst einen im Wesentlichen senkrecht aus der Stellfläche 38 hervorstehenden Schaft 59, der einen bogenförmig gekrümmten Halteabschnitt 60 trägt. Der Halteabschnitt 60 definiert auf seiner der Stellfläche 38 abgewandten Stirnseite eine konkave Aufnahme 61 und ragt sowohl nach oben, das heißt in Richtung der Flächennormale der Stellfläche 38, als auch nach vorne, das heißt in Richtung der Flächennormale einer der Stellfläche 38 abgewandten Außenseite 63 des dritten Anschlagelements 48, über das dritte Anschlagelement 48 hervor.

Der zweite Rasthaken 58 ist identisch ausgebildet wie der erste Rasthaken 51. Beide Rasthaken 51, 58 sind elastisch verformbar und ebenso wie die Anschlagelemente 42, 45 und 48 einstückig mit der Deckplatte 30 verbunden.

In der Stellfläche 38 ist ein Gerätegriff 65 um eine Schwenkachse 66 verschwenkbar gelagert. Der Gerätegriff 65 ist im Wesentlichen U-förmig ausgebildet und wird in seiner in Figur 2 dargestellten Außerbetriebsstellung von einer in die Stellfläche 38 oberseitig eingeformten Griffausnehmung 68 aufgenommen, aus der er in eine senkrecht zur Stellfläche 38 ausgerichtete Betriebsstellung herausgeschwenkt werden kann. In seiner Betriebsstellung kann der Gerätegriff 65 vom Benutzer des Staubsaugers 10 umgriffen werden, um den Staubsauger 10 zu tragen.

In die Unterseite 40 der Deckplatte 30 sind ein erster Aufbewahrungsraum in Form eines ersten Aufnahmekanals 71 und ein zweiter Aufbewahrungsraum in Form eines zweiten Aufnahmekanals 72 eingeformt. Der erste Aufnahmekanal 71 mündet unterhalb des zweiten Anschlagelements 45 in eine Frontseite 74 der Deckplatte 30. Die Frontseite 74 schließt sich am frontseitigen ersten Rand

31 an die Stellfläche 38 an. Die zentrale Vertiefung 35 ist in die Frontseite 74 eingeformt.

Im Bereich der Frontseite 74 bildet der erste Aufnahmekanal 71 unterhalb des zweiten Anschlagelements 45 eine erste Mündungsöffnung 76. Ausgehend von der ersten Mündungsöffnung 76 verläuft der erste Aufnahmekanal 71 mit einem ersten Kanalabschnitt 78 in Richtung des rückseitigen zweiten Randes 32. An den ersten Kanalabschnitt 78 schließt sich ein parallel zum rückseitigen zweiten Rand 32 verlaufender zweiter Kanalabschnitt 79 an, an den sich ein parallel zum längsseitigen vierten Rand 34 verlaufender dritter Kanalabschnitt 80 anschließt, der ungefähr in Höhe der Mitte des vierten Randes 34 an einem Kanalende 81 endet.

Der zweite Aufnahmekanal 72 mündet unterhalb des dritten Anschlagelementes 48 in die Frontseite 74 der Deckplatte 30 und bildet in diesem Bereich eine zweite Mündungsöffnung 84 aus. Ausgehend von der zweiten Mündungsöffnung 84 erstreckt sich der zweite Aufnahmekanal 72 mit einem ersten Kanalabschnitt 85 in Richtung des rückseitigen zweiten Randes 32. An den ersten Kanalabschnitt 85 schließt sich ein zweiter Kanalabschnitt 86 an, der parallel zum rückseitigen zweiten Rand 32 verläuft und an den sich ein dritter Kanalabschnitt 87 anschließt, der parallel zum längsseitigen dritten Rand 33 verläuft und ungefähr in Höhe der Mitte des dritten Randes 33 an einem Kanalende 88 endet.

Der erste Aufnahmekanal 71 nimmt ein erstes elastisch dehnbares Spannelement 90 auf, das mit einem ersten Ende 91 am Kanalende 81 des ersten Aufnahmekanals 71 festgelegt ist und das mit einem zweiten Ende 92 in die erste Mündungsöffnung 76 eintaucht. Am zweiten Ende 92 ist ein Befestigungselement in Form eines ersten Befestigungshakens 93 festgelegt.

Der zweite Aufnahmekanal 72 nimmt ein zweites Spannelement 95 auf, das mit einem ersten Ende 96 am Kanalende 88 des zweiten Aufnahmekanals 72 festgelegt ist und dessen zweites Ende 97 in die zweite Mündungsöffnung 84

eintaucht. Am zweiten Ende 97 ist ein Befestigungselement in Form eines zweiten Befestigungshakens 88 festgelegt.

Am Gehäuseoberteil 24 ist in einem rückwärtigen Bereich ein Griffbügel 100 um eine Schwenkachse 101 verschwenkbar gelagert. Der Griffbügel 100 umfasst einen ersten Schenkel 102 und einen zweiten Schenkel 103, die über einen Griffsteg 104 miteinander verbunden sind. Der Griffbügel 100 kann zwischen einer in den Figuren 1, 4, 5, 6 und 8 dargestellten ausgeschwenkten oder aufgerichteten Stellung und einer in der Zeichnung nicht dargestellten eingeschwenkten Stellung hin und her verschwenkt werden. In der eingeschwenkten Stellung ist der Griffbügel 100 parallel zur Stellfläche 38 ausgerichtet. Mittels einer Feststelleinrichtung 106, die am freien Ende zumindest eines Schenkels des Griffbügels 100 angeordnet ist, kann der Griffbügel 100 in seiner ausgeschwenkten Stellung arretiert werden.

Im Übergangsbereich zwischen dem ersten Schenkel 102 und dem Griffsteg 104 ist an den ersten Schenkel 102 ein erstes Befestigungselement in Form einer ersten Befestigungsöse 108 angeformt. Im Übergangsbereich zwischen dem zweiten Schenkel 103 und dem Griffbügel 101 ist an den zweiten Schenkel 103 ein zweites Befestigungselement in Form einer zweiten Befestigungsöse 109 angeformt. Zusätzlich zu den Befestigungsösen 108, 109 sind in unterschiedlichem Abstand zur Stellfläche 38 jeweils zwei weitere Befestigungsösen 111, 112 bzw. 113, 114 an die beiden Schenkel 102, 103 angeformt.

Die beiden Spannelemente 90 und 95 werden in ihrer Aufbewahrungsstellung vollständig vom jeweiligen Aufnahmekanal 71 bzw. 72 aufgenommen. Mit ihren zweiten Enden 92 bzw. 97 sind die Spannelemente 90, 95 für den Benutzer an der Frontseite 74 der Deckplatte 30 zugänglich. Der erste Befestigungshaken 93 und der zweite Befestigungshaken 98 können vom Benutzer an der Frontseite 74 ergriffen werden. Die Spannelemente 90, 95 können dann in Längsrichtung gedehnt werden, wobei sie jeweils um 100 % dehnbar sind, das heißt sie können in ihrer Länge verdoppelt werden. Dies gibt die Möglich-

keit, einen oder mehrere Behälter, die auf die Stellfläche 38 abgestellt wurden, mit den Spannelementen 90, 95 in Umfangsrichtung zumindest teilweise zu umgreifen. Dies wird nachfolgend noch näher erläutert. Die Befestigungshaken 93 und 98 können dann jeweils in eine Befestigungsöse 108 bzw. 109 eingehakt werden oder auch in eine der Befestigungsösen 111, 112, 113, 114. Die Spannelemente 90, 95 können daher mit ihren Befestigungshaken 93, 98 in unterschiedlichen Abständen zur Stellfläche 38 am Griffbügel 100 festgelegt werden. Dadurch können Behälter unterschiedlicher Größe mittels der elastisch dehnbaren Spannelemente 90, 95 auf einfache Weise an der Stellfläche 38 fixiert werden.

Wie bereits erläutert, können auf der Stellfläche 38 Behälter abgestellt werden, die dann gemeinsam mit dem Staubsauger 10 entlang einer Bodenfläche verfahren werden können. In den Figuren 4 bis 7 ist ein erster Behälter 120 dargestellt, der auf die Stellfläche 38 abgestellt wird. Der erste Behälter 120 ist im Wesentlichen quaderförmig ausgebildet und umfasst ein Behälterunterteil 121, an dem ein Behälteroberteil 122 verschwenkbar gehalten ist. An eine Stirnseite 123 des Behälterunterteils 121 ist ein U-förmiger Tragegriff 125 angelenkt. Der Tragegriff 125 weist einen ersten Tragschenkel 126 und einen zweiten Tragschenkel 127 auf, die über einen Tragsteg 128 einstückig miteinander verbunden sind. Am Tragsteg 128 kann der Tragegriff 125 von einem Benutzer ergriffen werden, um den ersten Behälter 120 zu tragen.

Der erste Behälter 120 kann zwischen dem ersten Anschlagelement 42 und dem zweiten und dritten Anschlagelement 45, 48 auf der Stellfläche 38 abgestellt werden, wobei die Stirnseite 123 an die zweite Anschlagfläche 46 und die dritte Anschlagfläche 49 angelegt werden kann und der Tragegriff 125 zunächst eine Lage oberhalb der Rasthaken 51, 58 einnimmt. Der Behälter 120 wird rückseitig am ersten Anschlagelement 42 und frontseitig am zweiten Anschlagelement 45 und am dritten Anschlagelement 48 abgestützt. Anschließend kann der Tragegriff 125 so weit nach unten in Richtung auf die Außenseiten 56 und 63 der Anschlagelemente 45 und 48 verschwenkt werden, bis der Tragsteg 128 nach einer elastischen Verformung des ersten Rasthakens 51

und des zweiten Rasthakens 58 in die konkaven Aufnahmen 54 und 61 der beiden Rasthaken 51, 58 einrastet. In dieser Raststellung übergreifen die Halteabschnitte 53 und 60 der beiden Rasthaken 51, 58 den Tragsteg 128. Der Abstand der einander abgewandten Außenseiten der beiden Rasthaken 51, 58 entspricht dem Abstand der beiden Tragschenkel 126, 127. Der erste Tragschenkel 126 liegt somit an der dem zweiten Rasthaken 58 abgewandten Außenseite des ersten Rasthakens 51 an, und der zweite Tragschenkel 127 liegt an der dem ersten Rasthaken 51 abgewandten Außenseite des zweiten Rasthakens 58 an. Dies wird insbesondere aus Figur 7 deutlich.

Aufgrund des Zusammenwirkens des Tragegriffes 125 mit den beiden Rasthaken 51, 58 ist der an der Stellfläche 38 abgestellte erste Behälter 120 unverschieblich an der Stellfläche 38 gehalten. Die beiden Rasthaken 51, 58 bilden mit dem schwenkbaren Tragegriff 125 des ersten Behälters 120 eine lösbare Rastverbindung aus.

Zusätzlich zu der lösbaren Rastverbindung über die beiden Rasthaken 51, 58 und den Tragegriff 125 kann der erste Behälter 120 mittels der beiden Spannelemente 90, 95 an der Stellfläche 38 festgelegt werden. Die beiden Spannelemente können hierzu an den Befestigungshaken 93, 98 aus den Aufnahmekanälen 71, 72 herausgezogen werden, um in einer Arbeitsstellung den ersten Behälter 120 zu umgreifen. Die Spannelemente 90, 95 können dann jeweils an einer der Befestigungsösen 108, 109, 111 bis 114 des Griffbügels 100 festgelegt werden. Die Spannelemente 90, 95 können hierbei nicht nur den ersten Behälter 120 umgreifen sondern zusätzlich auch den mit den Rasthaken 51, 58 verrasteten Tragegriff 125, wobei sie auf den Tragegriff 125 eine Spannkraft in Richtung auf die konkaven Aufnahmen 54, 61 ausüben, so dass der Tragegriff 125 besonders wirksam an den Rasthaken 51, 58 festgelegt ist.

Auf den ersten Behälter 120 kann ein zweiter Behälter 130 aufgesetzt werden, der identisch ausgebildet ist wie der erste Behälter 120. Dies wird aus Figur 8 deutlich. Beide Behälter 120, 130 können dann gemeinsam von den beiden Spannelementen 90, 95 umgriffen werden, die den Tragegriff 125 des ersten

Behälters 120 mit einer Spannkraft in Richtung auf die konkaven Aufnahmen 54 und 61 beaufschlagen. Die beiden Behälter 120, 130 sind dadurch an der Stellfläche 38 festgelegt und können gemeinsam mit dem Staubsauger 10 in Form einer einzigen Transporteinheit um die Drehachse 16 der beiden Laufräder 14 nach hinten verschwenkt werden, so dass die Behälter 120, 130 zusammen mit dem Staubsauger 10 nach Art einer Sackkarre entlang eines Bodens verfahren werden können.

Nach Lösen der Befestigungshaken 93, 98 aus den Befestigungsösen 108, 109 können die beiden Spannelemente 90, 95 wieder in den Aufnahmekanälen 71, 72 verstaut werden. Aufgrund der elastischen Rückstellkraft der Spannelemente 90, 95 gehen diese nach Lösen von den Befestigungsösen 108, 109 selbstständig in ihre Aufbewahrungsstellung über. Der zweite Behälter 130 kann dann vom ersten Behälter 120 abgenommen werden, und anschließend kann der Tragegriff 125 unter elastischer Verformung der Rasthaken 51, 58 aus den konkaven Aufnahmen 54, 61 herausgeschwenkt werden, so dass die Rastverbindung zwischen dem ersten Behälter 120 und der Deckplatte 30 gelöst ist. Anschließend kann dann auch der erste Behälter 120 von der Stellfläche 38 abgenommen werden.

PATENTANSPRÜCHE

1. Reinigungsgerät mit einem Gehäuse, das eine Stellfläche zum Abstellen eines Behälters aufweist, und mit Laufrädern zum Verfahren des Reinigungsgerätes, dadurch gekennzeichnet, dass an einem ersten Rand (31) der Stellfläche (38) mindestens ein aus der Stellfläche (38) hervorstehendes Halteelement (51, 58) angeordnet ist, das an seiner der Stellfläche (38) abgewandten Stirnseite eine konkave Aufnahme (54, 61) aufweist für einen an eine Seite (123) des auf der Stellfläche (38) abgestellten Behälters (120) angelenkten Tragegriff (125).

2. Reinigungsgerät nach Anspruch 1, dadurch gekennzeichnet, dass am ersten Rand (31) der Stellfläche (38) im Abstand zueinander zwei Halteelemente (51, 58) angeordnet sind.

3. Reinigungsgerät nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass das mindestens eine Halteelement (51, 58) hakenförmig ausgestaltet ist.

4. Reinigungsgerät nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, dass das mindestens eine Halteelement (51, 58) elastisch verformbar ist.

5. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass das mindestens eine Halteelement ein Rastelement (51, 58) ausbildet, mit dem der Tragegriff (125) des Behälters verrastbar ist.

6. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass an einem dem ersten Rand (31) abgewandten zweiten Rand (32) der Stellfläche (38) mindestens ein aus der Stellfläche hervorstehendes erstes Anschlagelement (42) angeordnet ist mit einer ersten Anschlagfläche (43).

7. Reinigungsgerät nach Anspruch 6, dadurch gekennzeichnet, dass am ersten Rand (31) der Stellfläche (38) mindestens ein zweites Anschlagelement (45, 48) angeordnet ist, das aus der Stellfläche (38) hervorsteht und eine der ersten Anschlagfläche (43) zugewandte zweite Anschlagfläche (46, 49) aufweist.

8. Reinigungsgerät nach Anspruch 7, dadurch gekennzeichnet, dass das mindestens eine zweite Anschlagelement (45, 48) eine der zweiten Anschlagfläche (46, 49) abgewandte Außenseite (56, 63) aufweist und dass das mindestens eine Halteelement (51, 58) einen über die Außenseite (56, 63) des zweiten Anschlagelementes (45, 48) hervorstehenden Halteabschnitt (53, 60) aufweist.

9. Reinigungsgerät nach Anspruch 8, dadurch gekennzeichnet, dass der Halteabschnitt (53, 60) das zweite Anschlagelement (45, 48) in Richtung der Flächennormale der Stellfläche (38) überragt.

10. Reinigungsgerät nach Anspruch 7, 8 oder 9, dadurch gekennzeichnet, dass das mindestens eine zweite Anschlagelement (45, 48) starr mit einem Halteelement (51, 58) verbunden ist.

11. Reinigungsgerät nach einem der Ansprüche 7 bis 10, dadurch gekennzeichnet, dass am ersten Rand (31) der Stellfläche (38) zwei Halteelemente (51, 58) im Abstand zueinander angeordnet sind, und dass an den einander abgewandten Seiten der Halteelemente (51, 58) jeweils ein zweites Anschlagelement (45, 48) positioniert ist.

12. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass sich an den ersten Rand (31) der Stellfläche eine Seitenfläche (74) anschließt, in die mindestens ein Mündungsbereich (76, 84) eines Aufbewahrungsraums (71, 72) einmündet, wobei im Aufbewahrungsraum (71, 72) in einer Aufbewahrungsstellung mindestens ein Spannelement (90, 95) angeordnet ist, das über den Mündungs-

bereich (76, 84) dem Aufbewahrungsraum (71, 72) zumindest teilweise entnehmbar und in einer Arbeitsstellung überführbar ist zur Festlegung des Behälters (120, 130) an der Stellfläche (38).

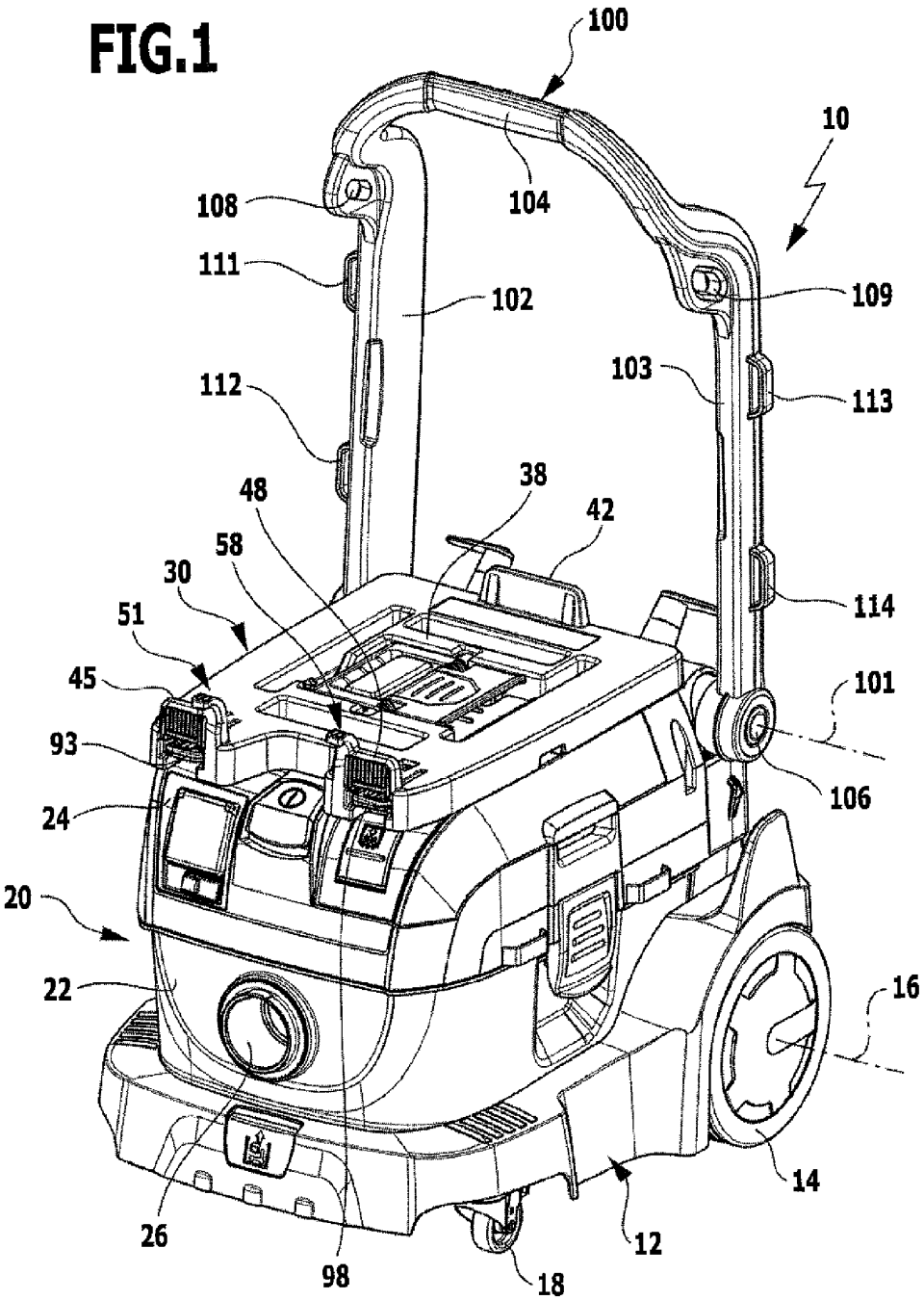
13. Reinigungsgerät nach Anspruch 12, dadurch gekennzeichnet, dass das Spannelement (90, 95) ein erstes, im Aufbewahrungsraum festgelegtes Ende (91, 96) aufweist sowie ein zweites, über den Mündungsbereich (76, 84) von außerhalb des Aufbewahrungsraums (71, 72) zugängliches loses Ende (92, 97).

14. Reinigungsgerät nach Anspruch 12 oder 13, dadurch gekennzeichnet, dass das Spannelement (90, 95) elastisch dehnbar ist.

15. Reinigungsgerät nach Anspruch 12, 13 oder 14, dadurch gekennzeichnet, dass der Mündungsbereich (76, 84) einem Halteelement (51, 58) benachbart angeordnet ist.

16. Reinigungsgerät nach einem der Ansprüche 12 bis 15, dadurch gekennzeichnet, dass der Mündungsbereich (76, 84) unterhalb eines am ersten Rand (31) der Stellfläche (38) angeordneten zweiten Anschlagelements (45, 48) positioniert ist, das aus der Stellfläche (38) hervorsteht und eine zweite Anschlagfläche (46, 49) aufweist.

FIG.1


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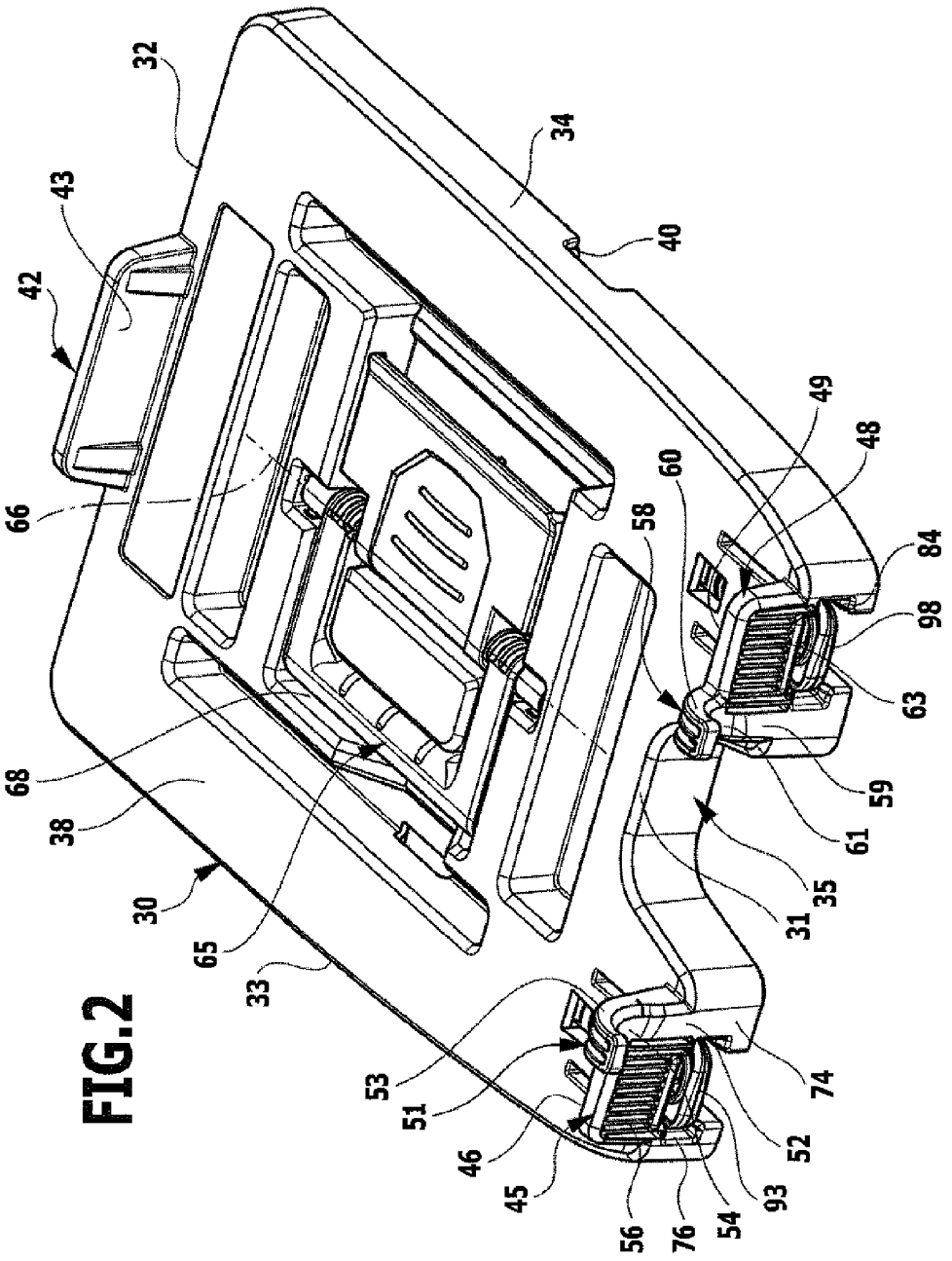

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FIG.2

FIG.3

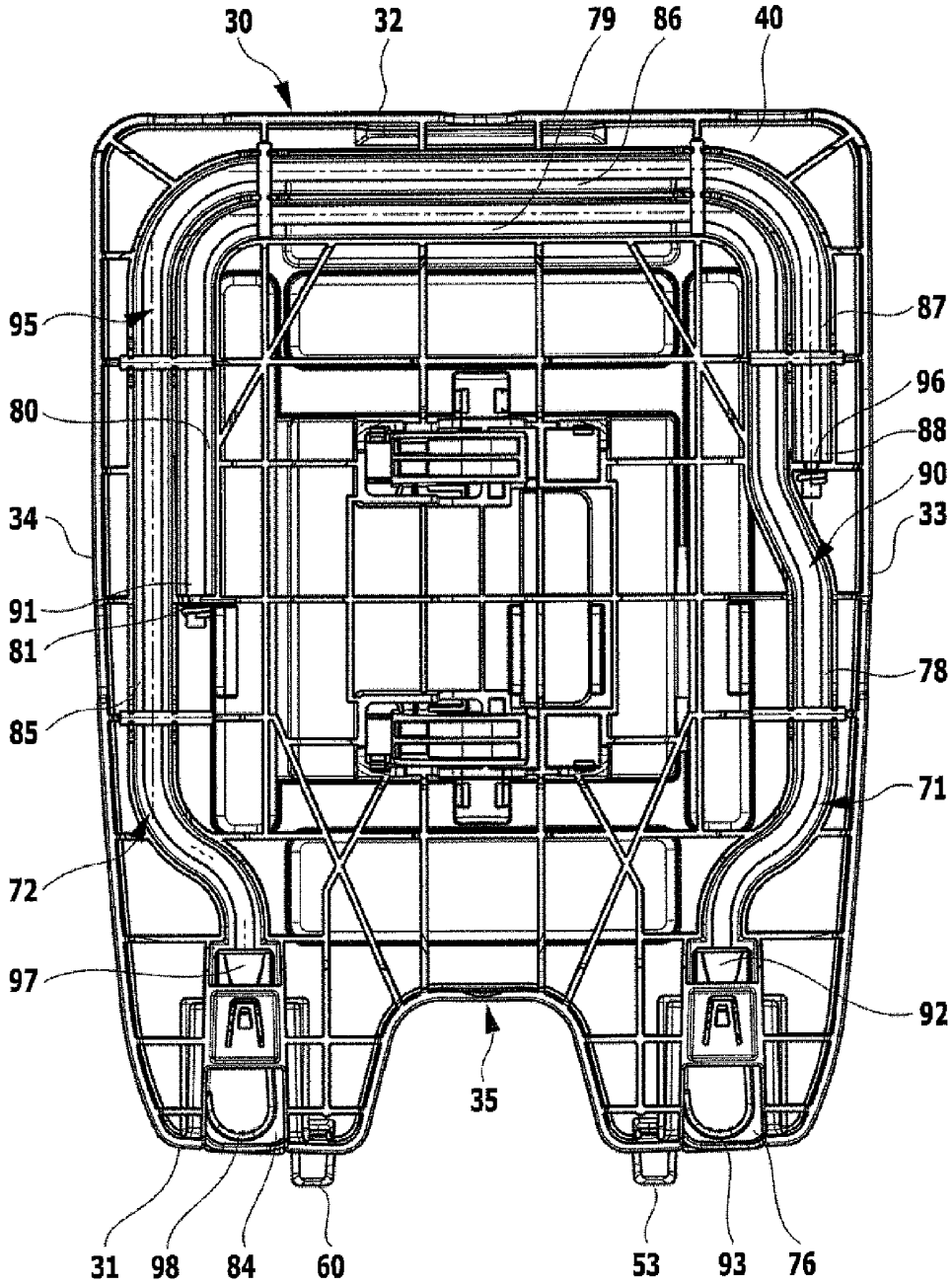

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FIG.4

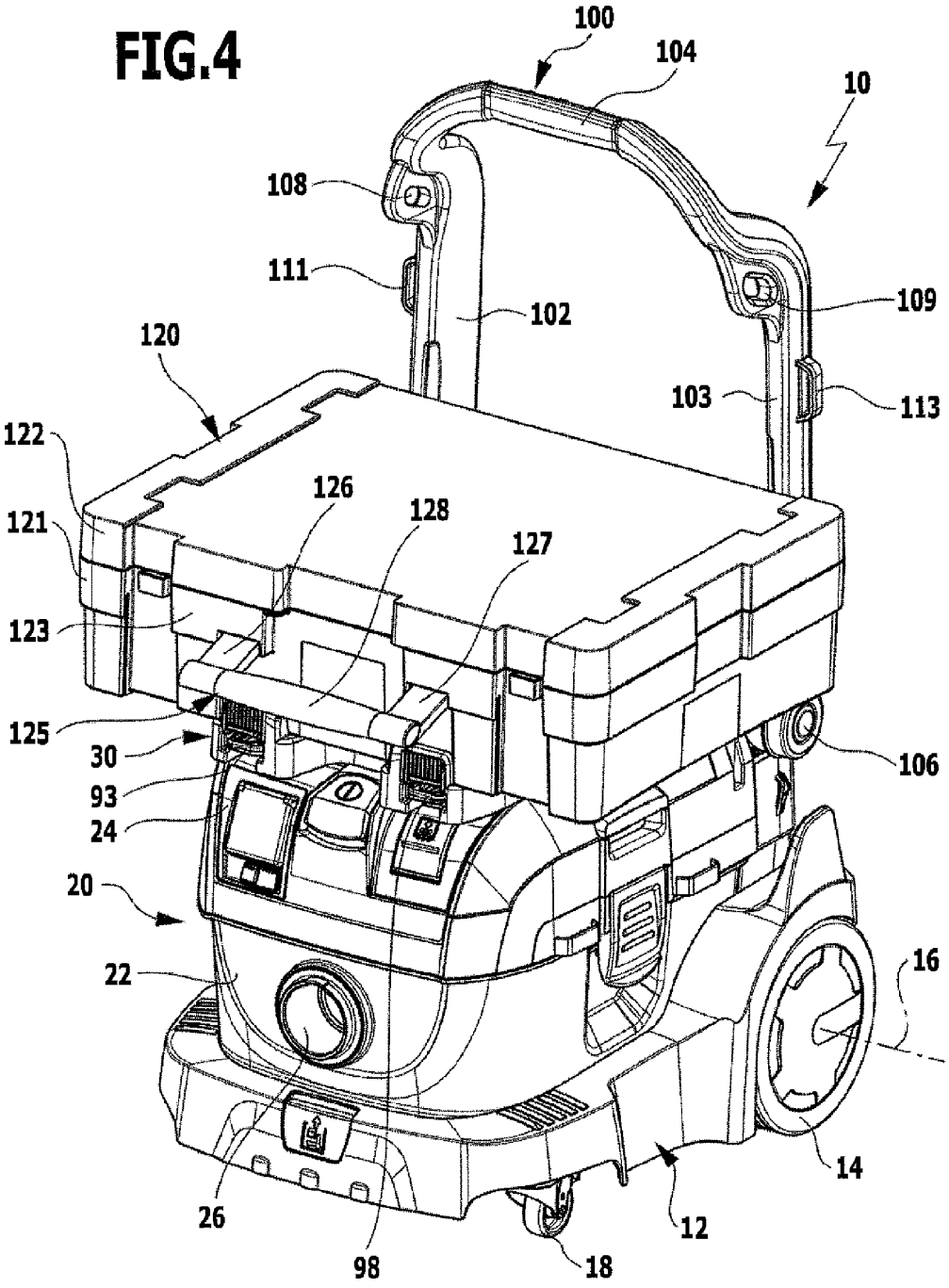

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FIG.5

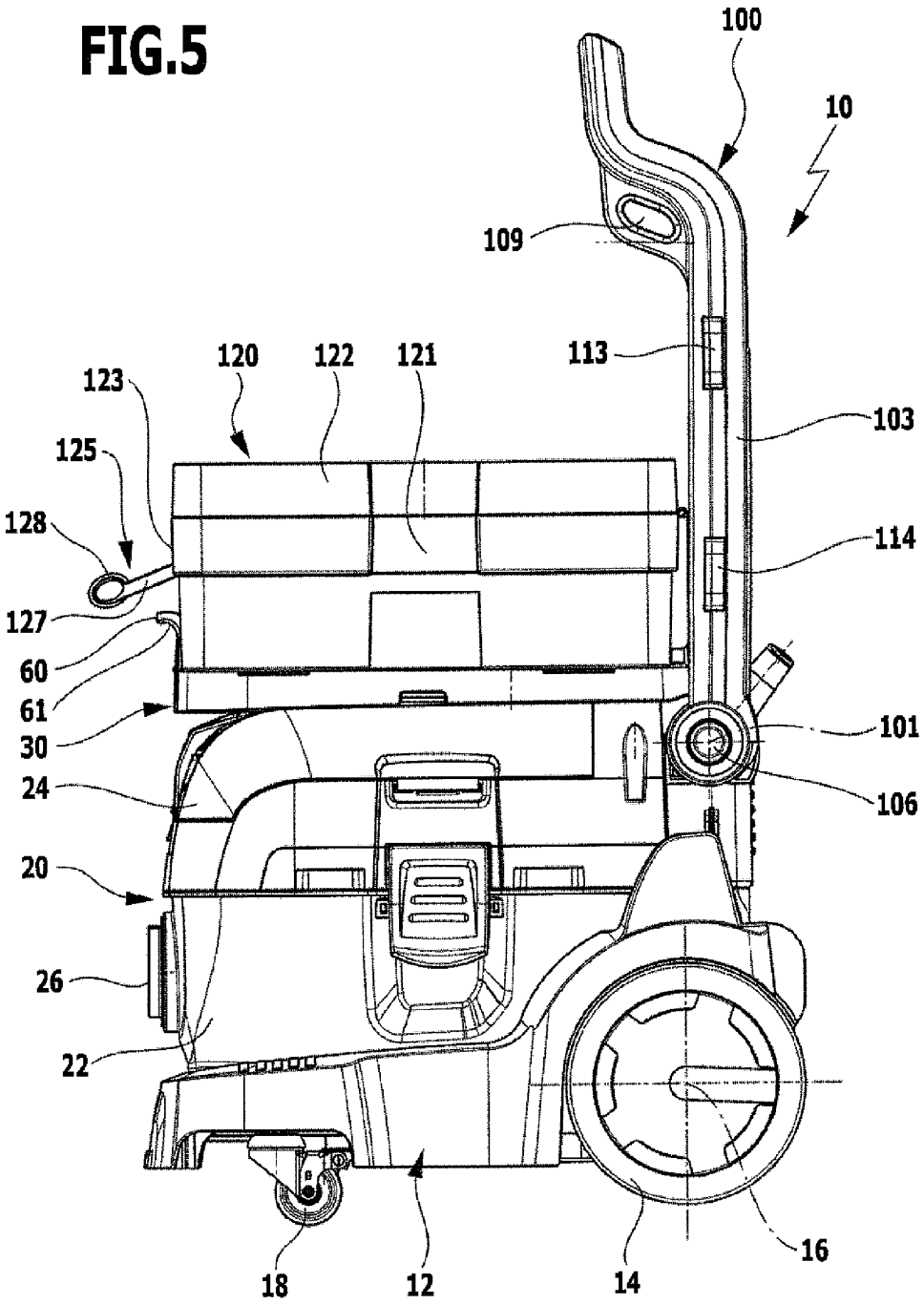

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FIG.6

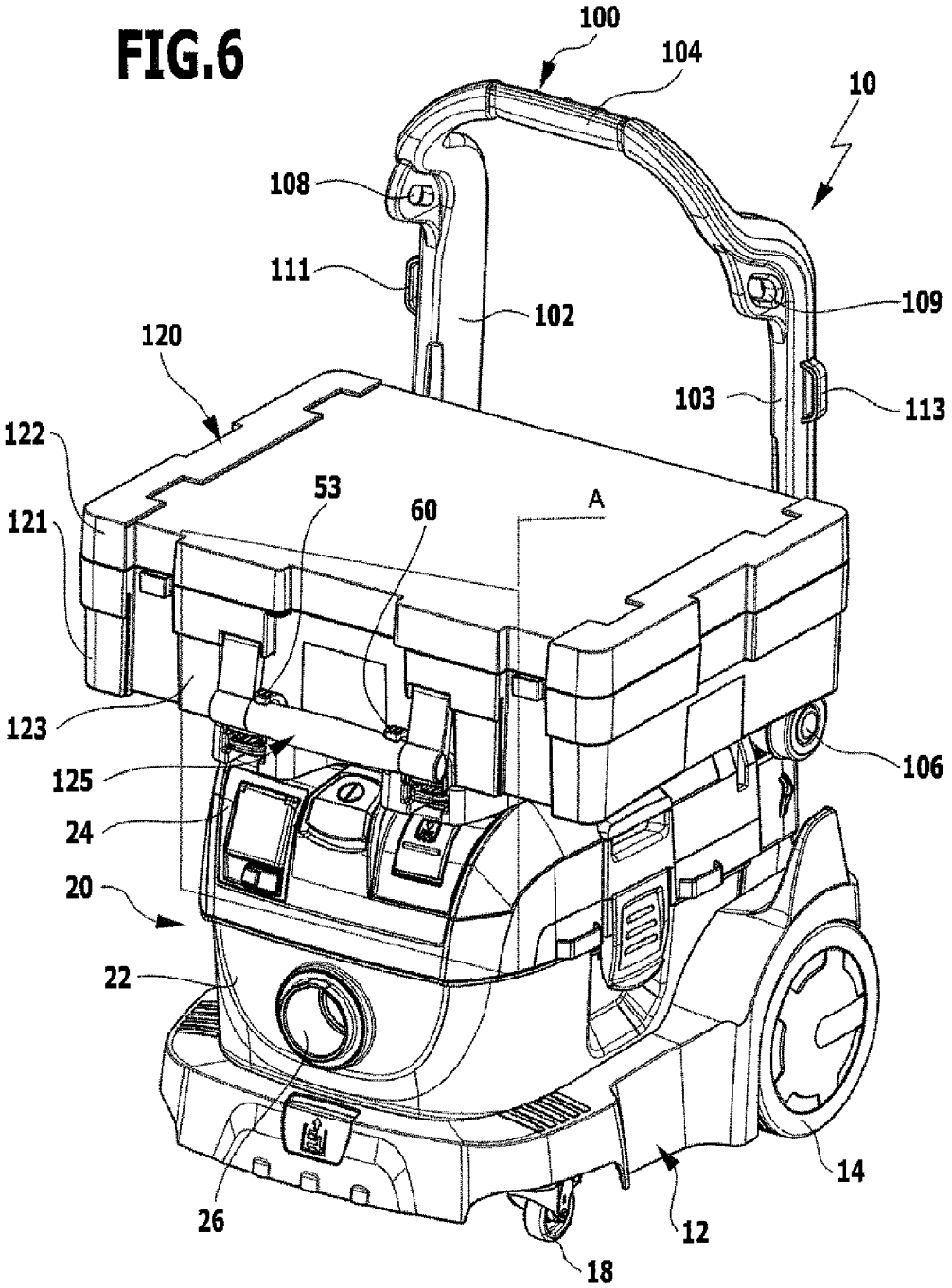

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FIG.7

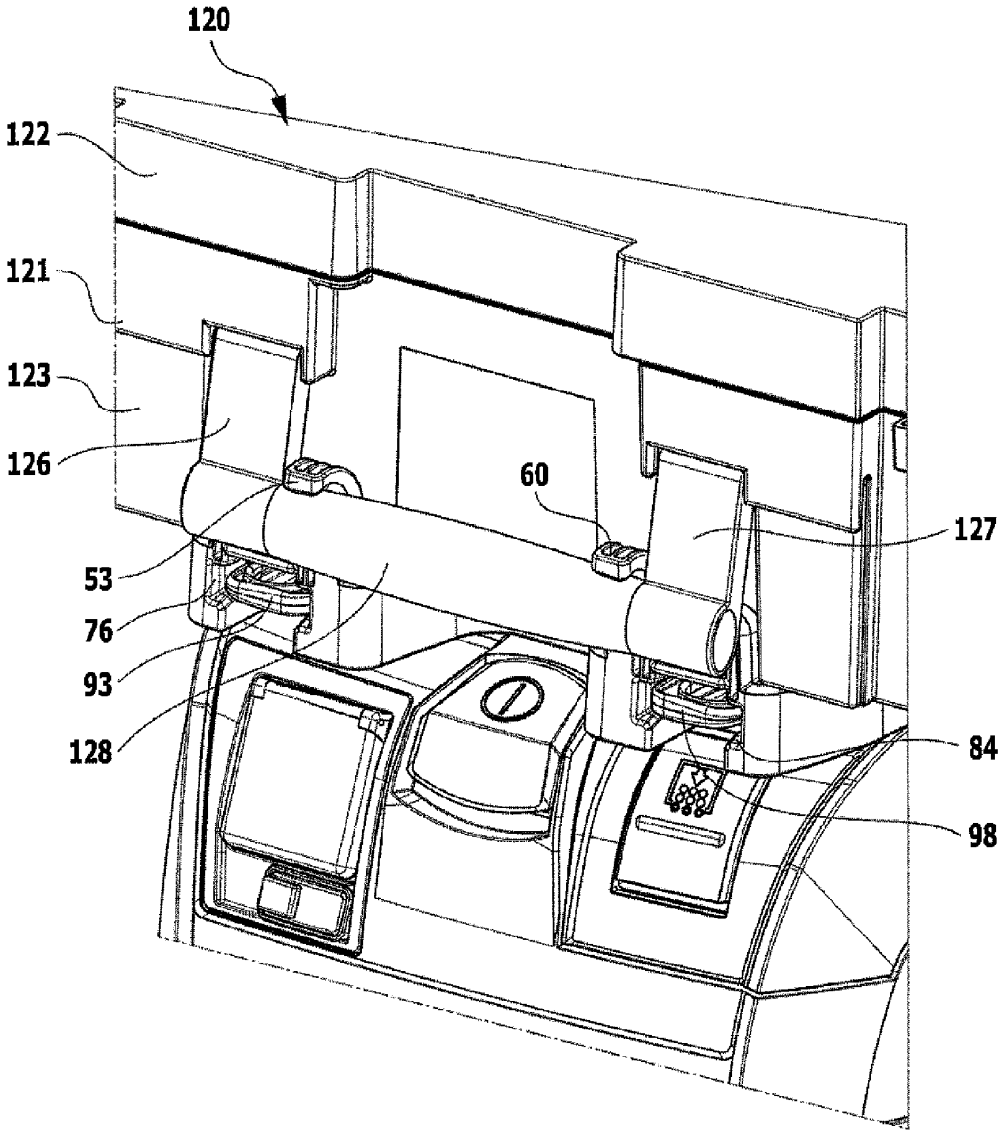
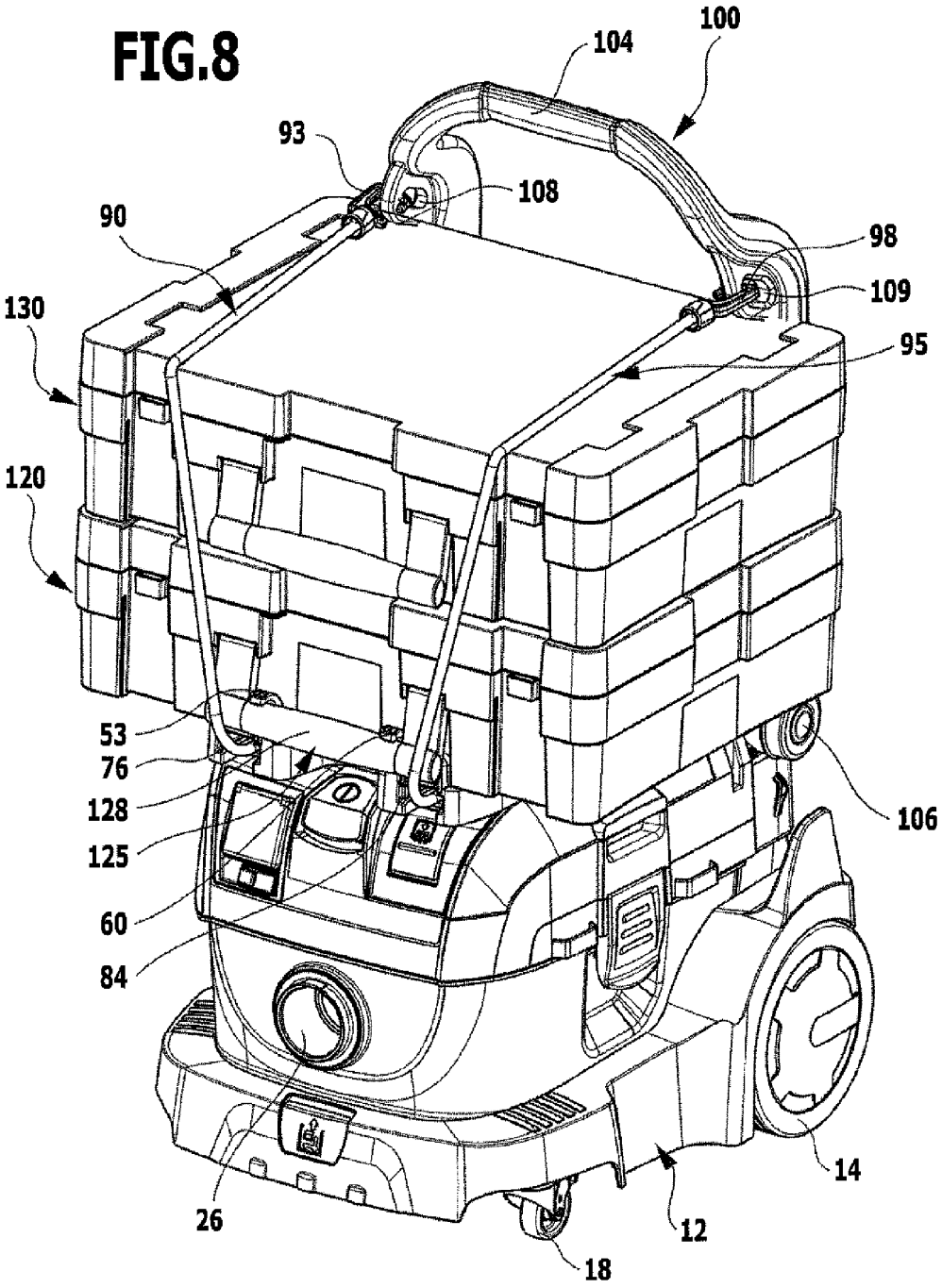


FIG.8


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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2011/055126

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47L9/00 A47L11/40 B25H3/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47L B25H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 916 302 A2 (FESTO TOOLTECHNIC GMBH & CO [DE] FESTO TOOLTECHNIC GMBH & CO TTS TOOLT) 19 May 1999 (1999-05-19) cited in the application the whole document	1,6
A	EP 1 424 170 A1 (VALENTINI GUIDO [IT]) 2 June 2004 (2004-06-02) abstract paragraphs [0007], [0 13], [0 14]; figures 3,4	1
A	EP 1 321 247 A2 (VALENTINI GUIDO [IT]) 25 June 2003 (2003-06-25) abstract paragraph [0017] - paragraph [0020]; figures 7,9-13	1

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 June 2011	08/07/2011

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Baumgärtner, Ruth

1

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2011/055126

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0916302 A2	19-05-1999	DE 19750543 A1	20-05-1999
EP 1424170 A1	02-06-2004	AT 413949 T	15-11-2008
		ES 2316694 T3	16-04-2009
		US 2004103494 A1	03-06-2004
EP 1321247 A2	25-06-2003	AT 378145 T	15-11-2007
		DE 60223488 T2	25-09-2008
		ES 2295286 T3	16-04-2008
		US 2003115715 A1	26-06-2003

Form PCT/ISA/210 (patent family annex) (April 2005)

INTERNATIONALER RECHERCHENBERICHT

Internationales Aktenzeichen
PCT/EP2011/055126

A. KLASSIFIZIERUNG DES ANMELDUNGSGEGENSTANDES
INV. A47L9/00 A47L11/40 B25H3/00
ADD.

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B. RECHERCHIERTE GEBIETE

Recherchierter Mindestprüfstoff (Klassifikationssystem und Klassifikationssymbole)
A47L B25H

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Während der internationalen Recherche konsultierte elektronische Datenbank (Name der Datenbank und evtl. verwendete Suchbegriffe)
EPO-Internal

C. ALS WESENTLICH ANGESEHENE UNTERLAGEN

Kategorie*	Bezeichnung der Veröffentlichung, soweit erforderlich unter Angabe der in Betracht kommenden Teile	Betr. Anspruch Nr.
A	EP 0 916 302 A2 (FESTO TOOLTECHNIC GMBH & CO [DE] FESTO TOOLTECHNIC GMBH & CO TTS TOOLT) 19. Mai 1999 (1999-05-19) in der Anmeldung erwähnt das ganze Dokument	1,6
A	EP 1 424 170 A1 (VALENTINI GUIDO [IT]) 2. Juni 2004 (2004-06-02) Zusammenfassung Absätze [0007], [0 13], [0 14]; Abbildungen 3,4	1
A	EP 1 321 247 A2 (VALENTINI GUIDO [IT]) 25. Juni 2003 (2003-06-25) Zusammenfassung Absatz [0017] - Absatz [0020]; Abbildungen 7,9-13	1

☐ Weitere Veröffentlichungen sind der Fortsetzung von Feld C zu entnehmen ☒ Siehe Anhang Patentfamilie

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Datum des Abschlusses der internationalen Recherche	Absendedatum des internationalen Recherchenberichts
21. Juni 2011	08/07/2011

Name und Postanschrift der Internationalen Recherchenbehörde	Bevollmächtigter Bediensteter
Europäisches Patentamt, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Baumgärtner, Ruth

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INTERNATIONALER RECHERCHENBERICHT

Angaben zu Veröffentlichungen, die zur selben Patentfamilie gehören

Internationales Aktenzeichen
PCT/EP2011/055126

Im Recherchenbericht angeführtes Patentdokument	Datum der Veröffentlichung	Mitglied(er) der Patentfamilie	Datum der Veröffentlichung
EP 0916302 A2	19-05-1999	DE 19750543 A1	20-05-1999
EP 1424170 A1	02-06-2004	AT 413949 T	15-11-2008
		ES 2316694 T3	16-04-2009
		US 2004103494 A1	03-06-2004
EP 1321247 A2	25-06-2003	AT 378145 T	15-11-2007
		DE 60223488 T2	25-09-2008
		ES 2295286 T3	16-04-2008
		US 2003115715 A1	26-06-2003

Formblatt PCT/ISA/210 (Anhang Patentfamilie) (April 2005)

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Veröffentlichungsnummer:
(11) Publication number: **EP 2 555 660 A0**
(11) Numéro de publication:

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International application published by the World Intellectual Property Organization under number:

WO 2011/124535 (Art. 153(3) EPC).

Demande internationale publiée par l'Organisation Mondiale de la Propriété Intellectuelle sous le numéro:

WO 2011/124535 (art. 153(3) CBE).

(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro

(43) Internationales Veröffentlichungsdatum
13. Oktober 2011 (13.10.2011)

PCT

(10) Internationale Veröffentlichungsnummer
WO 2011/124535 A2

(51) Internationale Patentklassifikation:
A47L 9/00 (2006.01) *A47L 11/40* (2006.01)

(21) Internationales Aktenzeichen: PCT/EP2011/055124

(22) Internationales Anmeldedatum:
1. April 2011 (01.04.2011)

(25) Einreichungssprache: Deutsch

(26) Veröffentlichungssprache: Deutsch

(30) Angaben zur Priorität:
10 2010 003 754.0 8. April 2010 (08.04.2010) DE

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(72) Erfinder; und
(75) Erfinder/Anmelder *(nur für US)*: **HESS, Stefan** [DE/DE]; Schwalbenweg 37, 71397 Leutenbach (DE).

(74) Anwalt: **HOEGER, STELLRECHT & PARTNER**; Uhlandstrasse 14c, 70182 Stuttgart (DE).

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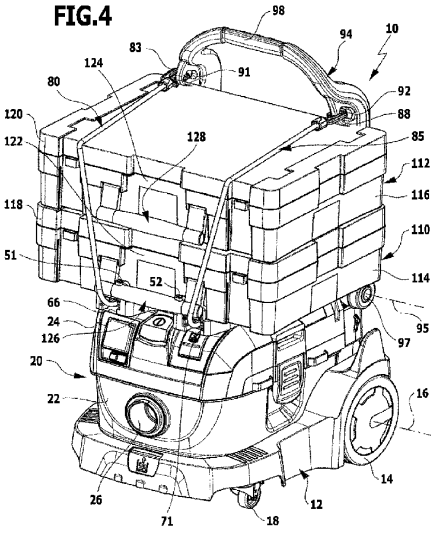
Veröffentlicht:

— *ohne internationalen Recherchenbericht und erneut zu veröffentlichen nach Erhalt des Berichts (Regel 48 Absatz 2 Buchstabe g)*

(54) Title: CLEANING DEVICE

(54) Bezeichnung : REINIGUNGSGERÄT

FIG.4



(57) Abstract: The invention relates to a cleaning device having a housing comprising a storage surface for placing a container, and having rolling wheels for displacing the cleaning device. In order to refine the cleaning device such that a container can be affixed to the storage surface in a simple manner, according to the invention, the cleaning device comprises at least one storage space in which at least one clamping element is disposed in a stored position and can be at least partially removed from the storage space and can be transferred into a working position in order to affix the container to the storage surface.

(57) Zusammenfassung: Die Erfindung betrifft ein Reinigungsgerät mit einem Gehäuse, das eine Stellfläche zum Abstellen eines Behälters aufweist, und mit Laufrädern zum Verfahren des Reinigungsgerätes. Um das Reinigungsgerät derart weiterzubilden, dass ein Behälter auf einfache Weise an der Stellfläche festgelegt werden kann, wird erfindungsgemäß vorgeschlagen, dass das Reinigungsgerät mindestens einen Aufbewahrungsraum aufweist, in dem in einer Aufbewahrungsstellung zumindest ein Spannelement angeordnet ist, das zur Festlegung des Behälters an der Stellfläche dem Aufbewahrungsraum zumindest teilweise entnehmbar und in eine Arbeitsstellung überführbar ist.

WO 2011/124535 A2

Reinigungsgerät

Die Erfindung betrifft ein Reinigungsgerät mit einem Gehäuse, das eine Stellfläche zum Abstellen eines Behälters aufweist, und mit Laufrädern zum Verfahren des Reinigungsgerätes.

Derartige Reinigungsgeräte kommen beispielsweise in Form von Staubsaugern oder auch in Form von Hochdruckreinigungsgeräten zum Einsatz. Sie werden zum Beispiel auf Baustellen aber auch an sonstigen Einsatzorten benutzt. Die Reinigungsgeräte sind mit Laufrädern ausgestattet und können daher entlang eines Bodens verfahren werden.

Zum Transport zu einem Einsatzort werden die Reinigungsgeräte häufig in einem Transportfahrzeug positioniert. Oft ist der zur Verfügung stehende Stauraum im Transportfahrzeug beschränkt. Deshalb werden in vielen Fällen auf die im Stauraum positionierten Reinigungsgeräte Behälter abgestellt, beispielsweise Werkzeugkoffer oder sonstige Behälter, die Utensilien oder Zubehör aufnehmen. Erreicht das Transportfahrzeug sein Ziel, so werden die Behälter ebenso wie das Reinigungsgerät dem Transportfahrzeug entnommen und anschließend zum eigentlichen Einsatzort transportiert.

Aus der EP 0 916 302 B1 ist ein Reinigungsgerät in Form eines Staubsaugers bekannt, dessen Gehäuse oberseitig eine Stellfläche mit einer Vertiefung aufweist, in die ein Behälter eingesetzt werden kann. Der Behälter ist dadurch auf der Stellfläche des Gehäuses gegen Verrutschen gesichert. Zusätzlich kann der Behälter mit Hilfe von Arretierungselementen in der Vertiefung arretiert werden. Die Arretierungselemente sind als verschiebbare Riegel ausgestaltet. Die Arretierung des Behälters an der Stellfläche hat den Vorteil, dass der Staubsauger zusammen mit dem Behälter vom Benutzer in Form einer einzigen Transporteinheit bewegt werden kann. Allerdings ist es erforderlich, dass der Behälter die Ausmaße der Vertiefung aufweist. Behälter und Staubsauger

müssen also in ihren Ausmaßen einander angepasst sein. Darüber hinaus ist es zur Arretierung des Behälters erforderlich, dass er mit den Arretierungselementen zusammenwirkende Befestigungselemente aufweist.

Aufgabe der vorliegenden Erfindung ist es, ein Reinigungsgerät der eingangs genannten Art derart weiterzubilden, dass ein Behälter auf einfache Weise an der Stellfläche festgelegt werden kann.

Diese Aufgabe wird bei einem Reinigungsgerät der gattungsgemäßen Art erfindungsgemäß dadurch gelöst, dass das Reinigungsgerät mindestens einen Aufbewahrungsraum aufweist, in dem in einer Aufbewahrungsstellung zumindest ein Spannelement angeordnet ist, das zur Festlegung des Behälters an der Stellfläche dem Aufbewahrungsraum zumindest teilweise entnehmbar und in eine Arbeitsstellung überführbar ist.

Zur Festlegung des Behälters an der Stellfläche des Gehäuses weist das Reinigungsgerät mindestens ein Spannelement auf, das in einer Aufbewahrungsstellung in einem vom Reinigungsgerät bereitgestellten Aufbewahrungsraum angeordnet ist. Das Spannelement kann zum Festlegen eines Behälters an der Stellfläche zumindest teilweise dem Aufbewahrungsraum entnommen und in eine Arbeitsstellung überführt werden. Da es vom Reinigungsgerät im Aufbewahrungsraum mitgeführt wird, steht es einem Benutzer jederzeit zur Festlegung eines Behälters oder auch eines sonstigen Gegenstands an der Stellfläche zur Verfügung. Nach Gebrauch kann das Spannelement wieder in den Aufbewahrungsraum zurück gebracht werden, in dem es aufbewahrt werden kann.

Es kann vorgesehen sein, dass das Reinigungsgerät nur einen einzigen Aufbewahrungsraum aufweist, in dem in einer Aufbewahrungsstellung ein einziges Spannelement angeordnet ist. Es kann allerdings auch vorgesehen sein, dass das Reinigungsgerät mehrere Aufbewahrungsräume umfasst, die jeweils ein Spannelement aufnehmen. Darüber hinaus kann vorgesehen sein, dass in mindestens einem Aufbewahrungsraum des Reinigungsgerätes mehrere

Spannelemente in einer Aufbewahrungsstellung angeordnet sind, aus der sie in eine Arbeitsstellung überführbar sind.

Günstig ist es, wenn der mindestens eine Aufbewahrungsraum unterhalb der Stellfläche angeordnet ist. Dies gibt die Möglichkeit, den auf der Stellfläche abgestellten Behälter auf konstruktiv einfache Weise mittels des mindestens einen Spannelementes an der Stellfläche zu fixieren. Das Spannelement kann hierzu aus dem unterhalb der Stellfläche angeordneten Aufbewahrungsraum zumindest so weit entnommen werden, dass der Behälter mittels des Spannelementes an der Stellfläche fixiert werden kann. Zum Beispiel kann der Behälter in Umfangsrichtung zumindest teilweise vom Spannelement umgriffen werden.

Die Stellfläche ist vorzugsweise auf der Oberseite des Gehäuses angeordnet. Dies erleichtert die Positionierung des Behälters an der Stellfläche.

Bei einer vorteilhaften Ausführungsform des erfindungsgemäßen Reinigungsgerätes ist das Spannelement zumindest teilweise aus dem Aufbewahrungsraum herausziehbar. Dies erleichtert die Handhabung des Spannelementes.

Von Vorteil ist es, wenn das Spannelement entgegen der Wirkung einer Rückstellkraft aus dem Aufbewahrungsraum zumindest teilweise herausziehbar ist.

Günstigerweise ist das Spannelement elastisch dehnbar. Vorzugsweise ist das Spannelement um mindestens 50 % dehnbar, das heißt durch eine Dehnbelastung kann die Länge des Spannelementes um mindestens 50 % vergrößert werden. Besonders günstig ist es, wenn das Spannelement um 100 % dehnbar ist, das heißt durch eine Dehnbelastung auf eine doppelte Länge gedehnt werden kann.

Eine besonders einfache Handhabung beim Festlegen eines Behälters an der Stellfläche des Gehäuses ergibt sich bei einer vorteilhaften Ausführungsform dadurch, dass das Spannelement ein erstes, im Aufbewahrungsraum fest-

gelegtes Ende aufweist sowie ein zweites, von außerhalb des Aufbewahrungsraums zugängliches loses Ende. Das Spannelement kann vom Benutzer an seinem losen Ende ergriffen werden und dann zumindest teilweise dem Aufbewahrungsraum entnommen werden. Das dem losen Ende abgewandte Ende des Spannelementes ist im Aufbewahrungsraum festgelegt. Der Benutzer kann das lose Ende um den an der Stellfläche abgestellten Behälter herumführen und am Reinigungsgerät oder auch am Behälter befestigen.

Insbesondere bei Einsatz von zwei Spannelementen hat es sich als günstig erwiesen, wenn diese jeweils mit einem Ende in einem Aufbewahrungsraum fixiert sind und mit ihrem anderen Ende vom Benutzer ergriffen und aus dem Aufbewahrungsraum herausgezogen werden können.

Vorzugsweise ist am losen Ende des mindestens einen Spannelementes ein Befestigungselement angeordnet, beispielsweise ein Befestigungshaken. Mit Hilfe des Befestigungselements kann das Spannelement auf einfache Weise in einer Arbeitsstellung am Reinigungsgerät oder am Behälter befestigt werden, um den Behälter an der Stellfläche festzulegen.

Das Spannelement kann nach Art eines Spanngurtes oder eines Spannseiles ausgestaltet sein.

Das mindestens eine Spannelement ist bei einer vorteilhaften Ausführungsform der Erfindung in Form eines langgestreckten Bauteils im Aufbewahrungsraum angeordnet.

Alternativ kann vorgesehen sein, dass das mindestens eine Spannelement im Aufbewahrungsraum auf eine Haspel aufgewickelt ist.

Der mindestens eine Aufbewahrungsraum des erfindungsgemäßen Reinigungsgerätes ist vorzugsweise kanalförmig ausgestaltet.

Es kann vorgesehen sein, dass das Gehäuse des Reinigungsgerätes eine Deckplatte aufweist, die auf ihrer Oberseite die Stellfläche ausbildet und in die der mindestens eine Aufbewahrungsraum integriert ist.

Die Deckplatte ist günstigerweise an einem Gehäuseoberteil des Reinigungsgerätes angeordnet. Vorzugsweise ist die Deckplatte mit dem Gehäuseoberteil lösbar verbindbar.

Bevorzugt weist die Deckplatte an einem Rand der Stellfläche mindestens ein Anschlagelement mit einer Anschlagfläche auf, das über die Stellfläche hervorsteht, wobei der Behälter an die Anschlagfläche anlegbar ist. Dies erleichtert die Positionierung des Behälters an der Stellfläche. Günstigerweise sind an einander abgewandten Rändern der Stellfläche jeweils mindestens ein Anschlagelement angeordnet, deren Anschlagflächen einander zugewandt sind.

Von besonderem Vorteil ist es, wenn die Deckplatte eine der Stellfläche abgewandte Unterseite aufweist, in die der mindestens eine Aufbewahrungsraum eingeformt ist. Dadurch können die Herstellungskosten gering gehalten werden.

Es kann beispielsweise vorgesehen sein, dass der mindestens eine Aufbewahrungsraum einen in die Unterseite der Deckplatte eingeformten Aufnahmekanal ausbildet. Der Aufnahmekanal kann in einer Unteransicht der Deckplatte beispielsweise einen U- oder C-förmigen Verlauf aufweisen. Aus dem Aufnahmekanal kann das Spannelement bei einer bevorzugten Ausgestaltung der Erfindung in Kanallängsrichtung zumindest teilweise herausgezogen werden.

Günstig ist es, wenn der Aufnahmekanal in eine Seitenfläche, vorzugsweise in eine Frontseite, der Deckplatte einmündet. Im Mündungsbereich des Aufnahmekanals kann das Spannelement in seiner Aufbewahrungsstellung vom Benutzer ergreifbar sein.

Von Vorteil ist es, wenn das Reinigungsgerät Befestigungselemente aufweist, an denen das Spannelement in seiner Arbeitsstellung festlegbar ist. Die Befestigungselemente können beispielsweise in Form von Befestigungsösen oder Befestigungshaken ausgebildet sein, an denen das Spannelement jeweils mit einem Ende befestigt werden kann, nachdem es um einen an der Stellfläche abgestellten Behälter herumgeführt wurde.

Das Reinigungsgerät weist bevorzugt einen Griffbügel auf, denn dies erleichtert das Verfahren des Reinigungsgerätes entlang des Bodens. Hierbei ist es günstig, wenn am Griffbügel mindestens ein Befestigungselement für das Spannelement angeordnet ist. Der Griffbügel kann vorzugsweise eine senkrecht zur Stellfläche ausgerichtete Stellung einnehmen und dadurch den an der Stellfläche abgestellten Behälter seitlich abstützen. Am Griffbügel können günstigerweise mehrere Befestigungselemente angeordnet sein, an denen jeweils ein Spannelement mit einem Ende befestigt werden kann. Die Befestigungselemente, beispielsweise Befestigungsösen oder –haken, sind vorteilhafterweise in unterschiedlichem Abstand zur Stellfläche angeordnet. Dies erleichtert die Festlegung von Behältern unterschiedlicher Größe mittels des Spannelements.

Von besonderem Vorteil ist es, wenn das Reinigungsgerät zusammen mit einem an der Stellfläche angeordneten Behälter um eine gemeinsame Drehachse von zwei Laufrädern verschwenkbar ist. Das Reinigungsgerät kann dann zusammen mit dem Behälter nach Art einer Sackkarre verfahren werden. Der Behälter ist mittels des mindestens einen Spannelementes zuverlässig an der Stellfläche fixierbar und kann gemeinsam mit dem Reinigungsgerät verfahren werden.

Günstig ist es, wenn das Reinigungsgerät tragbar ist. Dies erleichtert den Transport des Reinigungsgerätes auf unebenem Boden oder auch über Stufen hinweg.

Von Vorteil ist es, wenn das Reinigungsgerät einen in die Stellfläche einschwenkbaren Gerätegriff aufweist. In einer Außerbetriebsstellung kann der Gerätegriff in die Stellfläche eingeschwenkt werden, wobei er dann aus der Stellfläche nicht hervorsteht und ein Behälter auf die Stellfläche abgestellt werden kann, ohne vom Gerätegriff beeinträchtigt zu werden. Sofern kein Behälter auf der Stellfläche positioniert ist, kann der Gerätegriff aus der Stellfläche in eine Betriebsstellung ausgeschwenkt werden, in der er vom Benutzer ergriffen werden kann, um das Reinigungsgerät beispielsweise über eine Stufe zu tragen.

Bei einer besonders bevorzugten Ausführungsform weist das Reinigungsgerät mindestens einen Rasthaken auf zum Verrasten eines Tragegriffs eines an der Stellfläche abgestellten Behälters. Dies ermöglicht die Festlegung des Behälters nicht nur mittels des mindestens einen Spannelementes, sondern zusätzlich kann der Behälter mit Hilfe des mindestens einen Rasthakens an der Stellfläche festgelegt werden. Der Rasthaken wirkt mit einem Tragegriff des Behälters zusammen. Der Behälter kann auf die Stellfläche in einer derartigen Orientierung abgestellt werden, dass sein Tragegriff mit dem mindestens einen Rasthaken des Reinigungsgerätes zusammenwirken kann. Insbesondere kann vorgesehen sein, dass der Rasthaken den Tragegriff des Behälters in einer Raststellung übergreift. Hierzu kann der Tragegriff des Behälters über den Rasthaken verschwenkt werden, wobei der Rasthaken zunächst in die dem Tragegriff des Behälters abgewandte Richtung verformt wird, bis der Tragegriff eine Position unterhalb des freien Endes des Rasthakens einnimmt, so dass der Rasthaken eine Raststellung einnehmen kann, in der er den Tragegriff des Behälters übergreift.

Günstigerweise umfasst das Reinigungsgerät zwei insbesondere identisch ausgestaltete Rasthaken, die mit dem Tragegriff des an der Stellfläche abgestellten Behälters zusammenwirken und diesen in einer Raststellung übergreifen.

Der mindestens eine Rasthaken ist vorzugsweise an einem Rand der Stellfläche angeordnet, wobei er über die Stellfläche hervorsteht.

Bei einer besonders bevorzugten Ausgestaltung der Erfindung mündet der mindestens eine Aufnahmeraum in eine Seitenfläche des Reinigungsgerätes, wobei im Mündungsbereich des Aufnahmeraums ein loses Ende des Spannelementes vom Benutzer ergreifbar ist, und dem Mündungsbereich benachbart ist ein mit dem Tragegriff eines an der Stellfläche abgestellten Behälters zur Ausbildung einer Rastverbindung zusammenwirkender Rasthaken angeordnet. Dies hat den Vorteil, dass nach dem Verrasten des Tragegriffs mit dem Rasthaken das Spannelement über den Tragegriff des Behälters geführt werden kann und dadurch der Tragegriff mit einer Kraft in Richtung auf den Rasthaken beaufschlagt werden kann. Dadurch lässt sich der Behälter besonders zuverlässig an der Stellfläche festlegen, ohne dass die Gefahr besteht, dass der Behälter verrutscht.

Die nachfolgende Beschreibung einer bevorzugten Ausführungsform der Erfindung dient im Zusammenhang mit der Zeichnung der näheren Erläuterung. Es zeigen:

Figur 1: eine perspektivische Darstellung eines Reinigungsgerätes mit einer Deckplatte, die eine Stellfläche für einen oder auch mehrere Behälter ausbildet;

Figur 2: eine perspektivische Darstellung der Deckplatte aus Figur 1 schräg von oben;

Figur 3: eine Unteransicht der Deckplatte aus Figur 2 und

Figur 4: eine perspektivische Darstellung des Reinigungsgerätes aus Figur 1, wobei auf der Stellfläche zwei Behälter übereinander angeordnet und mittels zweier Spannelemente fixiert sind.

In der Zeichnung ist schematisch ein erfindungsgemäßes Reinigungsgerät in Form eines Staubsaugers 10 dargestellt mit einem Sockel 12, an dem zwei Laufräder um eine gemeinsame Drehachse 16 frei drehbar gelagert sind. Zur Erzielung einer besseren Übersicht ist in der Zeichnung nur ein erstes Laufrad 14 dargestellt. Zusätzlich sind am Sockel 12 zwei Stützräder drehbar gelagert, wobei in der Zeichnung nur ein erstes Stützrad 18 erkennbar ist. Mittels der Laufräder 14 und der Stützräder 18 kann der Staubsauger 10 an einer Bodenfläche entlang verfahren werden.

Auf den Sockel 12 ist ein Saugaggregat 20 aufgesetzt, das ein Gehäuseunterteil 22 und ein Gehäuseoberteil 24 aufweist. Das Gehäuseunterteil 22 bildet in üblicher Weise ein Schmutzsammelbehälter aus, in den über einen Saugeinlass 26 Saugluft zusammen mit Sauggut eingesaugt werden kann. An den Saugeinlass 26 kann in üblicher Weise ein Saugschlauch angeschlossen werden, der an seinem freien Ende eine Saugdüse trägt. Derartige Saugschläuche und Saugdüsen sind dem Fachmann an sich bekannt und daher zur Erzielung einer besseren Übersicht in der Zeichnung nicht dargestellt.

Das Gehäuseoberteil 24 umgibt in üblicher Weise eine Saugturbine, die von einem Elektromotor angetrieben wird. Mittels der Saugturbine kann der Schmutzsammelbehälter des Gehäuseunterteils 22 mit Unterdruck beaufschlagt werden.

Auf dem Gehäuseoberteil 24 ist eine lösbar mit dem Gehäuseoberteil 24 verbundene Deckplatte 30 angeordnet, die im Wesentlichen rechteckförmig ausgestaltet ist und eine erste Längsseite 31, eine der ersten Längsseite 31 abgewandte zweite Längsseite 32 sowie eine Frontseite 33 und eine Rückseite 34 aufweist. In die Frontseite 33 ist mittig eine in der Draufsicht im Wesentlichen U-förmige Vertiefung 36 eingeformt.

Die Deckplatte 30 weist eine Oberseite auf, die eine Stellfläche 38 ausbildet zum Abstellen von einem oder mehreren Behältern. Dies wird aus Figur 4

deutlich. Außerdem weist die Deckplatte 30 eine der Stellfläche 38 abgewandte Unterseite 40 auf, mit der sie auf dem Gehäuseoberteil 24 aufliegt.

Am rückseitigen Rand der Stellfläche 38 trägt die Deckplatte 30 an ihrer Oberseite einen aus der Stellfläche 38 herausragenden ersten Anschlag 42 mit einer im Wesentlichen senkrecht zur Stellfläche 38 ausgerichteten ersten Anschlagfläche 43. Zwischen der Vertiefung 36 und der ersten Längsseite 31 trägt die Deckplatte 30 am frontseitigen Rand der Stellfläche 38 an ihrer Oberseite einen aus der Stellfläche 38 herausragenden zweiten Anschlag 45 mit einer im Wesentlichen senkrecht zur Stellfläche 38 ausgerichteten zweiten Anschlagfläche 46, und zwischen der Vertiefung 36 und der zweiten Längsseite 32 trägt die Deckplatte 30 am frontseitigen Rand der Stellfläche 38 an ihrer Oberseite einen aus der Stellfläche 38 herausragenden dritten Anschlag 48 mit einer im Wesentlichen senkrecht zur Stellfläche 38 ausgerichteten dritten Anschlagfläche 49. Die zweite Anschlagfläche 46 ist ebenso wie die dritte Anschlagfläche 49 der ersten Anschlagfläche 43 zugewandt.

Zwischen dem zweiten Anschlag 45 und der Vertiefung 36 ragt aus der Stellfläche 38 am frontseitigen Rand der Stellfläche 38 ein erster Rasthaken 51 hervor, und zwischen der Vertiefung 36 und dem dritten Anschlag 48 ragt am frontseitigen Rand der Stellfläche 38 aus der Stellfläche 38 ein zweiter Rasthaken 42 hervor, der identisch ausgebildet ist wie der erste Rasthaken 51. Beide Rasthaken 51 und 52 sind der ersten Anschlagfläche 43 abgewandt und elastisch verformbar.

In der Stellfläche 38 ist ein Gerätegriff 54 um eine Schwenkachse 55 verschwenkbar gelagert. Der Gerätegriff 54 ist im Wesentlichen U-förmig ausgebildet und umfasst einen ersten Schenkel 56 und einen zweiten Schenkel 57, die an ihren freien Enden über einen Gerätesteg 58 einstückig miteinander verbunden sind. In seiner in Figur 2 dargestellten Außerbetriebsstellung wird der Gerätegriff 54 von einer in die Stellfläche 38 oberseitig eingeformten Griffausnehmung 60 aufgenommen, aus der er zum Tragen des Staubsaugers 10

in eine senkrecht zur Stellfläche 38 ausgerichtete Betriebsstellung herausgeschwenkt werden kann.

In die Unterseite 40 der Deckplatte 30 sind ein erster Aufbewahrungsraum in Form eines ersten Aufnahmekanals 62 und ein zweiter Aufbewahrungsraum in Form eines zweiten Aufnahmekanals 64 eingeformt. Der erste Aufnahmekanal 62 mündet unterhalb des zweiten Anschlags 45 in die Frontseite 33 der Deckplatte 30 und bildet in diesem Bereich eine erste Mündungsöffnung 66 aus. Ausgehend von der ersten Mündungsöffnung 66 verläuft der erste Aufnahmekanal 62 mit einem ersten Kanalabschnitt 67 in Richtung der Rückseite 34. An den ersten Kanalabschnitt 67 schließt sich in kurzem Abstand zur Rückseite 34 ein parallel zur Rückseite 34 verlaufender zweiter Kanalabschnitt 68 an, an den sich ein parallel zur zweiten Längsseite 32 verlaufender dritter Kanalabschnitt 69 anschließt, der ungefähr in Höhe der Mitte der zweiten Längsseite 32 an einem Kanalende 70 endet.

Der zweite Aufnahmekanal 62 mündet unterhalb des dritten Anschlags 48 in die Frontseite 33 der Deckplatte 30 und bildet in diesem Bereich eine zweite Mündungsöffnung 71 aus. Ausgehend von der zweiten Mündungsöffnung 71 erstreckt sich der zweite Aufnahmekanal 64 mit einem ersten Kanalabschnitt 72 in Richtung der Rückseite 34. An den ersten Kanalabschnitt 72 schließt sich in geringem Abstand zur Rückseite 34 ein zweiter Kanalabschnitt 73 an, der parallel zur Rückseite 34 verläuft und an den sich ein dritter Kanalabschnitt 74 anschließt, der parallel zur ersten Längsseite 31 verläuft und ungefähr in Höhe der Mitte der ersten Längsseite 31 an einem Kanalende 75 endet.

Der erste Aufnahmekanal 62 nimmt ein erstes elastisch dehnbares Spannelement 80 auf, das mit einem ersten Ende 81 am Kanalende 70 des ersten Aufnahmekanals 62 festgelegt ist und das mit einem zweiten Ende 82 in die erste Mündungsöffnung 66 eintaucht. Am zweiten Ende 82 ist ein Befestigungselement in Form eines ersten Befestigungshakens 83 festgelegt.

Der zweite Aufnahmekanal 64 nimmt ein zweites Spannelement 85 auf, das mit einem ersten Ende 86 am Kanalende 75 des zweiten Aufnahmekanals 64 festgelegt ist und dessen zweites Ende 87 in die zweite Mündungsöffnung 71 eintaucht. Am zweiten Ende 87 ist ein Befestigungselement in Form eines zweiten Befestigungshakens 88 festgelegt.

Die beiden Spannelemente 80 und 85 werden in ihrer Aufbewahrungsstellung vollständig vom jeweiligen Aufnahmekanal 62 bzw. 64 aufgenommen. Mit ihren zweiten Enden 82, 87 sind die Spannelemente 80 und 85 jedoch für den Benutzer an der Frontseite 33 der Deckplatte 30 zugänglich. An der Frontseite 33 können vom Benutzer der erste Befestigungshaken 83 und der zweite Befestigungshaken 88 ergriffen werden. Die Spannelemente 80 und 85 können dann in Längsrichtung gedehnt werden, wobei sie jeweils um 100 % dehnbar sind, das heißt sie können in ihrer Länge verdoppelt werden. Dies gibt die Möglichkeit, einen oder mehrere Behälter, die auf die Stellfläche 38 abgestellt wurden, mit den Spannelementen 80 und 85 in Umfangsrichtung zumindest teilweise zu umgreifen. Die Befestigungshaken 83 und 88 können dann jeweils an einer Befestigungsöse 91 bzw. 92 eingehakt werden. Dies wird aus Figur 4 deutlich.

Die Befestigungsösen 91 und 92 sind an einem im Wesentlichen U-förmigen Griffbügel 94 angeordnet, der am Gehäuseoberteil 24 in einem rückwärtigen Bereich um eine Schwenkachse 95 verschwenkbar gelagert ist und einen ersten Schenkel 99 sowie einen zweiten Schenkel 100 aufweist, die über einen Griffsteg 98 miteinander verbunden sind. Er kann zwischen einer in den Figuren 1 und 3 dargestellten ausgeschwenkten oder aufgerichteten Stellung in eine in der Zeichnung nicht dargestellte eingeschwenkte Stellung hin und her verschwenkt werden, in der er parallel zur Stellfläche 38 ausgerichtet ist. Mittels einer Feststelleinrichtung 97, die am freien Ende zumindest eines Schenkels des Griffbügels 94 angeordnet ist, kann der Griffbügel 94 in seiner ausgeschwenkten Stellung arretiert werden.

Zusätzlich zu den Befestigungsösen 91 und 92 sind in unterschiedlichem Abstand zur Stellfläche 38 jeweils zwei weitere Befestigungsösen 101, 102 bzw. 103, 104 an die beiden Schenkel 99, 100 angeformt.

Die Spannelemente 80, 85 können daher mit ihren Befestigungshaken 83, 88 in unterschiedlichen Abständen zur Stellfläche 38 am Griffbügel 94 festgelegt werden. Dadurch können Behälter unterschiedlicher Größe mittels der elastisch dehnbaren Spannelemente 80, 85 auf einfache Weise an der Stellfläche 38 fixiert werden.

In Figur 4 sind die beiden Spannelemente 80, 85 jeweils in ihrer Arbeitsstellung dargestellt, in der sie zwei übereinander angeordnete und auf der Stellfläche 38 abgestellte Behälter 110, 112 umgreifen. Die beiden Behälter 110, 112 sind im dargestellten Ausführungsbeispiel identisch ausgebildet. Sie umfassen jeweils ein Behälterunterteil 114 bzw. 116 und einen verschwenkbar am Behälterunterteil 114, 116 gehaltenen Behälterdeckel 118 bzw. 120. An eine Stirnseite 122 bzw. 124 des Behälterunterteils 114, 116 ist ein Tragegriff 126 bzw. 128 angelenkt. Der Tragegriff 126 des unteren Behälters 110 wird von den Rasthaken 51, 52 übergriffen. Dies sorgt für eine zusätzliche Arretierung des unteren Behälters 110 an der Stellfläche 38. Die Rasthaken 51, 52 sind elastisch verformbar, so dass der Tragegriff 126 nach Abstellen des unteren Behälters 110 auf der Stellfläche 38 beim Verschwenken über die Rasthaken 51, 52 in eine in Figur 4 dargestellte Raststellung einschnappt, in der die Rasthaken 51, 52 den Behältertragegriff 126 übergreifen.

Die Spannelemente 80 und 85 können so weit aus den Aufnahmekanälen 62, 64 herausgezogen werden, dass die beiden Behälter 110, 112 von den Spannelementen 80, 85 im Bereich ihrer Stirnseiten 122, 124 und im Bereich des oberen Behälterdeckels 120 umgriffen werden. Rückseitig werden die beiden Behälter 110, 112 von den Schenkeln 99, 100 des Griffbügels 94 abgestützt, so dass sie insgesamt eine zuverlässige Fixierung an der Stellfläche 38 erfahren.

Die an der Stellfläche 38 festgelegten Behälter 110, 112 können gemeinsam mit dem Staubsauger 10 in Form einer einzigen Transporteinheit um die Drehachse 16 der beiden Laufräder 14 nach hinten verschwenkt werden, so dass die Behälter 110, 112 zusammen mit dem Staubsauger 10 nach Art einer Sackkarre entlang eines Bodens verfahren werden können.

Nach Abnahme der Behälter 110, 112 von der Stellfläche 38 können die beiden Spannelemente 80, 85 wieder in den Aufnahmekanälen 62, 64 verstaut werden. Aufgrund der elastischen Rückstellkraft der Spannelemente 80, 85 gehen diese nach Lösen von den Befestigungsösen 91, 92 selbstständig in ihre Aufbewahrungsstellung über.

P A T E N T A N S P R Ü C H E

1. Reinigungsgerät mit einem Gehäuse, das eine Stellfläche zum Abstellen eines Behälters aufweist, und mit Laufrädern zum Verfahren des Reinigungsgerätes, dadurch gekennzeichnet, dass das Reinigungsgerät (10) mindestens einen Aufbewahrungsraum (62, 64) aufweist, in dem in einer Aufbewahrungsstellung zumindest ein Spannelement (80, 85) angeordnet ist, das zur Festlegung des Behälters (110, 112) an der Stellfläche (38) dem Aufbewahrungsraum (62, 64) zumindest teilweise entnehmbar und in eine Arbeitsstellung überführbar ist.

2. Reinigungsgerät nach Anspruch 1, dadurch gekennzeichnet, dass der mindestens eine Aufbewahrungsraum (62, 64) unterhalb der Stellfläche (38) angeordnet ist.

3. Reinigungsgerät nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass das Spannelement (80, 85) zumindest teilweise aus dem Aufbewahrungsraum (62, 64) herausziehbar ist.

4. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass das Spannelement (80, 85) elastisch dehnbar ist.

5. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass das Spannelement (80, 85) ein im Aufbewahrungsraum (62, 64) festgelegtes Ende (81, 86) aufweist sowie ein von außerhalb des Aufbewahrungsraums (62, 64) zugängliches loses Ende (82, 87).

6. Reinigungsgerät nach Anspruch 5, dadurch gekennzeichnet, dass am losen Ende (82, 87) des Spannelementes (80, 85) ein Befestigungselement (83, 88) angeordnet ist.

7. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass das Spannelement (80, 85) in Form eines langgestreckten Bauteils im Aufbewahrungsraum (62, 64) angeordnet ist.

8. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass der mindestens eine Aufbewahrungsraum (62, 64) kanalförmig ausgestaltet ist.

9. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass das Gehäuse eine Deckplatte (30) aufweist, die auf ihrer Oberseite die Stellfläche (38) ausbildet, wobei der mindestens eine Aufbewahrungsraum (62, 64) in die Deckplatte (30) integriert ist.

10. Reinigungsgerät nach Anspruch 9, dadurch gekennzeichnet, dass der mindestens eine Aufbewahrungsraum (62, 64) in eine Unterseite (40) der Deckplatte (30) eingeformt ist.

11. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass der mindestens eine Aufbewahrungsraum als Aufnahmekanal (62, 64) ausgestaltet ist.

12. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass das Reinigungsgerät (10) mindestens ein Befestigungselement (91, 92, 101, 102, 103, 104) aufweist, an dem das Spannelement (80, 81) in seiner Arbeitsstellung festlegbar ist.

13. Reinigungsgerät nach Anspruch 12, dadurch gekennzeichnet, dass das Reinigungsgerät (10) einen Griffbügel (94) aufweist, an dem mindestens ein Befestigungselement (91, 92, 101, 102, 103, 104) angeordnet ist.

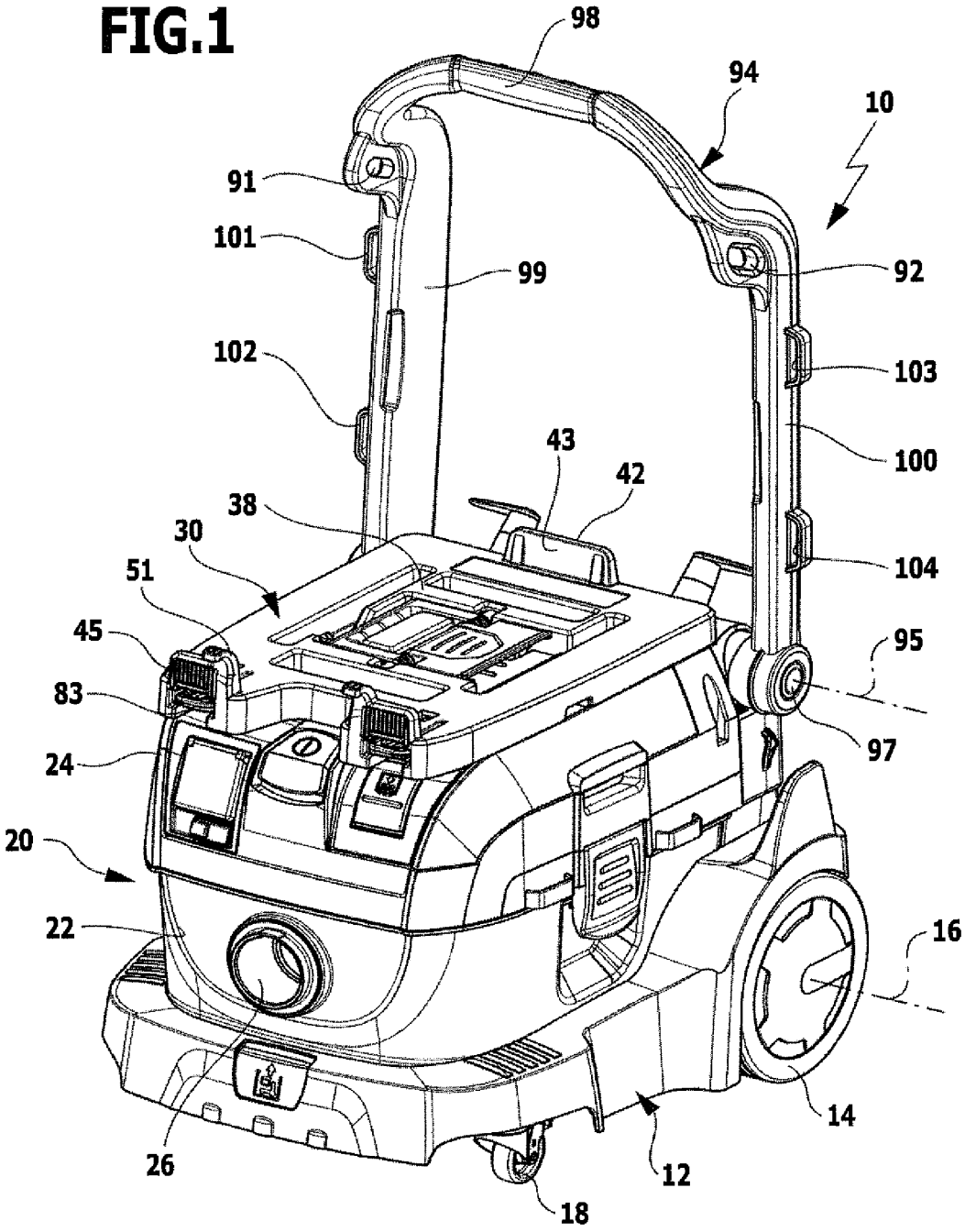
14. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass das Reinigungsgerät (10) tragbar ist.

15. Reinigungsgerät nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass das Reinigungsgerät (10) mindestens einen Rasthaken (51, 52) aufweist zum Verrasten eines Tragegriffes (126) eines an der Stellfläche (38) abgestellten Behälters (110).

16. Reinigungsgerät nach Anspruch 15, dadurch gekennzeichnet, dass der mindestens eine Rasthaken (51, 52) an einem Rand (33) der Stellfläche (38) angeordnet ist und über die Stellfläche (38) hervorsteht.

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FIG.1


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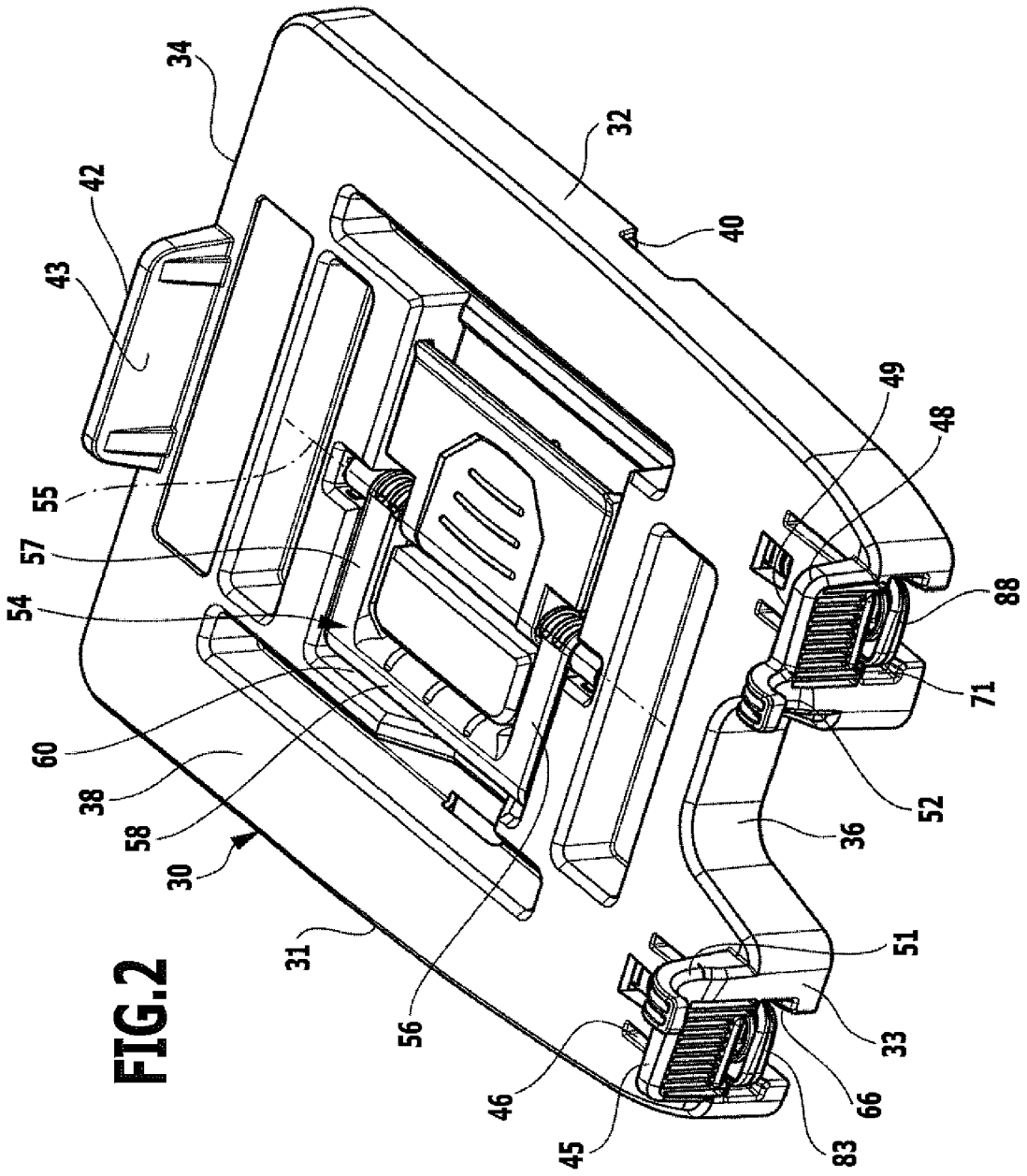

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FIG.2

FIG.3

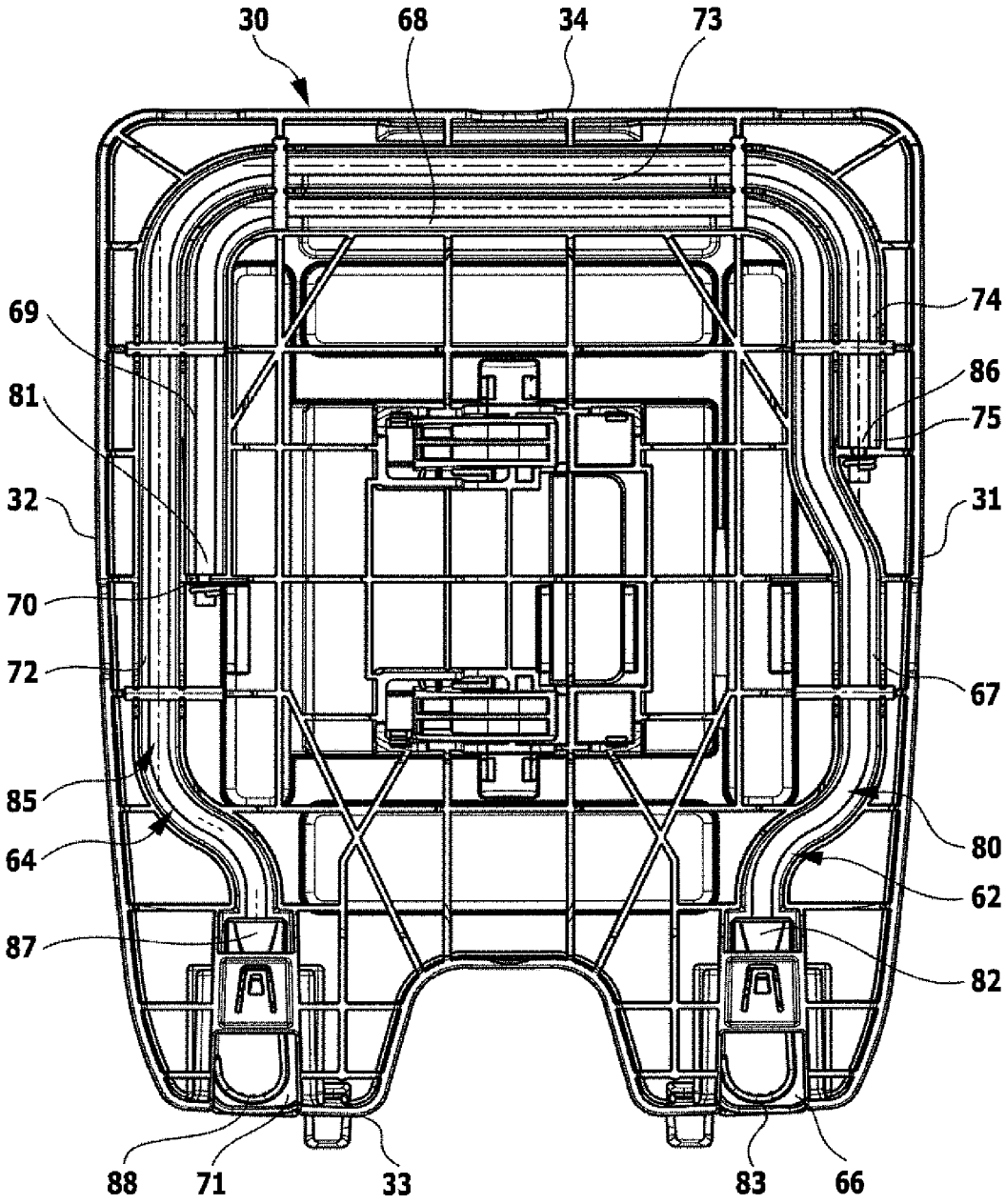
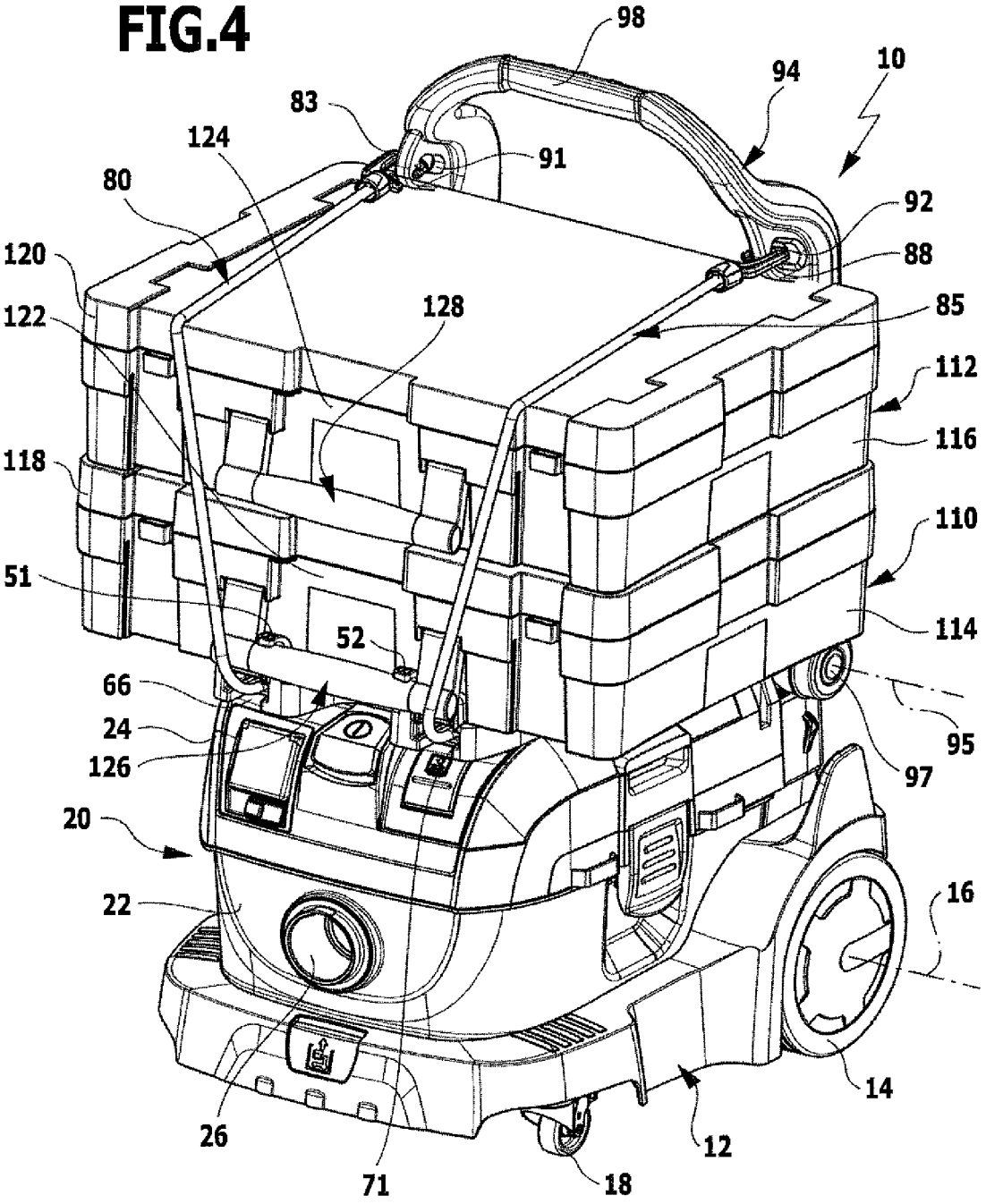

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FIG.4


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(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro

(43) Internationales Veröffentlichungsdatum
13. Oktober 2011 (13.10.2011)

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(51) Internationale Patentklassifikation:
A47L 9/00 (2006.01) *A47L 11/40* (2006.01)

(21) Internationales Aktenzeichen: PCT/EP2011/055124

(22) Internationales Anmeldedatum:
1. April 2011 (01.04.2011)

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(26) Veröffentlichungssprache: Deutsch

(30) Angaben zur Priorität:
10 2010 003 754.0 8. April 2010 (08.04.2010) DE

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(72) Erfinder; und

(75) Erfinder/Anmelder *(nur für US)*: **HESS, Stefan** [DE/DE]; Schwalbenweg 37, 71397 Leutenbach (DE).

(74) Anwalt: **HOEGER, STELLRECHT & PARTNER**; Uhlandstrasse 14c, 70182 Stuttgart (DE).

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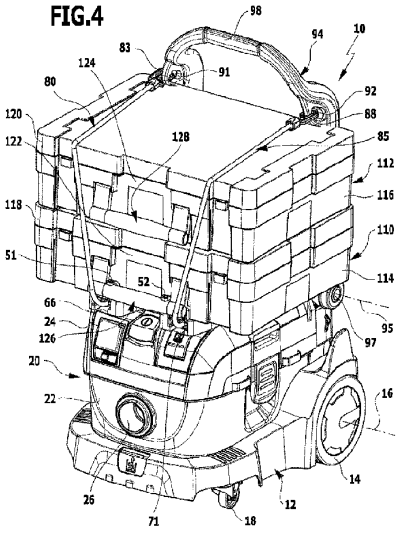
— *mit internationalem Recherchenbericht (Artikel 21 Absatz 3)*

[Fortsetzung auf der nächsten Seite]

(54) Title: CLEANING DEVICE

(54) Bezeichnung : REINIGUNGSGERÄT

FIG.4



(57) Abstract: The invention relates to a cleaning device having a housing comprising a storage surface for placing a container, and having rolling wheels for displacing the cleaning device. In order to refine the cleaning device such that a container can be affixed to the storage surface in a simple manner, according to the invention, the cleaning device comprises at least one storage space in which at least one clamping element is disposed in a stored position and can be at least partially removed from the storage space and can be transferred into a working position in order to affix the container to the storage surface.

(57) Zusammenfassung: Die Erfindung betrifft ein Reinigungsgerät mit einem Gehäuse, das eine Stellfläche zum Abstellen eines Behälters aufweist, und mit Laufrädern zum Verfahren des Reinigungsgerätes. Um das Reinigungsgerät derart weiterzubilden, dass ein Behälter auf einfache Weise an der Stellfläche festgelegt werden kann, wird erfindungsgemäß vorgeschlagen, dass das Reinigungsgerät mindestens einen Aufbewahrungsraum aufweist, in dem in einer Aufbewahrungsstellung zumindest ein Spannelement angeordnet ist, das zur Festlegung des Behälters an der Stellfläche dem Aufbewahrungsraum zumindest teilweise entnehmbar und in eine Arbeitsstellung überführbar ist.

WO 2011/124535 A3

(88) **Veröffentlichungsdatum des internationalen Recherchenberichts**:

3. September 2015

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2011/055124

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47L9/00 A47L11/40
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 916 302 A2 (FESTO TOOLTECHNIC GMBH & CO [DE] FESTO TOOLTECHNIC GMBH & CO TTS TOOLT) 19 May 1999 (1999-05-19) paragraphs [0011] - [0023]	1-16
A	GB 2 413 265 A (THOMSON BRIAN [GB]) 26 October 2005 (2005-10-26) pages 1,2	1-16
A	EP 1 424 170 A1 (VALENTINI GUIDO [IT]) 2 June 2004 (2004-06-02) abstract	1-16

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
24 May 2011	09/06/2011

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Eckenschwiller, A

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Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2011/055124

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0916302 A2	19-05-1999	DE 19750543 A1	20-05-1999
GB 2413265 A	26-10-2005	NONE	
EP 1424170 A1	02-06-2004	AT 413949 T	15-11-2008
		ES 2316694 T3	16-04-2009
		US 2004103494 A1	03-06-2004

Form PCT/ISA/210 (patent family annex) (April 2005)

INTERNATIONALER RECHERCHENBERICHT

Internationales Aktenzeichen
PCT/EP2011/055124

A. KLASSIFIZIERUNG DES ANMELDUNGSGEGENSTANDES
INV. A47L9/00 A47L11/40
ADD.

Nach der Internationalen Patentklassifikation (IPC) oder nach der nationalen Klassifikation und der IPC

B. RECHERCHIERTE GEBIETE

Recherchierter Mindestprüfstoff (Klassifikationssystem und Klassifikationssymbole)
A47L

Recherchierte, aber nicht zum Mindestprüfstoff gehörende Veröffentlichungen, soweit diese unter die recherchierten Gebiete fallen

Während der internationalen Recherche konsultierte elektronische Datenbank (Name der Datenbank und evtl. verwendete Suchbegriffe)
EPO-Internal

C. ALS WESENTLICH ANGESEHENE UNTERLAGEN

Kategorie*	Bezeichnung der Veröffentlichung, soweit erforderlich unter Angabe der in Betracht kommenden Teile	Betr. Anspruch Nr.
A	EP 0 916 302 A2 (FESTO TOOLTECHNIC GMBH & CO [DE] FESTO TOOLTECHNIC GMBH & CO TTS TOOLT) 19. Mai 1999 (1999-05-19) Absätze [0011] - [0023]	1-16
A	GB 2 413 265 A (THOMSON BRIAN [GB]) 26. Oktober 2005 (2005-10-26) Seiten 1,2	1-16
A	EP 1 424 170 A1 (VALENTINI GUIDO [IT]) 2. Juni 2004 (2004-06-02) Zusammenfassung	1-16

☐ Weitere Veröffentlichungen sind der Fortsetzung von Feld C zu entnehmen ☒ Siehe Anhang Patentfamilie

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Datum des Abschlusses der internationalen Recherche	Absendedatum des internationalen Recherchenberichts
24. Mai 2011	09/06/2011

Name und Postanschrift der Internationalen Recherchenbehörde	Bevollmächtigter Bediensteter
Europäisches Patentamt, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Eckenschwiller, A

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INTERNATIONALER RECHERCHENBERICHT

Angaben zu Veröffentlichungen, die zur selben Patentfamilie gehören

Internationales Aktenzeichen
PCT/EP2011/055124

Im Recherchenbericht angeführtes Patentdokument	Datum der Veröffentlichung	Mitglied(er) der Patentfamilie	Datum der Veröffentlichung
EP 0916302 A2	19-05-1999	DE 19750543 A1	20-05-1999
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		ES 2316694 T3	16-04-2009
		US 2004103494 A1	03-06-2004

Formblatt PCT/ISA/210 (Anhang Patentfamilie) (April 2005)

Electronic Patent Application Fee Transmittal

Application Number:	15826232
Filing Date:	29-Nov-2017
Title of Invention:	UTILITY ASSEMBLY AND COUPLING MECHANISM
First Named Inventor/Applicant Name:	Yaron Brunner
Filer:	Elissa Marie Kingsland
Attorney Docket Number:	55390-501C01US
Filed as Large Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1300	1300
		Total in USD ($)		**1300**

Electronic Acknowledgement Receipt	
EFS ID:	35752538
Application Number:	15826232
International Application Number:	
Confirmation Number:	1070
Title of Invention:	UTILITY ASSEMBLY AND COUPLING MECHANISM
First Named Inventor/Applicant Name:	Yaron Brunner
Customer Number:	30623
Filer:	Elissa Marie Kingsland
Filer Authorized By:	
Attorney Docket Number:	55390-501C01US
Receipt Date:	17-APR-2019
Filing Date:	29-NOV-2017
Time Stamp:	19:00:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1300
RAM confirmation Number	041819INTEFSW00005756500311
Deposit Account	500311
Authorized User	Elissa Kingsland
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	55390-501C01US_RCE.pdf	1353313 cec5d3472d6ecd8c71e48eb7ae559b378f1cb655	no	3
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Information:					
2	Foreign Reference	CN101068661.pdf	908849 c920f04c9f1a3c64314727e496b66919ff51d96c	no	22
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Information:					
3	Foreign Reference	CN102469899.pdf	2001239 f2f67f61e94e1cddd1ce314869a60acafb92760a	no	23
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5	Foreign Reference	CN103118578.pdf	1646169 2a1cacbb13ed9f04d34cf265b68aa75c702bce75	no	13
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Information:					
6	Foreign Reference	DE102004057870.pdf	831638 dca2d0e4bfea648e1a274d44799e76d8f5e1f95b	no	16
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7	Foreign Reference	DE102010003754.pdf	912220 70020d781e9cd4d699b9e17e977d8767e5257a55	no	14
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13	Foreign Reference	EP1321247.pdf	432447 69c87289d7d024cc9980863140ae3170a00849dc	no	14
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14	Foreign Reference	EP1819487.pdf	2754620 e4e839af21e91f359f7c616281389f973568d3d5	no	69
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15	Foreign Reference	EP2456341.pdf	1574426 7802ef66a5b19f871f588f638bd4f22f742f91cc	no	43
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16	Foreign Reference	GB2330521.pdf	291798 6a2fc6d0430fdcea80be467d739c1e0178d782ac	no	9
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17	Foreign Reference	GB2406331.pdf	322866 0dace46f5e07851969654148f978a9e33a5b1f1e	no	9
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18	Foreign Reference	GB2413265.pdf	181718 f60874864548ec5479c2ae4f8a02d24ed0175f2f	no	9
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19	Foreign Reference	WO2005045886.pdf	2381876 4ff4c88223d166d8d95145b5a9f6dce7a3416191	no	56
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20	Foreign Reference	DE4415638.pdf	1411616 3e5cb105d2328bbc22e28b43336153e5e92c75c6	no	19
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Information:					

21	Foreign Reference	DE9313802.pdf	1046497 17969dddabe84a3d08c644450058e9efd37f4a6c	no	18
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22	Foreign Reference	DE202011002617.pdf	1347792 e213b75f9b1e147c733a5353729bbbaa14023cdc	no	26
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24	Non Patent Literature	PCTUS2018044629_ISR_WO.pdf	997161 e1500e3de02403eaa923f10374156c8f381fd2de	no	20
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25	Non Patent Literature	PCTUS2018033161_ISR_WO.pdf	712606 4316c1a797f0b87dc844657c6483e50a08da8544	no	14
Warnings:					
Information:					
26	Information Disclosure Statement (IDS) Form (SB08)	55390-501C01US-SB08.pdf	1300605 bc92f1cd73ff6c8c805099efce2962ff789086d6	no	8
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Information:					
27	Transmittal Letter	55390-501C01US_IDS.pdf	101058 e267e5c3d1a33bee3731ee59c42d140bcb5b7bd0	no	2
Warnings:					
Information:					

28	Foreign Reference	EP2555661.pdf	1562792 5cbae2ec174dbfab7e4cd8fa1e5ad82a2bc425e9	no	37
Warnings:					
Information:					
29	Foreign Reference	EP2555660.pdf	1229234 828546 94f95f85db7e3ac01ee3c8b5ff1cb6e300	no	29
Warnings:					
Information:					
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Information:					
			Total Files Size (in bytes):	32108329	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)		
	Application Number	15826232
	Filing Date	2017-11-29
	First Named Inventor	Yaron Brunner
	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	8177463	B2	2012-05-15	Walker	
	2	6637707	B1	2003-10-28	Gates et al.	
	3	5608603	A	1997-03-04	Su	

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20180044059	A1	2018-02-15	BRUNNER	
	2	20130121783	A1	2013-05-16	Kelly	
	3	20110181008	A1	2011-07-28	BENSMAN et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15826232
	Filing Date	2017-11-29
	First Named Inventor	Yaron Brunner
	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

	4	20100147642	A1	2010-06-17	Andochick	
	5	20090145790	A1	2009-06-11	Panosian et al.	
	6	20080277221	A1	2008-11-13	Josefson et al.	
	7	20050139745	A1	2005-06-30	Liao et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

EFS Web 2.1.18

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15826232
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	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	15826232
	Filing Date	2017-11-29
	First Named Inventor	Yaron Brunner
	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Elissa M. Kingsland/	Date (YYYY-MM-DD)	2019-05-01
Name/Print	Elissa M. Kingsland	Registration Number	63,259

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	35885865
Application Number:	15826232
International Application Number:	
Confirmation Number:	1070
Title of Invention:	UTILITY ASSEMBLY AND COUPLING MECHANISM
First Named Inventor/Applicant Name:	Yaron Brunner
Customer Number:	30623
Filer:	Elissa Marie Kingsland
Filer Authorized By:	
Attorney Docket Number:	55390-501C01US
Receipt Date:	01-MAY-2019
Filing Date:	29-NOV-2017
Time Stamp:	14:14:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	55390-501C01US_IDS.pdf	101034 05d0882aaa34e7e4c6262e7cad5636be4e0b1923	no	2
Warnings:					

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	55390-501C01US_SB08.pdf	1504454 52090c34379d684b6eec126ed8017df24005d42a	no	5
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
			Total Files Size (in bytes):	1605488	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Docket No.: 55390-501C01US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Yaron Brunner et al.	Allowed: March 11, 2019
Application No.: 15/826,232	Confirmation No.: 1070
Filed: November 29, 2017	Art Unit: 3736
For: UTILITY ASSEMBLY AND COUPLING MECHANISM	Examiner: G. R. Weinerth

INFORMATION DISCLOSURE STATEMENT (IDS)

VIA EFS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98, the attention of the United States Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of the above-identified application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action after the filing of a Request for Continued Examination under 37 C.F.R. § 1.114 (37 C.F.R. § 1.97(b)(4)). The Request for Continued Examination was filed on April 17, 2019.

In accordance with 37 C.F.R. § 1.98(a)(2)(ii), copies of U.S. patents and U.S. patent application publications are not submitted.

In accordance with 37 C.F.R. § 1.97(g), the filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made. In accordance with

37 C.F.R. § 1.97(h), the filing of this Information Disclosure Statement shall not be construed to be an admission that the information cited in this Information Disclosure Statement is, or is considered to be, material to the patentability as defined in 37 C.F.R. § 1.56(b).

It is submitted that the Information Disclosure Statement is in compliance with 37 C.F.R. § 1.98, and the Examiner is respectfully requested to consider the listed references.

Applicant believes no fee is due with this Information Disclosure Statement. However, if a fee is due, please charge our Deposit Account No. 50-0311, under Order No. 055390-501C01US from which the undersigned is authorized to draw.

Dated: May 1, 2019

Respectfully submitted,

Electronic signature: /Elissa M. Kingsland/
Elissa M. Kingsland
Registration No.: 63,259
MINTZ LEVIN COHN FERRIS GLOVSKY AND POPEO, P.C.
One Financial Center
Boston, Massachusetts 02111
(617) 542-6000
Attorney for Applicant

87249669v.1

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1503
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

30623 7590 05/07/2019

Mintz Levin/Boston Office
One Financial Center
Boston, MA 02111

EXAMINER	
WEINERTH, GIDEON R	
ART UNIT	PAPER NUMBER
3736	

DATE MAILED: 05/07/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/826,232	11/29/2017	Yaron Brunner	55390-501C01US	1070

TITLE OF INVENTION: UTILITY ASSEMBLY AND COUPLING MECHANISM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	08/07/2019

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1504
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

30623 7590 05/07/2019
Mintz Levin/Boston Office
One Financial Center
Boston, MA 02111

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/826,232	11/29/2017	Yaron Brunner	55390-501C01US	1070

TITLE OF INVENTION: UTILITY ASSEMBLY AND COUPLING MECHANISM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	08/07/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
WEINERTH, GIDEON R	3736	206-501000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1505
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/826,232	11/29/2017	Yaron Brunner	55390-501C01US	1070

30623 7590 05/07/2019

Mintz Levin/Boston Office
One Financial Center
Boston, MA 02111

EXAMINER	
WEINERTH, GIDEON R	
ART UNIT	PAPER NUMBER
3736	

DATE MAILED: 05/07/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 02/11)

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1506
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	**Application No.** 15/826,232	**Applicant(s)** Brunner et al.	
	Examiner GIDEON R WEINERTH	**Art Unit** 3736	**AIA (FITF) Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 4/17/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are See Continuation Sheet . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file areply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 4/17/2019.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/GIDEON R WEINERTH/
Examiner, Art Unit 3736

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1508
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

Continuation of 3. The allowed claim(s) is/are: 1-2,6-11,13-19 and 21-23

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 4/17/2019 has been entered.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 4/17/2019 was filed after the mailing date of the Notice of Allowance on 3/6/2019. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: The Amended Claims of 2/12/2019 incorporate allowable subject matter indicated in the Office Action of 11/28/2018. Specifically, Amended Claim 1 recites a single depressed locking location (244) having two locking ribs (248) that form the coupling engagement as seen in Figure 8A. Claim 6 recites two locking ribs (312A and 312B – Figure 12C) in two neighboring depressions (308A and 308B). These two ribs in two neighboring depressions serve as the female coupler as discussed in Specification Page 32 Lines 6-14 to hold an item in an offset position from the depressions. Furthermore, a search of

the Global Dossier confirmed that such spring biased locking latches were not considered in the claims reviewed by the International Searching Authority.

Amended Claim 7 is similar in scope to Amended Claim 1 of Application 15/826201, but the Terminal disclaimer of 2/12/2019 overcomes any double patenting issues.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GIDEON R. WEINERTH whose telephone number is (571)270-5121. The examiner can normally be reached on Monday-Friday 10AM-6PM EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Pickett can be reached on (571) 272-4560. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GIDEON R WEINERTH/
Examiner, Art Unit 3736

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	Art Unit
	GIDEON R WEINERTH	3736

CPC - Searched*		
Symbol	**Date**	**Examiner**
A47B47/00	6/6/2018	GW
A47B67/04	6/6/2018	GW
A47B87/02,007,0276	6/6/2018	GW
B65D21/0224,02,0223,0212,0217,0219,0222,0228,023,	6/6/2018	GW
B65D25/2823,06	6/6/2018	GW
B25H3/021,022,023,04,06	6/6/2018	GW
Y10T403/7045	6/6/2018	GW
A47B87/02	11/23/2018	GW
A47B88/90	11/23/2018	GW
B25H3/02	11/23/2018	GW
B65D21/0204	11/23/2018	GW
A45C7/0045	2/20/2019	GW
A45C5/14	2/20/2019	GW
B65D21/00	2/20/2019	GW

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**
Update search from co-pending Applications 15826201, 16216724	02/20/2019	GW
Update Search for IDS filed 4/17/2019	04/26/2019	GW

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
206	508,511,504,302,501	6/6/2018	GW
280	47.18,47.19,47.26,79.2	6/6/2018	GW
312	107,111	11/23/2018	GW
280	47.26,47.28,652	11/23/2018	GW

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the

	/G.W./ Examiner.Art Unit 3728

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1513
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	Art Unit
	GIDEON R WEINERTH	3736

search.

Search Notes		
Search Notes	**Date**	**Examiner**
Update search from Application 16216724 and 15826201	02/20/2019	GW

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
A45C7	0045	2/20/2019	GW
A47B47	00	2/20/2019	GW
A47B67	04	2/20/2019	GW
A47B87	02,007,00276	2/20/2019	GW
A47B88	90	2/20/2019	GW
B65D21	0024,02,00,0223,0212,0217,0219,0222,0228,023,0204	2/20/2019	GW
B65D25	2823,06	2/20/2019	GW
B25H3	021,02,022,023,04,06	2/20/2019	GW
Y10T403	7045	2/20/2019	GW
206	508,511,504,302,501	2/20/2019	GW
280	47.18,47.19,47.26,79.2,47.28,652	2/20/2019	GW
312	107,111	2/20/2019	GW

	/G.W./ Examiner.Art Unit 3728

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1514
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	Art Unit
	GIDEON R WEINERTH	3736

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/08/2018	11/23/2018	02/21/2019						
	1	✓	✓	=						
	2	✓	✓	=						
	3	✓	-	-						
	4	✓	-	-						
	5	✓	O	-						
	6	✓	O	=						
	7	✓	✓	=						
	8	✓	✓	=						
	9	✓	✓	=						
	10	✓	✓	=						
	11	✓	✓	=						
	12	✓	O	-						
	13	✓	✓	=						
	14	✓	✓	=						
	15	✓	✓	=						
	16	✓	✓	=						
	17	✓	✓	=						
	18	✓	✓	=						
	19	✓	✓	=						
	20	✓	-	-						
	21		✓	=						
	22		✓	=						
	23			=						

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IPR2024-01400

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	**Art Unit**
	GIDEON R WEINERTH	3736

CPC						
Symbol					**Type**	**Version**
B65D	/	21	/	0223	F	2013-01-01
B25H	/	3	/	02	I	2013-01-01
A45C	/	13	/	02	I	2013-01-01
B25H	/	3	/	021	I	2013-01-01
B65D	/	21	/	0209	I	2013-01-01
A45C	/	5	/	14	I	2013-01-01
A45C	/	7	/	005	I	2013-01-01
A45F	/	3	/	10	I	2013-01-01
B62B	/	1	/	14	I	2013-01-01
B65D	/	21	/	0228	I	2013-01-01
B25H	/	1	/	04	I	2013-01-01
B65H	/	2701	/	533	A	2013-01-01
A45C	/	7	/	0045	A	2013-01-01
B25H	/	3	/	023	A	2013-01-01
B62B	/	5	/	067	A	2013-01-01
B65D	/	2255	/	00	A	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/GIDEON R WEINERTH/ Examiner, Art Unit 3736	26 April 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6A

U.S. Patent and Trademark Office — Part of Paper No.: 20190427

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1516
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	**Art Unit**
	GIDEON R WEINERTH	3736

INTERNATIONAL CLASSIFICATION				
CLAIMED				
B65D	/	21	/	02
	/		/	
B25H	/	3	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
206	501

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					
206	504	508	511			
280	47.18					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/GIDEON R WEINERTH/ Examiner, Art Unit 3736	26 April 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6A

U.S. Patent and Trademark Office — Part of Paper No.: 20190427

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1517
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	**Art Unit**
	GIDEON R WEINERTH	3736

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	12	10	17	19										
2	2	13	11		20										
	3		12	6	21										
	4	14	13	18	22										
	5	15	14	8	23										
7	6	3	15												
9	7	4	16												
10	8	16	17												
11	9	5	18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/GIDEON R WEINERTH/ Examiner, Art Unit 3736	26 April 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6A

U.S. Patent and Trademark Office — Part of Paper No.: 20190427

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Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	15826232
Filing Date	2017-11-29
First Named Inventor	Yaron Brunner
Art Unit	3736
Examiner Name	G. R. Weinerth
Attorney Docket Number	55390-501C01US

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
/G.R.W/	1	5105947	A	1992-04-21	Wise	
	2	7263742	B2	2007-09-04	Valentini	
	3	8689396	B2	2014-04-08	Wolfe et al.	
	4	9643629	B2	2017-05-09	Bar-Erez et al.	
	5	D663952	S1	2012-07-24	Crevling, Jr. et al.	
	6	D664354	S1	2012-07-31	Crevling, Jr. et al.	
/G.R.W/	7	2042387	A	1936-05-26	Cobb	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15826232
	Filing Date	2017-11-29
	First Named Inventor	Yaron Brunner
	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
/G.R.W/	1	20100139566	A1	2010-06-10	Lopuszanski	
	2	20130024468	A1	2013-01-24	Kocsis	
	3	20030115715	A1	2003-06-26	Valentini	
	4	20030205877	A1	2003-11-06	Verna et al.	
	5	20060186624	A1	2006-08-24	Kady	
	6	20080115312	A1	2008-05-22	DiPasquale et al.	
	7	20080271280	A1	2008-11-06	Tiede et al.	
	8	20090071990	A1	2009-03-19	Jardine et al.	
	9	20120180250	A1	2012-07-19	Ricklefsen et al.	
/G.R.W/	10	20120207571	A1	2012-08-16	Scott	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2017-11-29
	First Named Inventor	Yaron Brunner
	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

/G.R.W/	11	20130031731	A1	2013-02-07	Hess	
	12	20130031732	A1	2013-02-07	Hess et al.	
	13	20160023349	A1	2016-01-28	Hoppe et al.	
	14	20170165828	A1	2017-06-15	Fleischmann	
	15	20170257958	A1	2017-09-07	Sabbag et al.	
/G.R.W/	16	20180220758	A1	2018-08-09	BURCHIA	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
/G.R.W/	1	101068661	CN	A	2007-11-07	Bosch GmbH Robert		☒
/G.R.W/	2	102469899	CN	A	2012-05-23	Kaercher GmbH & Co KG Alfred		☒
/G.R.W/	3	102834035	CN	A	2012-12-19	Kaercher GmbH & Co KG Alfred		☒

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15826232
	Filing Date	2017-11-29
	First Named Inventor	Yaron Brunner
	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

/G.R.W/	4	103118578	CN	A	2013-05-22	Kaercher GmbH & Co KG Alfred		☒
/G.R.W/	5	102004057870	DE	A1	2006-06-01	Bosch GmbH Robert		☒
/G.R.W/	6	102010003754	DE	A1	2011-10-13	Kaercher GmbH & Co KG Alfred		☐
/G.R.W/	7	102010003756	DE	A1	2011-10-13	Kaercher GmbH & Co KG Alfred		☐
/G.R.W/	8	102012220837	DE	A1	2014-05-15	Bosch GmbH Robert		☒
/G.R.W/	9	19750543	DE	A1	1999-05-20	Festo Tooltechnic GmbH & Co.		☒
/G.R.W/	10	20218996	DE	U1	2003-03-06	Tts, Tooltechnic Systems Ag & Co. Kg		☒
/G.R.W/	11	0916302	EP	A2	1999-05-19	Festo Tooltechnic GmbH & Co		☒
/G.R.W/	12	1321247	EP	A2	2003-06-25	Valentini		☐
/G.R.W/	13	1819487	EP	A0	2007-08-22	Bosch GmbH Robert		☒
/G.R.W/	14	2456341	EP	A0	2012-05-30	Kaercher GmbH & Co KG Alfred		☒

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15826232
	Filing Date	2017-11-29
	First Named Inventor	Yaron Brunner
	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

/G.R.W/	15	2555660	EP	A0	2013-02-13	Kaercher GmbH & Co KG Alfred		☒
/G.R.W/	16	2330521	GB	A	1999-04-28	Spooner		☐
/G.R.W/	17	2406331	GB	A	2005-03-30	Jeffries		☐
/G.R.W/	18	2413265	GB	A	2005-10-26	Thomson		☐
/G.R.W/	19	2005045886	WO	A2	2005-05-19	Brooks Automation, Inc		☐
/G.R.W/	20	2555661	EP	A0	2013-02-13	Kaercher GmbH & Co KG Alfred		☒
/G.R.W/	21	4415638	DE	A1	1995-11-09	Halm		☒
/G.R.W/	22	9313802	DE	U1	1993-12-02	Tung I Enterprise Co., Ltd.		☒
/G.R.W/	23	202011002617	DE	U1	2011-04-28	bekuplast Kunststoffverarbeitungs-GmbH		☒

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15826232
	Filing Date	2017-11-29
	First Named Inventor	Yaron Brunner
	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

/G.R.W/	1	Final Rejection issued November 28, 2018, in United States Application No. 15/826,201 (17 Pages).
/G.R.W/	2	International Search Report and Written Opinion for International Application No. PCT/US2018/044629, dated January 9, 2019 (20 pages).
/G.R.W/	3	International Search Report and Written Opinion for International Application No. PCT/US2018/033161, dated August 6, 2018 (14 pages).

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Examiner Signature	/GIDEON R WEINERTH/	Date Considered	04/27/2019

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Art Unit	3736
	Examiner Name	G. R. Weinerth
	Attorney Docket Number	55390-501C01US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Elissa M. Kingsland/	Date (YYYY-MM-DD)	2019-04-17
Name/Print	Elissa M. Kingsland	Registration Number	63,259

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	24	("20030115715" | "20030205877" | "20060186624" | "20080115312" | "20080271280" | "20090071990" | "20100139566" | "20120180250" | "20120207571" | "20130024468" | "20130031731" | "20130031732" | "20160023349" | "20170165828" | "20170257958" | "20180220758" | "2042387" | "5105947" | "7263742" | "8689396" | "9643629" | "D663952" | "D664354").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 04:31
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L3	1	"20120207571".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 04:37
L4	1	"20090071990".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 04:38
L5	0	"2011155613".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 04:46
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			USPAT; USOCR			
S4	22	("5699925" | "6959507" | "20090139892" | "20090236255" | "5469961" | "20030155267" | "20080308641" | "3182856" | "5353948" | "3581928" | "4351448" | "20090178989" | "2634020" | "3387732" | "5755180" | "6761266" | "7246718" | "7246718" | "5606820" | "4351448" | "20090236255" | "20050224494" | "5469961").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 19:51
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S8	165	(KETER adj PLASTIC).as.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 20:00
S9	38	(("BRUNNER") near3 ("Yaron")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 20:01
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S11	206	S10 and (spring resilient)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 20:07
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S16	26	("2812099" | "2980751" | "3147151" | "3167458" | "3338452" | "3341053" | "3745048" | "3767468" | "3933268" | "3944074" | "4113926").PN. OR ("4339049").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 20:14
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S24	3	(("20020014488") or ("4113214") or ("3845968")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 20:35
S25	8	("2002/0014488").URPN.	USPAT	OR	OFF	2018/04/05 20:36
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		"8465030" | "8596655" | "8690170" | "8777043" | "8936260" | "9205951").PN. OR ("9669930").URPN.				
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IPR2024-01400

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		"20050072642" | "20050077136" | "20060119060" | "20070012694" | "20070068757" | "2497173" | "3061057" | "3452846" | "3532355" | "3572253" | "3650216" | "3861703" | "3891230" | "4081061" | "4118048" | "4122925" | "4350194" | "4621716" | "4657135" | "4693345" | "4738340" | "4792025" | "4813521" | "4951818" | "5038842" | "5048649" | "5109961" | "5142445" | "5178244" | "5186290" | "5197579" | "5339934" | "5373104" | "5379870" | "5407039" | "5447216" | "5484045" | "5484046" | "5632496" | "5713439" | "5890571" | "5927361" | "6073737" | "6116390" | "6164425" | "6213266" | "6401890" | "6520327" | "6585090" | "6634496" | "6758334" | "6976566" | "7077252" | "7232018" | "7380685" | "7398868" | "7726483" | "7780002" | "7942282" | "D294775" | "D453623").PN. OR ("8561769").URPN.	PGPUB; USPAT; USOCR			21:53
S61	44	("20040007574" | "20050036847" | "20050199459" | "20070130731" | "20090178946" | "20120292867" | "3419184" | "3987829" | "4287997" | "4452555" | "5058746" | "5085448" | "5186330" | "5564805" | "5709008" | "5785328" | "6116390" | "6983946" | "7011214" | "7044528" | "7163122" | "7350789" | "7482928" | "7530580" | "7537119" | "7714708" | "7780026" | "7854321" | "7883096" | "7938412" | "8132819" | "8146771" | "8256242" | "8561769" | "8567796" | "D358765" | "D401412" | "D467424" | "D467425" | "D467426" | "RE44656").PN. OR ("9550605").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:59
S62	10	("20050199623" | "5765707" | "5829595" | "6024223" | "7337908").PN. OR ("8146771").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:03
S63	42	("0621601" | "2761582" | "3113690" | "3616943" | "3643993" | "3823973" | "3828964" | "3977558" | "4000704" | "4042111" | "4416374" | "4678084" | "4887731" | "5011036" | "5022546" | "5105967").PN. OR ("5186330").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:05
S64	74	("0879455" | "2849151" | "3005282" | "3371816" | "3393858" | "3481502").PN. OR ("3616943").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:08
S65	36	("1234730" | "20020145022" | "20030010799" | "20040207225" | "20090212584" | "2578238" | "2883764" | "3002650" | "3131829" | "3351228" | "3374914" | "3616943" | "4754883" | "4838745" | "4941784" | "5025964" | "5392945" | "5469999" | "5538153" | "5671511" | "5676251" | "5687895" | "5855310" | "6471278" | "7159730" | "7329451" | "7537119" | "D264014" | "D333094").PN. OR ("9738198").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:09

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S66	75	("0879455" | "20040178208" | "20060254947" | "2695115" | "2849151" | "2939603" | "3103278" | "3117692" | "3383009" | "3391824" | "3419184" | "3481502" | "3616943" | "3754645" | "3756396" | "3759416" | "3811747" | "3968879" | "4287997" | "4655360" | "4671411" | "4765252" | "4832200" | "4848605" | "5042674" | "5203494" | "5392945" | "5454477" | "5566824" | "5641090" | "5718350" | "5769230" | "5779051" | "6021916" | "6085467" | "6186345" | "6237758" | "6308858" | "6367630" | "6371364" | "6457599" | "6585090" | "6662950" | "7163122" | "D333094" | "D361715" | "D446017" | "D500924").PN. OR ("7537119").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:10
S67	45	("0491865" | "1142932" | "1665238" | "20060016812" | "20070108080" | "20080264820" | "20100084119" | "3144016" | "3259263" | "3369691" | "3384259" | "3828964" | "4109789" | "4655360" | "4760921" | "4901380" | "5086926" | "5203494" | "5461755" | "5564583" | "5671856" | "5699925" | "5769230" | "6024223" | "6085467" | "6186345" | "6237758" | "6273258" | "6457599" | "6715627" | "6840378" | "6851566" | "7510096" | "7537119" | "8056722" | "RE37518").PN. OR ("8813960").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:11
S68	32	("4506798" | "4626155" | "4741449" | "5109985" | "5123541" | "5190179" | "5722328" | "5862917").PN. OR ("6024223").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:12
S69	4	("1665238").URPN.	USPAT	OR	OFF	2018/04/05 22:15
S70	39	("2885135" | "3376046" | "3539071" | "3568879" | "3987829" | "4174950" | "4765252" | "4844263" | "D248015").PN. OR ("D333094").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:17
S71	53	("2761582" | "3117692" | "3360162" | "3379341" | "3392875" | "3419184" | "3675815" | "3759416" | "3979016" | "4093071" | "4106624" | "4189052" | "4379508").PN. OR ("4832200").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:19
S72	79	("3117692").URPN.	USPAT	OR	OFF	2018/04/05 22:22
S73	45	("1762635" | "2531671" | "2614399" | "3117692" | "3498494" | "3501044" | "3502241" | "3667647" | "3751852").PN. OR ("4279354").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:24
S74	13	("20060186186" | "20070209962" | "20080202976" | "2328689" | "2828059" | "3811566" | "4279354" | "4293071" | "6315126").PN. OR ("8684222").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:25
S75	45	("1762635" | "2531671" | "2614399" | "3117692" | "3498494" | "3501044" | "3502241" | "3667647" | "3751852").PN. OR ("4279354").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:26
S76	110	("2457842" | "2483464" | "2664219" |	US-	OR	OFF	2018/04/05

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		"2702142" | "3073466" | "3130855" | "3140007" | "3586204" | "3828964").PN. OR ("4287997").URPN.	PGPUB; USPAT; USOCR			22:30
S77	63	("2461526" | "3078484" | "3114486" | "3233803" | "3749294" | "3902640" | "3915189" | "4082208" | "4287997" | "4307826" | "4366922" | "4424841" | "4491258" | "4545414" | "4673070" | "4790432" | "4813542" | "4884731" | "5131576" | "5184763" | "5321904" | "5419473").PN. OR ("5628443").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:33
S78	151	("1409838" | "20010040080" | "20020074332" | "20020130005" | "20020185350" | "20030034215" | "20030034636" | "20040000457" | "20040004332" | "20040026199" | "20040074725" | "20040163910" | "20040211634" | "20040238303" | "20050077133" | "20050077706" | "20050098402" | "20050103590" | "20050150733" | "20050258621" | "20050285359" | "20060010644" | "20060086583" | "20060102677" | "20060163305" | "20060175170" | "20060196743" | "20060207848" | "20080060953" | "20080136133" | "20080223679" | "20080236972" | "20080308369" | "20080308370" | "20090057082" | "20090139813" | "20090160147" | "20090218187" | "20100000805" | "20100025174" | "20100095480" | "20100108452" | "20100147642" | "20100263977" | "20100307879" | "20100308563" | "20110247910" | "20120160617" | "20120261223" | "20150091264" | "20160045000" | "2454438" | "2602675" | "3131829" | "3178197" | "3317081" | "3659867" | "3842953" | "3891230" | "3974898" | "4087102" | "4314624" | "4335895" | "4575109" | "4588055" | "4673070" | "4917392" | "4953257" | "4969660" | "5072958" | "5105962" | "5127662" | "5263727" | "5310071" | "5348325" | "5533231" | "5628443" | "5630601" | "5749503" | "5803471" | "5815843" | "5873145" | "5984154" | "5984327" | "6016893" | "6042127" | "6047442" | "6141841" | "6179176" | "6182981" | "6186295" | "6196366" | "6196560" | "6213266" | "6213267" | "6237734" | "6260871" | "6279705" | "6289554" | "6305587" | "6360400" | "6367602" | "6401888" | "6401890" | "6409412" | "6454065" | "6471019" | "6474524").PN. OR ("6484362" | "6530507" | "6533086" | "6575493" | "6591950" | "6604617" | "6609271" | "6736073" | "6769701" | "6832670" | "6880685" | "6923352" | "6961976" | "6964420" | "7066311" | "7070190" | "7073694" | "7093700" | "7097181" | "7097183" | "7143912" | "7226073" | "7232018" | "7237660" | "7281616" | "7284304" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:34

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		"7318507" | "7328779" | "7350648" | "7374183" | "7426985" | "7441785" | "7478803" | "7594569" | "7597341" | "7780026" | "8607947").PN. OR ("9888752").URPN.				
S79	6	("2008/0308369").URPN.	USPAT	OR	OFF	2018/04/05 22:35
S80	45	("0672173" | "1084360" | "20020144376" | "20040084269" | "20040173427" | "20040238241" | "20050077136" | "20050092568" | "20080308369" | "20090095588" | "20090101461" | "20100059322" | "20100170761" | "20100236886" | "20100270116" | "20110168507" | "20130037364" | "20130175129" | "20130213753" | "20130220754" | "2581417" | "4836343" | "5099968" | "5355980" | "5560458" | "5671832" | "5829559" | "5927450" | "5988334" | "6347693" | "6533086" | "6536568" | "7322477" | "7322585" | "7503569" | "7909149" | "8087513" | "D516869" | "D671316").PN. OR ("9027722").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:36
S81	35	("0922567" | "1084360" | "1567461" | "2372845" | "2428906" | "2801666" | "2858957" | "3837447" | "4098312" | "4122925" | "4142563" | "4257463" | "4286639" | "4673070" | "4744446").PN. OR ("4836343").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:39
S82	51	("0778785" | "1567461" | "2372845" | "2428906" | "2989998" | "3631572" | "3696850" | "4122925" | "4128194" | "4256245" | "4424841").PN. OR ("4673070").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:40
S83	33	("0842498" | "1689399" | "3114486" | "3698045" | "4231135" | "4673070" | "4799298" | "4934573" | "5205448" | "5259093" | "5465425" | "5604958" | "5632071" | "5724707" | "5815843" | "6108816" | "7080430" | "7251867").PN. OR ("7526842").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:41
S84	23	("2428906" | "2707035" | "3225951" | "3319744" | "3696850" | "3958731").PN. OR ("4122925").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:43
S85	33	("1973819" | "2007696" | "3373911").PN. OR ("4142563").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:46
S86	12	("2858957").URPN.	USPAT	OR	OFF	2018/04/05 22:48
S87	12	("20060071581" | "20080060964" | "2858957" | "3346137" | "3568879" | "4258847" | "4592601" | "4685565" | "4863222" | "7311202").PN. OR ("9724820").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:49
S88	43	("2128854" | "3743372").PN. OR ("4863222").URPN.	US-PGPUB; USPAT;	OR	OFF	2018/04/05 22:49

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			USOCR			
S89	73	("2842420" | "2998128" | "3032381" | "3294463" | "3501044" | "3552817").PN. OR ("3743372").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:51
S90	36	("2011962" | "3514170" | "3552817" | "3743372" | "3851936" | "3999818" | "4198777" | "4238032" | "4353470" | "4589546" | "4744612" | "4782619" | "4874210" | "4907703" | "5046789" | "5137340" | "5176435" | "5191983" | "5344024" | "5399004" | "5454634").PN. OR ("6050657").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:53
S91	17	("3131829" | "3429632" | "3552579" | "3707023" | "4062302" | "4239306" | "5246284").PN. OR ("5454634").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:55
S92	55	("0511617" | "1890000" | "2492697" | "2557630" | "2807387" | "3203744" | "3283915" | "3514170" | "3743372" | "3758181" | "3918781" | "3999818" | "4026615" | "4056295" | "4120549").PN. OR ("4243279").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:59
S93	45	("2593998" | "2653072" | "2730423" | "3131829" | "3219400" | "3514170" | "3552817" | "3563624" | "3743372" | "3814489").PN. OR ("3999818").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:03
S94	14	("2593998").URPN.	USPAT	OR	OFF	2018/04/05 23:06
S95	52	("4081061" | "4621716" | "5316159" | "6213266" | "6213267" | "7976024" | "1084360" | "3749273" | "4570799" | "4995436" | "5779051" | "D447944" | "3103278" | "3374917" | "5000713" | "6585090" | "5098328" | "D359315" | "20030132184" | "20050199459" | "4813542" | "0480709" | "5062539" | "5186290" | "6276550" | "D346627" | "5310071" | "20040222059" | "3583590" | "3836043" | "4287997" | "4656840" | "5167336" | "5392945" | "6257381" | "20040000458" | "4573595" | "7644828" | "D483200" | "7648407" | "3811747" | "20010027902" | "5099968" | "5485920" | "5709304" | "5735422" | "3346137").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:14
S96	22	("3131829" | "3194426" | "3338452" | "4258847" | "4328902" | "4428479" | "5016946" | "5050755" | "5310071" | "5316159" | "5503288" | "5845790").PN. OR ("6276550").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:16
S97	41	("2454438" | "2495132" | "3131829" | "3194426" | "3297196" | "3317081" | "3343705" | "3404805" | "3851936" | "4192422").PN. OR ("4328902").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:18
S98	43	("1092651" | "2565969" | "2891639" | "3028207" | "3032381" | "3506321").PN. OR ("3974898").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:29
S99	11	("0907507" | "1626482" | "2343525" | "3974898" | "4065014").PN. OR	US-PGPUB;	OR	OFF	2018/04/05 23:30

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		("4423687").URPN.	USPAT; USOCR			
S100	32	("3481502").URPN.	USPAT	OR	OFF	2018/04/05 23:38
S101	8	(("1112943") or ("2255513") or ("2849151") or ("3371816")).PN.	USPAT; USOCR	OR	OFF	2018/04/05 23:41
S102	16	("2849151").URPN.	USPAT	OR	OFF	2018/04/05 23:41
S103	8	(("0993866") or ("1342909") or ("1514512") or ("1640368")).PN.	USPAT; USOCR	OR	OFF	2018/04/05 23:42
S104	21	("1112943").URPN.	USPAT	OR	OFF	2018/04/05 23:43
S105	16	("2849151").URPN.	USPAT	OR	OFF	2018/04/06 12:32
S106	8	(("0993866") or ("1342909") or ("1514512") or ("1640368")).PN.	USPAT; USOCR	OR	OFF	2018/04/06 12:33
S107	22	("879455").URPN.	USPAT	OR	OFF	2018/04/06 12:34
S108	16	("2849151").URPN.	USPAT	OR	OFF	2018/04/06 13:10
S109	8	(("0993866") or ("1342909") or ("1514512") or ("1640368")).PN.	USPAT; USOCR	OR	OFF	2018/04/06 13:11
S110	37	("3899229" | "4431237" | "4519655" | "4828341" | "4889254" | "5191983").PN. OR ("5469961").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 13:11
S111	25	("20030155267" | "20050224494" | "20080308641" | "20090139892" | "20090178989" | "20090236255" | "2634020" | "3182856" | "3387732" | "3581928" | "4351448" | "5353948" | "5469961" | "5606820" | "5699925" | "5755180" | "6761266" | "6959507" | "7246718").PN. OR ("8677661").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 13:12
S112	24	("1226708" | "2833137" | "2834121" | "2843943" | "3139744" | "3220229" | "3545235" | "3824813" | "4507942" | "4551996" | "4663948" | "4680948" | "4821535" | "4972687" | "4989426" | "5469961" | "5653416").PN. OR ("5951130").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 13:13
S113	118	(US-20130127129-$ or US-20110155613-$ or US-20110139665-$ or US-20040195793-$ or US-20020000440-$ or US-20120292213-$ or US-20070012694-$ or US-20150336710-$ or US-20020134700-$ or US-20100270764-$ or US-20100000893-$ or US-20050062244-$ or US-20040183266-$ or US-20020014488-$ or US-20020113386-$ or US-20030196860-$ or US-20170259956-$ or US-20160144500-$ or US-20160130034-$ or US-20150274362-$ or US-20110168599-$ or US-20090178989-$ or US-20100219193-$ or US-20060254946-$ or US-20070068757-$ or US-20090178946-$).did. or (US-20050199459-$ or US-20080308369-$ or US-20050077136-$).did. or (US-7503569-$ or US-9022234-$ or US-8875888-$ or US-8657307-$ or US-8590704-$ or US-3182856-$ or US-8459495-$ or US-	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:03

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		7097036-$ or US-6193062-$ or US-9393684-$ or US-6637592-$ or US-D730088-$ or US-5833065-$ or US-5482162-$ or US-5244265-$ or US-4244509-$ or US-9643629-$ or US-7780026-$ or US-9132543-$ or US-8567796-$ or US-8226092-$ or US-8201837-$ or US-8132819-$ or US-7997594-$ or US-3010775-$ or US-9669930-$).did. or (US-4813542-$ or US-6585090-$ or US-6085925-$ or US-D776106-$ or US-6839238-$ or US-9609964-$ or US-7152752-$ or US-9506489-$ or US-3944282-$ or US-5241765-$ or US-4389078-$ or US-1849659-$ or US-4405057-$ or US-9802741-$ or US-8851287-$ or US-8763836-$ or US-8561769-$ or US-D808164-$ or US-9550605-$ or US-4887731-$ or US-9738198-$ or US-7537119-$ or US-8813960-$ or US-9669968-$ or US-6024223-$ or US-1665238-$ or US-D333094-$).did. or (US-3376046-$ or US-4832200-$ or US-D364558-$ or US-3419184-$ or US-3117692-$ or US-8684222-$ or US-2328689-$ or US-4287997-$ or US-5628443-$ or US-9888752-$ or US-9027722-$ or US-4673070-$ or US-7526842-$ or US-5465839-$ or US-9724820-$ or US-4863222-$ or US-3743372-$ or US-6050657-$ or US-5454634-$ or US-3851936-$ or US-5602721-$ or US-3999818-$ or US-5271515-$ or US-4243279-$ or US-6276550-$ or US-4328902-$ or US-7350648-$).did. or (US-5407074-$ or US-3481502-$ or US-2849151-$ or US-3616943-$ or US-5469961-$ or US-8677661-$ or US-5951130-$).did. or (US-3117692-$ or US-2593998-$).did.				
S115	286	B65D21/0223.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:05
S116	226	B65D21/0224.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:05
S117	2198	B25H3/021,022,023,04,06.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:07
S118	436	A47B47/00.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:10
S119	1076	A47B87/02,007,0276.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:10
S120	550	A47B67/04.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:11
S121	770	Y10T403/7045.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:12

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S122	9	("7451578" | "6209278" | "4599841" | "6363677" | "6955020" | "7040068" | "6588166" | "6804926" | "6658808").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:14
S123	102	("0890436" | "2740167" | "3310919" | "3988187" | "5295341" | "5630304" | "6023907" | "1854396" | "2381469" | "20030029116" | "3040388" | "3192574" | "3347048" | "3526420" | "4599841" | "6098365" | "5899038" | "20020112433" | "20030029115" | "2381469" | "3673751" | "4599841" | "4819932" | "5086599" | "5363616" | "6029416" | "6216409" | "6324809" | "6546691" | "6606834" | "6647690" | "20030029115" | "3902291" | "5295341" | "5630304" | "6421970" | "6763643" | "0753791" | "20030029116" | "2430200" | "3579941" | "5283102" | "6209278" | "6647690" | "6854235" | "20030024201" | "3579941" | "3673751" | "4426820" | "4741136" | "5860267" | "6023907" | "6122879" | "6769835" | "0338653" | "1776188" | "1854396" | "20030024201" | "3172508" | "3175476" | "3902291" | "4094090" | "5706621" | "6122879" | "6397548" | "2740167" | "20020112433" | "3175476" | "4416097" | "5797237" | "6029416" | "6182410" | "6397548" | "0890436" | "0623562" | "3040388" | "3192574" | "3347048" | "4426820" | "5860267" | "6098365" | "6490836" | "20050210810" | "3310919" | "4819932" | "5086599" | "5283102" | "6006486" | "6101778" | "6209278" | "6324809" | "3720027" | "20020170258" | "4416097" | "4807416" | "5165816" | "5618602" | "6094882" | "6101778" | "6182410" | "6513862" | "20020170258" | "20030024200" | "3657852" | "3988187" | "5165816" | "6094882" | "6591568" | "5274979" | "6772568" | "3200553" | "3657852" | "4741136" | "4819532" | "5797237" | "6006486" | "6505452" | "6591568" | "6854235" | "4094090" | "5363616" | "5618602" | "6513862" | "6606834" | "5548937" | "6880307" | "7065935" | "20030024200" | "2138085" | "2142305" | "3526420" | "5348778" | "20050210810" | "1776188" | "2138085" | "2142305" | "2430200" | "3172508" | "0338653" | "5706621" | "6490836" | "6504552" | "6546691" | "5274979" | "1723306").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:15
S124	373	("2740167").URPN.	USPAT	OR	OFF	2018/04/06 18:16
S125	477	("0087853" | "0108068" | "0124228" | "0213740" | "0274354" | "0316176" | "0634581" | "0861911" | "1194636" | "1723306" | "1743492" | "1809393" | "1902716" | "20010024707" | "20020031646" | "20020069611" | "20020092263" | "20020170258" | "20020170259" | "20020178674" | "20020178680" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:17

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		"6874291" | "6880307" | "6948716" | "7021019" | "7040068" | "7051486" | "7108031" | "7121058" | "7152383" | "7188456" | "7219392" | "7251916" | "7337588" | "7377081" | "7451578" | "7454875" | "7516588" | "7517427" | "7533500" | "7556849" | "7568322" | "7584583" | "7614197" | "7617651" | "7634884" | "7637068" | "7644553" | "7677005" | "7716889" | "7721503" | "7757452" | "7802411" | "7806624" | "7841144" | "7841145" | "7841150" | "7856789" | "7861482" | "7866110" | "7908815" | "7908816" | "7930862" | "7954295" | "7980041" | "8006458" | "8033074" | "8042311" | "8061104" | "8079196" | "8112967" | "8171692" | "8181416" | "8234830" | "8245478" | "8341914" | "8341915" | "8353140" | "8359805" | "8381477" | "8387327" | "8448402" | "8499521" | "8505257" | "8511031" | "8528289" | "8544230" | "8544234" | "8572922" | "8578675" | "8596013" | "8627862" | "8640424" | "8650826" | "8677714" | "8689512" | "8701368" | "8707650" | "8713886" | "8733065" | "8733410" | "8763341" | "8769905" | "8776473" | "8844236" | "8857126" | "8869485" | "8898988" | "8925274" | "8959866" | "8973331" | "9027306" | "9051738" | "9068360" | "9091077" | "9194134" | "9212492" | "9216541" | "9238917" | "9284737" | "9309679" | "9316002" | "9340974" | "9347469" | "9359774" | "9366036" | "9376821" | "9382716" | "9388584" | "9428919" | "9453347" | "9458634" | "9482012" | "9540826" | "9663940" | "RE30154").PN. OR ("9803375").URPN.				
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S127	16	(("1351133") or ("1459189") or ("1465421") or ("1652421") or ("1652305") or ("1667160") or ("2201110") or ("2460330")).PN.	USPAT; USOCR	OR	OFF	2018/04/06 18:22
S128	6	(("0935402") or ("1925070") or ("2453918")).PN.	USPAT; USOCR	OR	OFF	2018/04/06 18:23
S129	3	("3351366").URPN.	USPAT	OR	OFF	2018/04/06 18:39
S130	51	("1575270" | "20020170933" | "20030141329" | "20050247653" | "20060237509" | "20080142462" | "20080179370" | "20080185353" | "20090145789" | "20090145866" | "20140075650" | "20170266804" | "2290468" | "2546720" | "2763377" | "2964196" | "3145031" | "3536286" | "4264013" | "4923202" | "4932576" | "5395023" | "5511705" | "5722576" | "5881891" | "5971242" | "6213365" | "6666465" | "6698632" | "6874624" | "7090075" | "7322482" | "7686196" | "7699197" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:42

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S131	18	("2715966" | "20050247653" | "4771897" | "5429252" | "5740927" | "5845792" | "5915573" | "6152312" | "6267338" | "6435357" | "6564949" | "6581788" | "6698603" | "6871749" | "7014052" | "7028854" | "7117998").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:43
S132	7	("20100314271" | "8991599" | "5799787" | "7686180" | "8695795" | "8991599" | "20100314271" | "5797508" | "3862689").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:46
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S134	6	(matthew near3 vargo).inv.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:49
S135	75	(Hoppe near2 Christopher).inv.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:49
S136	14	B65D25/2823.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:54
S137	351	B65D25/06.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:54
S138	73	(Milwaukee adj Electric).as. and (stack box)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:01
S139	8	(Milwaukee adj Electric).as. and ("220" "206" "215").clas.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:02
S140	8	(Milwaukee and tool).as. and ("220" "206" "215").clas.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:02
S141	84	(Milwaukee and tool).as. and latch	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:03
S142	37	(Milwaukee and tool).as. and (stack stacked stacking)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:04
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		"20150130148" | "20150136554" | "20150150348" | "20150173475" | "20150208774" | "2042387" | "2125856" | "2145143" | "2463713" | "2799306" | "2826426" | "2883184" | "3177023" | "3259411" | "3394955" | "3446304" | "3606372" | "3817419" | "3842953" | "3851756" | "3924844" | "3948365" | "3989128" | "3997038" | "4036336" | "4062429" | "4087102" | "4105112" | "4222580" | "4228877" | "4254850" | "4261447" | "4278187" | "4288134" | "4353182" | "4561526" | "4566616" | "4575109" | "4588055" | "4630837" | "4846493" | "4852705" | "4890414" | "4923105" | "5035523" | "5042193" | "5048649" | "5108119" | "5116289" | "5147019" | "5165148" | "5167306" | "5167354" | "5184477" | "5207440" | "5209327" | "5228609" | "5228706" | "5249438" | "5295742" | "5310079" | "5316096").PN. OR ("5323886" | "5323887" | "5330141" | "5358082" | "5368143" | "5377795" | "5379887" | "5386907" | "5394965" | "5396974" | "5429287" | "5431262" | "5435423" | "5447216" | "5447261" | "5452778" | "5469944" | "5470000" | "5474162" | "5482147" | "5498010" | "5499702" | "5501308" | "5501379" | "5511682" | "5513066" | "5518139" | "5524737" | "5524920" | "5528453" | "5529230" | "5529322" | "5542510" | "5553692" | "5560458" | "5560459" | "5562208" | "5564538" | "5564805" | "5568848" | "5570824" | "5575391" | "5579877" | "5580137" | "5588569" | "5593009" | "5595228" | "5605263" | "5609278" | "5620212" | "5630488" | "5639003" | "5641170" | "5645146" | "5653337" | "5660276" | "5667172" | "5671832" | "5672145" | "5678666" | "5685402" | "5709008" | "5715759" | "5732987" | "5755311" | "5762170" | "5762411" | "5788032" | "5788260" | "5810132" | "5819892" | "5833039" | "5833095" | "5836497" | "5862898" | "5865281" | "5890570" | "5893495" | "5915553" | "5915554" | "5924533" | "5927837" | "5934425" | "5941437" | "5943936" | "5967270" | "5971101" | "5992588" | "5997116" | "6006906" | "6015064" | "6038747" | "6050374" | "6062357" | "6073766" | "6073944" | "6076666" | "6081695" | "6082538" | "6098768" | "6102172" | "6109403" | "6129254" | "6167680" | "6167994" | "6176559" | "6179185" | "6182981" | "6186295" | "6203075" | "6206063" | "6213296" | "6227339" | "6230887" | "6244485" | "6244486" | "6289554" | "6301746" | "6305514" | "6318713" | "6328320" | "6343708" | "6343815" | "6347847" | "6357567").PN. OR ("6367603" | "6371320" | "6371346" |				

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		"6390348"	"6405864"	"6408996"				
		"6415924"	"6435389"	"6443274"				
		"6446988"	"6460668"	"6471019"				
		"6474665"	"6478463"	"6484362"				
		"6502882"	"6505843"	"6520514"				
		"6527309"	"6530507"	"6533138"				
		"6550651"	"6561327"	"6561402"				
		"6571998"	"6578708"	"6595334"				
		"6614337"	"6622856"	"6637562"				
		"6666363"	"6675965"	"6675967"				
		"6688614"	"6692011"	"6695142"				
		"6698609"	"6722524"	"6736265"				
		"6739150"	"6742684"	"6755302"				
		"6755448"	"6758534"	"6761366"				
		"6789670"	"6820878"	"6840359"				
		"6860059"	"6910560"	"6915902"				
		"6923352"	"6926129"	"6938740"				
		"6938741"	"6948724"	"6955381"				
		"6976566"	"6978890"	"7004481"				
		"7008031"	"7021637"	"7036641"				
		"7048133"	"7066311"	"7073694"				
		"7104555"	"7108131"	"7111853"				
		"7117991"	"7121407"	"7144020"				
		"7147089"	"7158376"	"7168713"				
		"7201243"	"7225923"	"7228983"				
		"7237673"	"7237688"	"7240909"				
		"7246704"	"7270223"	"7296808"				
		"7316309"	"7318542"	"7322470"				
		"7322583"	"7326428"	"7331454"				
		"7334680"	"7357250"	"7357268"				
		"7367451"	"7370891"	"7374183"				
		"7387304"	"7387305"	"7387350"				
		"7389997"	"7401698"	"7401700"				
		"7416066"	"7418846"	"7438084"				
		"7438308"	"7458601"	"7461730"				
		"7467695"	"7478711"	"7500547"				
		"7503439"	"7503440"	"7503569"				
		"7516502"	"7540364"	"7552560"				
		"7552950"	"7571915"	"7581736"				
		"7591627"	"7594569"	"7597341"				
		"7600618"	"7600640").PN. OR ("7631380"					
		"7661530"	"7661683"	"7780051"				
		"7823991"	"7837053"	"7837206"				
		"7845653"	"7850020"	"7854321"				
		"7874328"	"7883096"	"7938412"				
		"7946609"	"7984820"	"7997591"				
		"8037983"	"8056919"	"8056943"				
		"8061536"	"8087513"	"8123007"				
		"8123068"	"8132289"	"8132819"				
		"8152037"	"8191910"	"8210387"				
		"8256591"	"8262106"	"8267230"				
		"8267245"	"8267247"	"8272628"				
		"8282113"	"8327576"	"8328247"				
		"8328530"	"8342543"	"8365886"				
		"8376177"	"8434617"	"8439174"				
		"8469195"	"8505729"	"8517155"				
		"8517400"	"8534434"	"8567796"				
		"8657307"	"8662268"	"8695770"				
		"8708351"	"8752683"	"8844689"				
		"8851282"	"8869960"	"8888111"				
		"8919896"	"8936140"	"8936258"				
		"8960959"	"8979073"	"8979100"				
		"9060577"	"9066565"	"9067614"				
		"9095193"	"9260129"	"9295313"				

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		"D258705" | "D259154" | "D272203" | "D309981" | "D316485" | "D326815" | "D333215" | "D333487" | "D347731" | "D355849" | "D368159" | "D370619" | "D374772" | "D375834" | "D377118" | "D378247" | "D385110" | "D386903" | "D390358" | "D402106" | "D405956" | "D414038" | "D418977" | "D437684" | "D447340" | "D447630" | "D448162" | "D449442" | "D449738" | "D451275" | "D452071" | "D453624" | "D455263" | "D459073" | "D462168" | "D465923" | "D467070" | "D470659" | "D471360" | "D472385" | "D472774" | "D480867" | "D505548" | "D509656" | "D516310" | "D516808" | "D516812" | "D520746" | "D563669" | "D572479" | "D572480" | "D588811" | "D589703" | "D599112" | "D600015").PN. OR ("D600912" | "D601797" | "D605403" | "D608094" | "D609911" | "D609913" | "D616200" | "D618911" | "D621153" | "D621610" | "D624317" | "D625515" | "D625915" | "D627968" | "D629607" | "D630435" | "D630851" | "D635769" | "D636996" | "D637812" | "D639554" | "D641552" | "D647301" | "D648532" | "D648533" | "D649350" | "D649783" | "D661858" | "D661903" | "D664354" | "D668867" | "D668868" | "D668869" | "D670500" | "D672555" | "D673774" | "D701696" | "D744750" | "D750890").PN. OR ("9616562").URPN.				
S144	325	B65D21/0212.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:09
S145	27	("4212415" | "4664283" | "4823955" | "4896926" | "5246105").PN. OR ("5544751").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:11
S146	44	("1699130" | "2072672" | "2551814" | "2633285" | "2736487" | "3010638" | "3361322" | "3623650" | "3632037" | "3713579" | "3905478" | "3905541" | "3921896" | "4002261" | "4023617" | "4187977" | "4230233" | "4245773" | "4251006" | "4277015" | "4291830" | "4389013" | "4482074" | "4643314" | "4685610" | "4762270" | "4763833" | "4828894" | "4884739" | "4911356" | "4948039" | "4993623" | "5038998" | "5116290" | "5190213").PN. OR ("5429260").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:12
S147	0	("1140005").URPN.	USPAT	OR	OFF	2018/04/06 19:30
S148	119	("1267650" | "1999162" | "3163268" | "3379482" | "3419184" | "3425471" | "3498689" | "3642168" | "3700137" | "3979016" | "3987829" | "4161261" | "4293073" | "4303158" | "4523692" | "4664347" | "4799503" | "4804092" | "4819795" | "4915913" | "4982863" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 20:05

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		"4984687" | "5011013" | "5024471" | "5040834" | "5042674" | "5065885" | "5065887" | "5080250" | "5103994" | "5117979" | "5123564" | "5176281" | "5186330" | "5190152" | "5193706" | "5244265" | "5319937" | "D237135" | "D237611" | "D238148" | "D239695" | "D246872" | "D248280" | "D257934" | "D258721" | "D277797" | "D286937" | "D292711" | "D302774" | "D312573" | "D316516" | "D319016" | "D321090" | "D321091" | "D322164" | "D325323" | "D325324" | "D326775" | "D326815" | "D327646" | "D328425" | "D328818" | "D328819" | "D329331" | "D329747" | "D330161" | "D330162" | "D330329" | "D331317" | "D335960" | "D336366" | "D339471" | "D342364").PN. OR ("5564805").URPN.				
S149	62	("0198092" | "0564782" | "1063046" | "1268124" | "1740470" | "1987822" | "2011197" | "2094805" | "2122969" | "2504722" | "2759507" | "2786500" | "2791251" | "2799306" | "3018355" | "3615087" | "3746210" | "3851756" | "4061323" | "4239195" | "4256294" | "4278243" | "4303158" | "4378828" | "4460085" | "4909491" | "4911296" | "5011013" | "5117979" | "5193706" | "D253212" | "D263533" | "D288867").PN. OR ("5595228").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 22:03
S150	15	("2587829" | "2610761" | "2740517" | "4252239" | "4733703" | "5329929" | "5595228").PN. OR ("6206063").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 22:04
S151	6	("4466659" | "4967944" | "5207470" | "6193118" | "6554169" | "7000810").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 00:38
S152	96	("1032326" | "1503894" | "1926162" | "2612200" | "2629644" | "2724595" | "2735597" | "2754079" | "2979190" | "3229946" | "3640423" | "3642168" | "3664704" | "3727971" | "3759416" | "3791547" | "3854621" | "3940009" | "3987829" | "4190281" | "4213539" | "4215896" | "4288011" | "4403786" | "4458570" | "4488669" | "4499998" | "4522326" | "4531774" | "4580827" | "4593816" | "4623071" | "4674665" | "D259413" | "D285673").PN. OR ("4967944").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 00:38
S153	25	("2967080" | "2987358" | "4844305" | "4967944" | "5419476" | "5667115").PN. OR ("5988473").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 00:40
S154	10	("2987358").URPN.	USPAT	OR	OFF	2018/04/07 00:41
S155	4	("2009/0315285").URPN.	USPAT	OR	OFF	2018/04/07 00:46
S156	223	("5072918" | "5390943" | "5871219" |	US-	OR	OFF	2018/04/07

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		"6739605" | "0875476" | "6086073" | "4743040" | "6109628" | "1427388" | "20040129658" | "20050023786" | "20050057011" | "20060232033" | "20060237091" | "3472392" | "3999775" | "4699270" | "4786122" | "5072955" | "5743607" | "5876047" | "6123346" | "6545863" | "7232136" | "D396023" | "6497423" | "D153654" | "2155769" | "3313498" | "3870177" | "4391422" | "4763799" | "4923202" | "4998023" | "5509671" | "5915646" | "6073919" | "6095156" | "6170839" | "6264216" | "D188099" | "D460235" | "D461941" | "D469235" | "5921566" | "D415867" | "20030047895" | "20030218308" | "5183372" | "5275349" | "5465988" | "5913528" | "6276471" | "6752281" | "7114733" | "7134673" | "7144020" | "4743040" | "3379431" | "4457527" | "5316232" | "5566961" | "6572123" | "D153654" | "D415867" | "6497423" | "D485037" | "20060066064" | "3698735" | "3908749" | "4895068" | "6138558" | "6251113" | "6267080" | "6471010" | "6497424" | "7207449" | "4901937" | "5308012" | "6270094" | "D463646" | "D474570" | "D485410" | "5921566" | "D273242" | "D474570" | "1149639" | "2413164" | "2575661" | "2819908" | "20050001395" | "20060006621" | "20060157944" | "4099735" | "4688860" | "5048857" | "5224531" | "5452908" | "7017603" | "7156475" | "7204374" | "7296808" | "5887878" | "1126544" | "2705114" | "20050280228" | "20050284697" | "5285981" | "6116533" | "D302064" | "D361187" | "D381168" | "D424321" | "D487604" | "D504000" | "D469235" | "1200008" | "1471446" | "1562089" | "2623642" | "2845780" | "20010045718" | "20020084607" | "20020096844" | "20060076306" | "3965969" | "4138504" | "4165088" | "4373761" | "4880248" | "6539831" | "7044569" | "5154544" | "20040065989" | "20040227315" | "3212645" | "4179080" | "4759560" | "5188308" | "5362078" | "5495951" | "5687928" | "5839739" | "5971512" | "6497423" | "6669214" | "D336183" | "D471687" | "6086073" | "D302064" | "D336183" | "20020060438" | "20040056439" | "20060208440" | "4518208" | "4832355" | "5221132" | "5375860" | "5873585" | "6022088" | "6101831" | "6206385" | "D140635" | "4380293" | "6109437" | "3610431" | "4743040" | "5269545" | "5848798" | "6241181" | "6315376" | "D391032" | "D395108" | "D403826" | "D468881" | "D471688" | "D485037" | "20030122331" | "4923202" | "1487856" | "20030107195" | "3606445" | "3873114" | "5011240" | "5634649" | "5716116" | "5941229" | "6578938" | "6783563" | "6910710" | "D469235" |	PGPUB; USPAT; USOCR			00:50

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		"4815394" | "1660521" | "3759538" | "4564152" | "4585130" | "5016948" | "5123666" | "5595395" | "6102497" | "6109628" | "6322061" | "6615973" | "D361188" | "D153654" | "1649065" | "20020064478" | "20030121874" | "20050127627" | "3722700" | "4019793" | "5282678" | "6857644" | "D147135").PN.				
S157	18	("1193809" | "1268124" | "1521310" | "3696850" | "4724976" | "4756394" | "4787488" | "5209279" | "5219423" | "5314046" | "5971119" | "0622263" | "0695149").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 00:56
S158	31	("0783059" | "2878928" | "3245528" | "3319685" | "3386607" | "3605374" | "3835992" | "3992810" | "4320846" | "4627595" | "4799590" | "4890741" | "5135823" | "5370255").PN. OR ("5676274").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 16:50
S159	26	("1101357" | "1149266" | "1862868" | "2702116" | "3145871" | "4154362" | "4503955" | "4705316" | "4896926" | "4998616").PN. OR ("5415255").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 16:53
S160	37	("3182856" | "3565146" | "4951812" | "4998616" | "5036980" | "5040681" | "5060851" | "5117979").PN. OR ("5325966").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 16:55
S161	6	("3412888" | "4204609" | "5409126" | "5499715" | "5769229").PN. OR ("6467681").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 17:17
S162	173	(US-20130127129-$ or US-20110155613-$ or US-20110139665-$ or US-20040195793-$ or US-20020000440-$ or US-20120292213-$ or US-20070012694-$ or US-20150336710-$ or US-20020134700-$ or US-20100270764-$ or US-20100000893-$ or US-20050062244-$ or US-20040183266-$ or US-20020014488-$ or US-20020113386-$ or US-20030196860-$ or US-20170259956-$ or US-20160144500-$ or US-20160130034-$ or US-20150274362-$ or US-20110168599-$ or US-20090178989-$ or US-20100219193-$ or US-20060254946-$ or US-20070068757-$ or US-20090178946-$).did. or (US-20050199459-$ or US-20080308369-$ or US-20050077136-$ or US-20080104921-$ or US-20160153200-$ or US-20080134613-$ or US-20080134607-$ or US-20070193178-$ or US-20170266804-$ or US-20140075650-$ or US-20090145866-$ or US-20170217464-$ or US-20170174392-$ or US-20170166352-$ or US-20160023349-$ or US-20140166516-$ or US-20120326406-$ or US-20110121695-$ or US-20070194543-$ or US-20070170671-$ or US-20110049824-$ or US-20130056378-$ or US-20120312812-$ or US-20120187013-$ or US-20120080432-$ or US-20120061930-$ or US-20050280228-$).did. or (US-20060027475-$ or US-20050155889-$ or US-20160168880-$).did. or (US-7503569-$ or US-9022234-$ or US-8875888-$ or US-8657307-$ or US-8590704-$ or US-3182856-	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/09 01:25

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		$ or US-8459495-$ or US-7097036-$ or US-6193062-$ or US-9393684-$ or US-6637592-$ or US-D730088-$ or US-5833065-$ or US-5482162-$ or US-5244265-$ or US-4244509-$ or US-9643629-$ or US-7780026-$ or US-9132543-$ or US-8567796-$ or US-8226092-$ or US-8201837-$ or US-8132819-$ or US-7997594-$ or US-3010775-$ or US-9669930-$).did. or (US-4813542-$ or US-6585090-$ or US-6085925-$ or US-D776106-$ or US-6839238-$ or US-9609964-$ or US-7152752-$ or US-9506489-$ or US-3944282-$ or US-5241765-$ or US-4389078-$ or US-1849659-$ or US-4405057-$ or US-9802741-$ or US-8851287-$ or US-8763836-$ or US-8561769-$ or US-D808164-$ or US-9550605-$ or US-4887731-$ or US-9738198-$ or US-7537119-$ or US-8813960-$ or US-9669968-$ or US-6024223-$ or US-1665238-$ or US-D333094-$).did. or (US-3376046-$ or US-4832200-$ or US-D364558-$ or US-3419184-$ or US-3117692-$ or US-8684222-$ or US-2328689-$ or US-4287997-$ or US-5628443-$ or US-9888752-$ or US-9027722-$ or US-4673070-$ or US-7526842-$ or US-5465839-$ or US-9724820-$ or US-4863222-$ or US-3743372-$ or US-6050657-$ or US-5454634-$ or US-3851936-$ or US-5602721-$ or US-3999818-$ or US-5271515-$ or US-4243279-$ or US-6276550-$ or US-4328902-$ or US-7350648-$).did. or (US-5407074-$ or US-3481502-$ or US-2849151-$ or US-3616943-$ or US-5469961-$ or US-8677661-$ or US-5951130-$ or US-7451578-$ or US-6122879-$ or US-3526420-$ or US-2740167-$ or US-9803375-$ or US-9663940-$ or US-7841144-$ or US-9616562-$ or US-5544751-$ or US-5429260-$ or US-7946609-$ or US-6578708-$ or US-6176559-$ or US-5927837-$ or US-5564805-$ or US-5595228-$ or US-6206063-$ or US-7000810-$ or US-4967944-$ or US-5988473-$).did. or (US-6641013-$ or US-2987358-$ or US-4576423-$ or US-4756394-$ or US-4896926-$ or US-5325966-$ or US-5697500-$ or US-6467681-$).did. or (US-3117692-$ or US-2593998-$).did.				
S163	3	(("20170166352") or ("20110139665") or ("5628443")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/09 01:26
S164	28	(US-20170166352-$ or US-20110139665-$ or US-20170266804-$ or US-20170217464-$ or US-20170174392-$ or US-20160168880-$ or US-20160144500-$ or US-20160130034-$ or US-20140166516-$ or US-20120326406-$ or US-20100219193-$ or US-20090145866-$ or US-20070194543-$ or US-20070068757-$ or US-20060254946-$ or US-20060027475-$).did. or (US-5628443-$ or US-9132543-$ or US-9506489-$ or US-8813960-$ or US-8677661-$ or US-8459495-$ or US-8132819-$ or US-6641013-$ or US-6085925-$ or US-5988473-$ or US-5595228-$ or US-3117692-$).did.	US-PGPUB; USPAT	OR	OFF	2018/04/09 01:36

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S165	7	(("5240264") or ("7503569") or ("20020000440") or ("20040195793") or ("20110139665") or ("20110155613") or ("20130127129")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/09 01:37
S166	27	S164 not S165	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/09 01:37
S167	1	("2011/0139665").URPN.	USPAT	OR	OFF	2018/11/21 18:13
S168	56	("1932429" | "20060016811" | "20060070906" | "20060237341" | "20070080089" | "20080110190" | "20080112782" | "20080121253" | "20080128414" | "20090178989" | "20090184021" | "20110139665" | "2178091" | "2259041" | "5271515" | "5429260" | "5531517" | "5544751" | "5549241" | "5860527" | "6062388" | "6581772" | "6880705" | "6991106" | "7044483" | "7063210" | "7516854" | "7661549" | "8342329" | "8640871" | "8973811" | "8997993" | "9056694" | "9101212" | "D277532" | "D277723" | "D277819" | "D347130" | "D385306" | "D406478" | "D470641" | "D529755" | "D538571" | "D543030" | "D589723" | "D590021" | "D645902" | "D654726" | "D664034" | "D689718" | "D709716" | "D773217" | "D781625").PN. OR ("D815471").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:13
S169	5	(("20160144500") or ("0784114") or ("20110073516") or ("20150274362")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:16
S170	4	(("20160144500") or ("7841144") or ("20110073516") or ("20150274362")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:17
S171	554	("0124228" | "0213740" | "0714987" | "0753791" | "1124228" | "1194636" | "1371856" | "1407679" | "1454250" | "1468288" | "1477813" | "1510924" | "1540128" | "1575821" | "1602256" | "1602267" | "1615096" | "1622103" | "1622104" | "1637634" | "1644710" | "1660480" | "1714738" | "1718702" | "1723306" | "1734826" | "1743492" | "1764331" | "1778069" | "1787027" | "1790178" | "1809393" | "1823039" | "1859667" | "1898364" | "1902716" | "1906411" | "1925070" | "1929871" | "1940377" | "1953306" | "1986739" | "1988201" | "1995264" | "20010029720" | "20020007608" | "20020007609" | "20020014047" | "20020020127" | "20020031646" | "20020046528" | "20020056245" | "20020069611" | "20020083673" | "20020092263" | "20020100231" | "20020160610" | "20020178673" | "20020178674" | "20020178682" | "20030009971" | "20030009972" | "20030024199" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:17

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		"20030033777" | "20030033784" |					
		"20030037504" | "20030041545" |					
		"20030084636" | "20030101674" |					
		"20030101681" | "20030115812" |					
		"20030115821" | "20030180091" |					
		"20030188504" | "20030196405" |					
		"20030221387" | "20030233809" |					
		"20040016196" | "20040031227" |					
		"20040035078" | "20040035079" |					
		"20040060255" | "20040068954" |					
		"20040115921" | "20040139678" |					
		"20040168392" | "20040177584" |					
		"20040182036" | "20040200175" |					
		"20040206036" | "20040211143" |					
		"20040241374" | "20040255541" |					
		"20050034404" | "20050034405" |					
		"20050097860" | "20050102937" |					
		"20050108970" | "20050138881" |					
		"20050160694" | "20050161468" |					
		"20050166516" | "20050193677" |					
		"20050208255").PN. OR ("20050210810" |					
		"20050235593" | "20050252130" |					
		"20050268570" | "20060032168" |					
		"20060048474" | "20060070333" |					
		"20060073320" | "20060075713" |					
		"20060101769" | "20060117696" |					
		"20060179773" | "20060196139" |					
		"20060236642" | "20060260254" |					
		"20060283127" | "20070006543" |					
		"20070028547" | "20070119110" |					
		"20070151189" | "20070193178" |					
		"20080000186" | "20080010931" |					
		"20080010937" | "20080028707" |					
		"20080034708" | "20080066415" |					
		"20080104921" | "20080110125" |					
		"20080134607" | "20080134613" |					
		"20080134614" | "20080295432" |					
		"20090193748" | "2015813" | "2026511" |					
		"2044216" | "2088238" | "2089075" |					
		"2204675" | "2266464" | "2276071" |					
		"2303745" | "2324628" | "2398632" |					
		"2430200" | "2495862" | "2596280" |					
		"2732706" | "2740167" | "2780253" |					
		"2851740" | "2865058" | "2894292" |					
		"2947040" | "3023681" | "3045294" |					
		"3100556" | "3120083" | "3125138" |					
		"3182769" | "3200553" | "3203149" |					
		"3247638" | "3267630" | "3282010" |					
		"3301147" | "3310919" | "3347048" |					
		"3377931" | "3378958" | "3387422" |					
		"3436888" | "3460304" | "3481810" |					
		"3508523" | "3512324" | "3517927" |					
		"3526071" | "3526420" | "3535844" |					
		"3538665" | "3548559" | "3553919" |					
		"3554850" | "3555762" | "3572224" |					
		"3579941" | "3694983" | "3714747" |					
		"3731445" | "3742669" | "3759007" |					
		"3768846" | "3786608" | "3842562" |					
		"3849235" | "3857749" | "3859000" |					
		"3902293" | "3908053" | "3919820" |					
		"3936551" | "3988187" | "4037377" |					
		"4082129" | "4084996" | "4090338" |					
		"4099358" | "4100710" | "4107892" |					
		"4113399" | "4169688").PN. OR ("4196554" |					

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		"4227430" | "4242390" | "4299070" | "4304083" | "4426820" | "4471012" | "4489115" | "4501102" | "4561233" | "4567706" | "4599841" | "4612074" | "4612745" | "4641469" | "4643237" | "4646494" | "4648165" | "4653242" | "4703597" | "4715162" | "4716700" | "4738071" | "4769963" | "4819932" | "4822440" | "4831806" | "4845907" | "4905442" | "5029425" | "5113632" | "5117603" | "5148850" | "5165816" | "5179812" | "5182892" | "5216861" | "5247773" | "5253464" | "5271564" | "5286545" | "5295341" | "5344700" | "5349796" | "5390457" | "5433806" | "5465546" | "5474831" | "5497589" | "5502939" | "5540025" | "5560569" | "5567497" | "5570554" | "5597024" | "5598682" | "5613894" | "5618602" | "5630304" | "5634309" | "5653099" | "5671575" | "5695875" | "5706621" | "5755068" | "5768850" | "5797237" | "5823240" | "5827592" | "5860267" | "5899038" | "5900099" | "5925211" | "5935668" | "5943239" | "5968625" | "5987839" | "6006486" | "6023907" | "6029416" | "6052960" | "6094882" | "6101778" | "6119423" | "6134854" | "6148884" | "6173548" | "6182410" | "6203653" | "6205639" | "6209278" | "6216403" | "6216409" | "6247285" | "6314701" | "6324803" | "6332733" | "6339908" | "6345481" | "6358842" | "6363677" | "6385936" | "6397547" | "6421970" | "6438919" | "6446405" | "6446413" | "6490836" | "6497079" | "6505452" | "6510665" | "6516579" | "6526719" | "6532709" | "6536178" | "6553724" | "6584747" | "6591568" | "6601359" | "6606834" | "6647689" | "6647690" | "6670019" | "6672030" | "6684592").PN. OR ("6715253" | "6722809" | "6763643" | "6769218" | "6769219" | "6854235" | "6862857" | "6874292" | "6933043" | "7003924" | "7003925" | "7022189" | "7040068" | "7051486" | "7275350" | "7377081" | "7568322" | "7584583" | "7614197").PN. OR ("7841144").URPN.				
S172	969	Y10S292/38,53.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:25
S173	35	E04F2201/013.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:25
S174	1351	E04F2201/0146,023,05.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:26
S175	514	B25H3/02.cpc.	USPAT	OR	OFF	2018/11/21 18:45

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S176	1041	B25H3/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:45
S177	165	B25H3/021.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:45
S178	0	("2018/0213934").URPN.	USPAT	OR	OFF	2018/11/21 18:46
S179	369	A47B88/90.cpc.	USPAT	OR	OFF	2018/11/21 18:46
S180	81	A47B2210/19.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:47
S181	29	("2614016" | "2676080" | "3001564" | "3079037" | "3974898" | "4040538" | "4119204" | "4239309" | "4287997" | "4293072" | "4865404" | "5190156").PN. OR ("5407074").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:50
S182	27	("0224486" | "1472676" | "2975930" | "3159436" | "3424334" | "3506321" | "3584738" | "3737031" | "4155452").PN. OR ("4293072").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:51
S183	48	("3506321").URPN.	USPAT	OR	OFF	2018/11/21 18:54
S184	46	("1092651" | "2565969" | "2891639" | "3028207" | "3032381" | "3506321").PN. OR ("3974898").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:56
S185	520	B65D21/0204.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:01
S186	868	A47B87/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:02
S187	2232	312/107,111.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:02
S188	703	A47B88/90.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:15
S189	50	(("BRUNNER") near3 ("Yaron")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:23
S190	34	("0455883" | "0484121" | "0918297" | "20060175945" | "20100052276" | "20110279956" | "20120086319" | "20130134850" | "2341434" | "2431830" | "2441728" | "3058320" | "3135570" | "3326203" | "3712697" | "4590709" | "5011240" | "5026130" | "5048902" | "5145245" | "5673984" | "6068356" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:24

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		"6164738" | "8201900" | "D322875").PN. OR ("9872562").URPN.				
S191	45	("1223455" | "2123803" | "2704699" | "3272581" | "3316045" | "3796474" | "4155611" | "4505526" | "4577773" | "4848588" | "5205595" | "5246105" | "5299688" | "5344226" | "5358321" | "5426885").PN. OR ("5603559").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:27
S192	36	("1253546" | "1619761" | "1857640" | "2004900" | "3133771" | "3409162" | "3529878" | "3606506" | "3729242" | "3758181").PN. OR ("5246105").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:28
S193	16	("20080000899" | "20120312812" | "20130127129" | "3379482" | "3811559" | "4118048" | "4619363" | "5125697" | "5904269" | "6082539" | "6371320" | "6874634" | "6889838" | "7387350" | "7516842").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:02
S194	75	("0440957" | "1933637" | "2511949" | "2789828" | "2981549" | "3055723" | "3349924" | "3379482" | "3891230" | "3905662").PN. OR ("4118048").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:03
S195	45	("0273398" | "0325555" | "0825642" | "0953715" | "0953815" | "1143711" | "1365098" | "1495046" | "1611034" | "2055657" | "2565969" | "2714433" | "3828899" | "3891230" | "3974898" | "3987875" | "4066155" | "4118048" | "4139084" | "4202586" | "4389078" | "4693345").PN. OR ("4813521").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:04
S196	29	("2472491" | "2925283" | "3057636").PN. OR ("3891230").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:05
S197	143	("0344661" | "0687619" | "1424819" | "20010052681" | "20020014488" | "20020067027" | "20020074905" | "20020113386" | "20020185831" | "20030001348" | "20030146589" | "20040265104" | "20050062244" | "20050104308" | "20050258610" | "20050275178" | "20060006619" | "20060012139" | "20060038367" | "20070080512" | "20070194543" | "20070273114" | "20080084036" | "20080121547" | "20080128305" | "20080143069" | "20090020528" | "20090026901" | "20090096181" | "20090309323" | "20100052276" | "20100290877" | "20100327562" | "20110049824" | "20110181008" | "20120160886" | "20120326406" | "20140001719" | "20140023221" | "20140375181" | "2554091" | "2588830" | "2901262" | "2964328" | "3168329" | "3393951" | "3734526" | "3804432" | "3891230" | "3990653" | "4169607" | "4363496" | "4448434" | "4619363" | "4884689" | "4936594" | "4984704" | "5104135" | "5123666" | "5207723" | "5333885" | "5362078" | "5378005" | "5464104" | "5474312" | "5595395" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:05

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		"5626352" | "5634649" | "5720535" | "5799958" | "5845915" | "5906381" | "5913527" | "5931483" | "5934466" | "5938396" | "6000713" | "6050660" | "6079719" | "6082539" | "6109627" | "6113129" | "6123344" | "6131926" | "6135466" | "6176559" | "6254112" | "6347847" | "6357063" | "6371320" | "6394471" | "6398235" | "6474930" | "6561528" | "6601930" | "6616152" | "6659476" | "6666465" | "6874634" | "6889838" | "6945546" | "7063339" | "7066475" | "7108131" | "7168715" | "7188846" | "7188847" | "7210689" | "7263742" | "7328905" | "7367571" | "7500681").PN. OR ("7503569" | "7686260" | "7703776" | "7819407" | "7823893" | "7845653" | "7883096" | "7905502" | "7938412" | "8132819" | "8226092" | "8567796" | "8657307" | "8668209" | "9132543" | "D437484" | "D542496" | "D640869" | "D653832" | "D654241").PN. OR ("9566990").URPN.				
S198	18	("2042387" | "2528872" | "3401420" | "3891230" | "4989291" | "5915438" | "6230361" | "7000287").PN. OR ("7263742").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:07
S199	37	("5013055" | "5207723" | "5378005").PN. OR ("5799958").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:08
S201	2395	280/47.26,47.28,652.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:09
S202	1975	280/47.26,47.28.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:10
S203	518	280/652.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:10
S204	1	"15826201"	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 00:33
S205	12	(US-0271616-$ | US-0320243-$ | US-1276744-$ | US-1477050-$ | US-15826201-$ | US-20080308369-$ | US-3616562-$ | US-3875888-$).DID.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 03:39
S206	2	(("8875888") or ("9616562") or ("20080308369")).PN.	USPAT; USOCR	OR	OFF	2018/11/22 03:40
S207	3	(("8875888") or ("9616562") or ("20080308369")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 03:40
S208	64	("20020113387" | "20070194543" | "20080079227" | "20080084036" | "20110049824" | "3522955" | "4118048" |	US-PGPUB; USPAT;	OR	OFF	2018/11/22 19:37

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S215	1	"12736715"	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 01:36
S216	1	("2011/0139665").URPN.	USPAT	OR	OFF	2018/11/23 01:36
S217	20	("2807387" | "20060220503" | "3219400" | "3424334" | "4293072" | "4643494" | "4782619" | "4996628" | "5184726" | "5246105" | "5427394" | "5544751" | "5699925" | "5901998" | "5924778" | "6367631" | "6983946").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 01:37
S218	36	("1253546" | "1619761" | "1857640" | "2004900" | "3133771" | "3409162" | "3529878" | "3606506" | "3729242" | "3758181").PN. OR ("5246105").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 01:38
S219	13	("3379482").URPN.	USPAT	OR	OFF	2018/11/23 02:28
S220	0	("2012/0152800").URPN.	USPAT	OR	OFF	2018/11/23 02:30
S221	12	("20080060964" | "3568879" | "4592601" | "4685565" | "20060071581" | "4258847" | "4863222" | "2858957" | "7311202" | "3346137").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 02:30
S222	1041	B25H3/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 02:39
S223	140	S222 and (snap)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 02:39

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S224	67	(US-20170166352-$ or US-20110139665-$ or US-20170266804-$ or US-20170217464-$ or US-20170174392-$ or US-20160168880-$ or US-20160144500-$ or US-20160130034-$ or US-20140166516-$ or US-20120326406-$ or US-20100219193-$ or US-20090145866-$ or US-20070194543-$ or US-20070068757-$ or US-20060254946-$ or US-20060027475-$ or US-20150274362-$ or US-20110073516-$ or US-20090193748-$ or US-20080134607-$ or US-20080104921-$ or US-20180313094-$ or US-20180213934-$ or US-20150102717-$ or US-20180161975-$ or US-20140305829-$).did. or (US-20120312812-$ or US-20180290288-$ or US-20180162592-$ or US-20170239808-$ or US-20170121056-$ or US-20130127129-$ or US-20060038367-$ or US-20160114822-$ or US-20080308369-$ or US-20080169739-$ or US-20120292870-$).did. or (US-5628443-$ or US-9132543-$ or US-9506489-$ or US-8813960-$ or US-8677661-$ or US-8459495-$ or US-8132819-$ or US-6641013-$ or US-6085925-$ or US-5988473-$ or US-5595228-$ or US-3117692-$ or US-5429260-$ or US-7841144-$ or US-5407074-$ or US-4293072-$ or US-3506321-$ or US-3974898-$ or US-6109707-$ or US-4423687-$ or US-9872562-$ or US-6547347-$ or US-4619363-$ or US-4118048-$ or US-3891230-$ or US-9566990-$).did. or (US-5799958-$ or US-9616562-$ or US-5184726-$).did. or (US-2430200-$).did.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 14:36
S225	3	("20080308369" | "8875888" | "9616562").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 14:37
S226	28	(US-20170266804-$ or US-20170217464-$ or US-20170174392-$ or US-20170166352-$ or US-20160168880-$ or US-20160144500-$ or US-20160130034-$ or US-20140166516-$ or US-20120326406-$ or US-20100219193-$ or US-20090145866-$ or US-20070194543-$ or US-20070068757-$ or US-20060254946-$ or US-20060027475-$ or US-20110139665-$).did. or (US-9506489-$ or US-9132543-$ or US-8813960-$ or US-8677661-$ or US-8459495-$ or US-8132819-$ or US-6641013-$ or US-6085925-$ or US-5988473-$ or US-5628443-$ or US-5595228-$ or US-3117692-$).did.	US-PGPUB; USPAT	OR	OFF	2018/11/23 14:37
S227	37	S224 not (S225 S226)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 14:37
S228	1	"20170174392".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 14:54
S229	14	(US-20180290288-$ or US-20180161975-$ or US-20170239808-$ or US-20170121056-$ or US-20080169739-$ or US-20080134607-$ or US-20080104921-$ or US-20060038367-	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 21:07

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		$).did. or (US-9872562-$ or US-9566990-$ or US-7841144-$ or US-6547347-$ or US-5429260-$).did. or (US-2430200-$).did.				
S230	6	(("20120228074") or ("20120152800") or ("20170318927") or ("20110220531") or ("20110073516") or ("7841144")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:31
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S238	33	S235 S236 S237	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:58
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S240	28	B65D21/00.cpc.	USPAT	OR	OFF	2019/02/20 20:01
S241	8	(US-20080134607-$ or US-20080104921-$ or US-20060038367-$ or US-20120228074-$).did. or (US-9872562-$ or US-7841144-$ or US-6547347-$).did. or (US-2430200-$).did.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 22:58
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S243	1	S241 not S242	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 22:59
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S245	26	(US-20180290288-$ or US-20180161975-$ or US-20170239808-$ or US-20170121056-$ or US-20080169739-$ or US-20170318927-$ or US-20120152800-$ or US-20110220531-$ or US-20110073516-$ or US-20070012694-$ or US-20190039781-$ or US-20190002004-$ or US-20060006770-$ or US-20170166352-$).did. or (US-9566990-$ or US-5429260-$ or US-5890613-$ or US-5099968-$ or US-4693345-$ or US-3319744-$ or US-9108764-$ or US-9701443-$ or US-3974898-$ or US-3506321-$).did.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 23:00
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Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/826,232	11/29/2017	Yaron Brunner	55390-501C01US	1070

30623 7590 06/07/2019

Mintz Levin/Boston Office
One Financial Center
Boston, MA 02111

EXAMINER	
WEINERTH, GIDEON R	

ART UNIT	PAPER NUMBER
3736	

NOTIFICATION DATE	DELIVERY MODE
06/07/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPDocketingBOS@mintz.com
IPFileroombos@mintz.com

Supplemental ***Notice of Allowability***	**Application No.** 15/826,232	**Applicant(s)** Brunner et al.	
	Examiner GIDEON R WEINERTH	**Art Unit** 3736	**AIA (FITF) Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 4/17/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-2,6-11,13-19 and 21-23 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file areply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/GIDEON R WEINERTH/ Examiner, Art Unit 3736	/J. Gregory Pickett/ Supervisory Patent Examiner, Art Unit 3736

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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Elissa Kingsland on 6/4/2019.

The application has been amended as follows:

1. (Examiner's Amendment) A coupling mechanism configured for readily detachably attaching a first utility module to a second utility module, the coupling mechanism comprising:

a female coupler at a face of one of the first utility module and the second utility module, the female coupler having a depressed locking location configured with a depressed surface, at least two sidewalls, and at least ~~one locking rib~~ two locking ribs extending ~~above a depressed surface and~~ along a sliding path, and having an open edge facing in a first direction, wherein the at least ~~one locking rib extends~~ two locking ribs extend substantially parallel to the sliding path;

a male coupler at a face of the other one of the first utility module and the second utility module, the male coupler having a projecting locking location disposed in register with the depressed locking location and configured with at least one locking tongue extending along the sliding path at a second direction, opposite to the first direction, and configured for arresting engagement at a space between the at least two locking ribs and depressed surface; and

at least one locking member for arresting the first utility module with respect to the second utility module and preventing sliding displacement along the sliding path,

wherein ~~the female coupler includes~~ the at least two locking ribs ~~that~~ extend at side edges of the depressed locking location and extend above the depressed surface and spaced from a bottom end of the at least two sidewalls ~~and disposed substantially parallel to the sliding path~~.

1. (Clean copy of Examiner's Amendment) A coupling mechanism configured for readily detachably attaching a first utility module to a second utility module, the coupling mechanism comprising:

a female coupler at a face of one of the first utility module and the second utility module, the female coupler having a depressed locking location configured with a depressed surface, at least two sidewalls, and at least two locking ribs extending along a sliding path, and having an open edge facing in a first direction, wherein the at least two locking ribs extend substantially parallel to the sliding path;

a male coupler at a face of the other one of the first utility module and the second utility module, the male coupler having a projecting locking location disposed in register with the depressed locking location and configured with at least one locking tongue extending along the sliding path at a second direction, opposite to the first direction, and configured for arresting engagement at a space between the at least two locking ribs and depressed surface; and

at least one locking member for arresting the first utility module with respect to the second utility module and preventing sliding displacement along the sliding path,

wherein the at least two locking ribs extend at side edges of the depressed locking location and extend above the depressed surface and spaced from a bottom end of the at least two sidewalls.

Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance: Amended Claim 1 recites a single depressed locking location (244) having two locking ribs (248) that form the coupling engagement as seen in Figure 8A. Ko (US 2014/0161518) discloses the sidewalls (Ko element 23) as inwardly angled dovetail members which may be considered 'ribs'. The presently amended claims specify ribs as distinct members above the depression and the sidewalls as locking ribs (312A and 312B – Figure 12C).

4 Claim 6 recites two locking ribs (312A and 312B – Figure 12C) in two neighboring depressions (308A and 308B). These two ribs in two neighboring depressions serve as the female coupler as discussed in Specification Page 32 Lines 6-14 to hold an item in an offset position from the depressions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GIDEON R. WEINERTH whose telephone number is (571)270-5121. The examiner can normally be reached on Monday-Friday 10AM-6PM EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Pickett can be reached on (571) 272-4560. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. Gregory Pickett/
Supervisory Patent Examiner, Art Unit 3736

/GIDEON R WEINERTH/
Examiner, Art Unit 3736

Notice of References Cited	Application/Control No. 15/826,232	Applicant(s)/Patent Under Reexamination Brunner et al.	
	Examiner GIDEON R WEINERTH	Art Unit 3736	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20140161518-A1	06-2014	KO; Kenneth H.	A47B87/02	403/364
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	Art Unit
	GIDEON R WEINERTH	3736

CPC - Searched*		
Symbol	**Date**	**Examiner**
A47B47/00	6/6/2018	GW
A47B67/04	6/6/2018	GW
A47B87/02,007,0276	6/6/2018	GW
B65D21/0224,02,0223,0212,0217,0219,0222,0228,023,	6/6/2018	GW
B65D25/2823,06	6/6/2018	GW
B25H3/021,022,023,04,06	6/6/2018	GW
Y10T403/7045	6/6/2018	GW
A47B87/02	11/23/2018	GW
A47B88/90	11/23/2018	GW
B25H3/02	11/23/2018	GW
B65D21/0204	11/23/2018	GW
A45C7/0045	2/20/2019	GW
A45C5/14	2/20/2019	GW
B65D21/00	2/20/2019	GW
Update search from co-pending Applications 15826201, 16216724	02/20/2019	GW
Update Search for IDS filed 4/17/2019	04/26/2019	GW
Update Search, Include KO (US 2014/0161518)	06/04/2019	GW

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**
		GW

	/G.W./ Examiner.Art Unit 3728

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	Art Unit
	GIDEON R WEINERTH	3736

US Classification - Searched*			
Class	Subclass	Date	Examiner
206	508,511,504,302,501	6/6/2018	GW
280	47.18,47.19,47.26,79.2	6/6/2018	GW
312	107,111	11/23/2018	GW
280	47.26,47.28,652	11/23/2018	GW

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Update search from Application 16216724 and 15826201	02/20/2019	GW

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
A45C7	0045	2/20/2019	GW
A47B47	00	2/20/2019	GW
A47B67	04	2/20/2019	GW
A47B87	02,007,00276	2/20/2019	GW
A47B88	90	2/20/2019	GW
B65D21	0024,02,00,0223,0212,0217,0219,0222,0228,023,0204	2/20/2019	GW
B65D25	2823,06	2/20/2019	GW
B25H3	021,02,022,023,04,06	2/20/2019	GW
Y10T403	7045	2/20/2019	GW
206	508,511,504,302,501	2/20/2019	GW
280	47.18,47.19,47.26,79.2,47.28,652	2/20/2019	GW
312	107,111	2/20/2019	GW

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	Art Unit
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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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	3	✓	-	-						
	4	✓	-	-						
	5	✓	O	-						
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	15/826,232	Brunner et al.
	Examiner	**Art Unit**
	GIDEON R WEINERTH	3736

CPC						
Symbol					**Type**	**Version**
B65D	/	21	/	0223	F	2013-01-01
B25H	/	3	/	02	I	2013-01-01
A45C	/	13	/	02	I	2013-01-01
B25H	/	3	/	021	I	2013-01-01
B65D	/	21	/	0209	I	2013-01-01
A45C	/	5	/	14	I	2013-01-01
A45C	/	7	/	005	I	2013-01-01
A45F	/	3	/	10	I	2013-01-01
B62B	/	1	/	14	I	2013-01-01
B65D	/	21	/	0228	I	2013-01-01
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B65H	/	2701	/	533	A	2013-01-01
A45C	/	7	/	0045	A	2013-01-01
B25H	/	3	/	023	A	2013-01-01
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B65D	/	2255	/	00	A	2013-01-01

CPC Combination Sets								
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/GIDEON R WEINERTH/ Examiner, Art Unit 3736	04 June 2019	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/J. Gregory Pickett/ Supervisory Patent Examiner, Art Unit 3736	04 June 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6A

U.S. Patent and Trademark Office — Part of Paper No.: 20190604

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	**Art Unit**
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INTERNATIONAL CLASSIFICATION				
CLAIMED				
B65D	/	21	/	02
	/		/	
B25H	/	3	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
206	501

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					
206	504	508	511			
280	47.18					

/GIDEON R WEINERTH/ Examiner, Art Unit 3736	04 June 2019	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/J. Gregory Pickett/ Supervisory Patent Examiner, Art Unit 3736	04 June 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6A

U.S. Patent and Trademark Office — Part of Paper No.: 20190604

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/826,232	Brunner et al.
	Examiner	**Art Unit**
	GIDEON R WEINERTH	3736

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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11	9	5	18												

/GIDEON R WEINERTH/ Examiner, Art Unit 3736	04 June 2019	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/J. Gregory Pickett/ Supervisory Patent Examiner, Art Unit 3736	04 June 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6A

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EAST Search History

EAST Search History (Prior Art)

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S46	7	("1849659").URPN.	USPAT	OR	OFF	2018/04/05 21:29
S47	46	("1849659" | "2774511" | "2916293" | "2994457" | "3053397" | "3100582" | "3113680" | "3219232" | "3282458" | "3647112" | "4000817" | "4176747" | "Re26758" | "Re27649").PN. OR ("4550837").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:30
S48	1066	B65D21/0217,0219,0222,0228,023.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:33
S49	92	B65D21/0217,0219,0222,0228,023.cpc. and spring	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:33
S50	0	("2017/0121056").URPN.	USPAT	OR	OFF	2018/04/05 21:37
S51	4	("20110139777" | "5301829" | "5427265" | "8602217").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:37
S52	16	("20080000899" | "20120312812" | "20130127129" | "3379482" | "3811559" | "4118048" | "4619363" | "5125697" | "5904269" | "6082539" | "6371320" | "6874634" | "6889838" | "7387350" | "7516842").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:39
S53	2	("2012/0024739").URPN.	USPAT	OR	OFF	2018/04/05 21:43
S54	4	("2011/0168599").URPN.	USPAT	OR	OFF	2018/04/05 21:44
S55	22	("5699925" | "6959507" | "20090139892" | "3182856" | "20030155267" | "20080308641" | "3182856" | "5353948" | "3581928" | "4351448" | "20090178989" | "2634020" | "3387732" | "5755180" | "6761266" | "20050224494" | "7246718" | "5606820" | "20090236255" | "5469961").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:45
S56	237	206/501.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:46
S57	2	("2010/0219193").URPN.	USPAT	OR	OFF	2018/04/05 21:50
S58	72	("0879455" | "20040134390" |	US-	OR	OFF	2018/04/05

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		"20040178208" | "20060254946" | "20060254947" | "20080017650" | "20100219193" | "2695115" | "2849151" | "3103278" | "3117692" | "3383009" | "3391824" | "3407758" | "3419184" | "3481502" | "3616943" | "3754645" | "3756396" | "3759416" | "3811747" | "3916803" | "3926321" | "3968879" | "4287997" | "4618059" | "4655360" | "4765252" | "4832200" | "4848605" | "4889235" | "5054617" | "5203494" | "5392945" | "5404829" | "5454477" | "5641090" | "5718350" | "5769230" | "5779051" | "5974981" | "6021916" | "6085467" | "6186345" | "6237758" | "6308858" | "6371364" | "6446563" | "6457599" | "6585090" | "6622642" | "6662950" | "6698362" | "7163122" | "D236326" | "D333094" | "D361715" | "D446017" | "D500924").PN. OR ("8851287").URPN.	PGPUB; USPAT; USOCR			21:50
S59	36	("20020096844" | "4066155" | "4813542" | "5099968" | "5564805" | "5906291" | "D439739").PN. OR ("6585090").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:52
S60	73	("20030029750" | "20030123965" | "20050072642" | "20050077136" | "20060119060" | "20070012694" | "20070068757" | "2497173" | "3061057" | "3452846" | "3532355" | "3572253" | "3650216" | "3861703" | "3891230" | "4081061" | "4118048" | "4122925" | "4350194" | "4621716" | "4657135" | "4693345" | "4738340" | "4792025" | "4813521" | "4951818" | "5038842" | "5048649" | "5109961" | "5142445" | "5178244" | "5186290" | "5197579" | "5339934" | "5373104" | "5379870" | "5407039" | "5447216" | "5484045" | "5484046" | "5632496" | "5713439" | "5890571" | "5927361" | "6073737" | "6116390" | "6164425" | "6213266" | "6401890" | "6520327" | "6585090" | "6634496" | "6758334" | "6976566" | "7077252" | "7232018" | "7380685" | "7398868" | "7726483" | "7780002" | "7942282" | "D294775" | "D453623").PN. OR ("8561769").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:53
S61	44	("20040007574" | "20050036847" | "20050199459" | "20070130731" | "20090178946" | "20120292867" | "3419184" | "3987829" | "4287997" | "4452555" | "5058746" | "5085448" | "5186330" | "5564805" | "5709008" | "5785328" | "6116390" | "6983946" | "7011214" | "7044528" | "7163122" | "7350789" | "7482928" | "7530580" | "7537119" | "7714708" | "7780026" | "7854321" | "7883096" | "7938412" | "8132819" | "8146771" | "8256242" | "8561769" | "8567796" | "D358765" | "D401412" | "D467424" | "D467425" | "D467426" | "RE44656").PN. OR ("9550605").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 21:59

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S62	10	("20050199623" | "5765707" | "5829595" | "6024223" | "7337908").PN. OR ("8146771").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:03
S63	42	("0621601" | "2761582" | "3113690" | "3616943" | "3643993" | "3823973" | "3828964" | "3977558" | "4000704" | "4042111" | "4416374" | "4678084" | "4887731" | "5011036" | "5022546" | "5105967").PN. OR ("5186330").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:05
S64	74	("0879455" | "2849151" | "3005282" | "3371816" | "3393858" | "3481502").PN. OR ("3616943").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:08
S65	36	("1234730" | "20020145022" | "20030010799" | "20040207225" | "20090212584" | "2578238" | "2883764" | "3002650" | "3131829" | "3351228" | "3374914" | "3616943" | "4754883" | "4838745" | "4941784" | "5025964" | "5392945" | "5469999" | "5538153" | "5671511" | "5676251" | "5687895" | "5855310" | "6471278" | "7159730" | "7329451" | "7537119" | "D264014" | "D333094").PN. OR ("9738198").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:09
S66	75	("0879455" | "20040178208" | "20060254947" | "2695115" | "2849151" | "2939603" | "3103278" | "3117692" | "3383009" | "3391824" | "3419184" | "3481502" | "3616943" | "3754645" | "3756396" | "3759416" | "3811747" | "3968879" | "4287997" | "4655360" | "4671411" | "4765252" | "4832200" | "4848605" | "5042674" | "5203494" | "5392945" | "5454477" | "5566824" | "5641090" | "5718350" | "5769230" | "5779051" | "6021916" | "6085467" | "6186345" | "6237758" | "6308858" | "6367630" | "6371364" | "6457599" | "6585090" | "6662950" | "7163122" | "D333094" | "D361715" | "D446017" | "D500924").PN. OR ("7537119").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:10
S67	45	("0491865" | "1142932" | "1665238" | "20060016812" | "20070108080" | "20080264820" | "20100084119" | "3144016" | "3259263" | "3369691" | "3384259" | "3828964" | "4109789" | "4655360" | "4760921" | "4901380" | "5086926" | "5203494" | "5461755" | "5564583" | "5671856" | "5699925" | "5769230" | "6024223" | "6085467" | "6186345" | "6237758" | "6273258" | "6457599" | "6715627" | "6840378" | "6851566" | "7510096" | "7537119" | "8056722" | "RE37518").PN. OR ("8813960").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:11
S68	32	("4506798" | "4626155" | "4741449" | "5109985" | "5123541" | "5190179" | "5722328" | "5862917").PN. OR ("6024223").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:12
S69	4	("1665238").URPN.	USPAT	OR	OFF	2018/04/05 22:15

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S70	39	("2885135" | "3376046" | "3539071" | "3568879" | "3987829" | "4174950" | "4765252" | "4844263" | "D248015").PN. OR ("D333094").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:17
S71	53	("2761582" | "3117692" | "3360162" | "3379341" | "3392875" | "3419184" | "3675815" | "3759416" | "3979016" | "4093071" | "4106624" | "4189052" | "4379508").PN. OR ("4832200").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:19
S72	79	("3117692").URPN.	USPAT	OR	OFF	2018/04/05 22:22
S73	45	("1762635" | "2531671" | "2614399" | "3117692" | "3498494" | "3501044" | "3502241" | "3667647" | "3751852").PN. OR ("4279354").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:24
S74	13	("20060186186" | "20070209962" | "20080202976" | "2328689" | "2828059" | "3811566" | "4279354" | "4293071" | "6315126").PN. OR ("8684222").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:25
S75	45	("1762635" | "2531671" | "2614399" | "3117692" | "3498494" | "3501044" | "3502241" | "3667647" | "3751852").PN. OR ("4279354").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:26
S76	110	("2457842" | "2483464" | "2664219" | "2702142" | "3073466" | "3130855" | "3140007" | "3586204" | "3828964").PN. OR ("4287997").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:30
S77	63	("2461526" | "3078484" | "3114486" | "3233803" | "3749294" | "3902640" | "3915189" | "4082208" | "4287997" | "4307826" | "4366922" | "4424841" | "4491258" | "4545414" | "4673070" | "4790432" | "4813542" | "4884731" | "5131576" | "5184763" | "5321904" | "5419473").PN. OR ("5628443").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:33
S78	151	("1409838" | "20010040080" | "20020074332" | "20020130005" | "20020185350" | "20030034215" | "20030034636" | "20040000457" | "20040004332" | "20040026199" | "20040074725" | "20040163910" | "20040211634" | "20040238303" | "20050077133" | "20050077706" | "20050098402" | "20050103590" | "20050150733" | "20050258621" | "20050285359" | "20060010644" | "20060086583" | "20060102677" | "20060163305" | "20060175170" | "20060196743" | "20060207848" | "20080060953" | "20080136133" | "20080223679" | "20080236972" | "20080308369" | "20080308370" | "20090057082" | "20090139813" | "20090160147" | "20090218187" | "20100000805" | "20100025174" | "20100095480" | "20100108452" | "20100147642" | "20100263977" | "20100307879" | "20100308563" | "20110247910" | "20120160617" | "20120261223" | "20150091264" | "20160045000" | "2454438" | "2602675" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:34

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		"3131829" | "3178197" | "3317081" | "3659867" | "3842953" | "3891230" | "3974898" | "4087102" | "4314624" | "4335895" | "4575109" | "4588055" | "4673070" | "4917392" | "4953257" | "4969660" | "5072958" | "5105962" | "5127662" | "5263727" | "5310071" | "5348325" | "5533231" | "5628443" | "5630601" | "5749503" | "5803471" | "5815843" | "5873145" | "5984154" | "5984327" | "6016893" | "6042127" | "6047442" | "6141841" | "6179176" | "6182981" | "6186295" | "6196366" | "6196560" | "6213266" | "6213267" | "6237734" | "6260871" | "6279705" | "6289554" | "6305587" | "6360400" | "6367602" | "6401888" | "6401890" | "6409412" | "6454065" | "6471019" | "6474524").PN. OR ("6484362" | "6530507" | "6533086" | "6575493" | "6591950" | "6604617" | "6609271" | "6736073" | "6769701" | "6832670" | "6880685" | "6923352" | "6961976" | "6964420" | "7066311" | "7070190" | "7073694" | "7093700" | "7097181" | "7097183" | "7143912" | "7226073" | "7232018" | "7237660" | "7281616" | "7284304" | "7318507" | "7328779" | "7350648" | "7374183" | "7426985" | "7441785" | "7478803" | "7594569" | "7597341" | "7780026" | "8607947").PN. OR ("9888752").URPN.				
S79	6	("2008/0308369").URPN.	USPAT	OR	OFF	2018/04/05 22:35
S80	45	("0672173" | "1084360" | "20020144376" | "20040084269" | "20040173427" | "20040238241" | "20050077136" | "20050092568" | "20080308369" | "20090095588" | "20090101461" | "20100059322" | "20100170761" | "20100236886" | "20100270116" | "20110168507" | "20130037364" | "20130175129" | "20130213753" | "20130220754" | "2581417" | "4836343" | "5099968" | "5355980" | "5560458" | "5671832" | "5829559" | "5927450" | "5988334" | "6347693" | "6533086" | "6536568" | "7322477" | "7322585" | "7503569" | "7909149" | "8087513" | "D516869" | "D671316").PN. OR ("9027722").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:36
S81	35	("0922567" | "1084360" | "1567461" | "2372845" | "2428906" | "2801666" | "2858957" | "3837447" | "4098312" | "4122925" | "4142563" | "4257463" | "4286639" | "4673070" | "4744446").PN. OR ("4836343").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:39
S82	51	("0778785" | "1567461" | "2372845" | "2428906" | "2989998" | "3631572" | "3696850" | "4122925" | "4128194" | "4256245" | "4424841").PN. OR ("4673070").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:40

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S83	33	("0842498" | "1689399" | "3114486" | "3698045" | "4231135" | "4673070" | "4799298" | "4934573" | "5205448" | "5259093" | "5465425" | "5604958" | "5632071" | "5724707" | "5815843" | "6108816" | "7080430" | "7251867").PN. OR ("7526842").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:41
S84	23	("2428906" | "2707035" | "3225951" | "3319744" | "3696850" | "3958731").PN. OR ("4122925").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:43
S85	33	("1973819" | "2007696" | "3373911").PN. OR ("4142563").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:46
S86	12	("2858957").URPN.	USPAT	OR	OFF	2018/04/05 22:48
S87	12	("20060071581" | "20080060964" | "2858957" | "3346137" | "3568879" | "4258847" | "4592601" | "4685565" | "4863222" | "7311202").PN. OR ("9724820").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:49
S88	43	("2128854" | "3743372").PN. OR ("4863222").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:49
S89	73	("2842420" | "2998128" | "3032381" | "3294463" | "3501044" | "3552817").PN. OR ("3743372").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:51
S90	36	("2011962" | "3514170" | "3552817" | "3743372" | "3851936" | "3999818" | "4198777" | "4238032" | "4353470" | "4589546" | "4744612" | "4782619" | "4874210" | "4907703" | "5046789" | "5137340" | "5176435" | "5191983" | "5344024" | "5399004" | "5454634").PN. OR ("6050657").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:53
S91	17	("3131829" | "3429632" | "3552579" | "3707023" | "4062302" | "4239306" | "5246284").PN. OR ("5454634").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:55
S92	55	("0511617" | "1890000" | "2492697" | "2557630" | "2807387" | "3203744" | "3283915" | "3514170" | "3743372" | "3758181" | "3918781" | "3999818" | "4026615" | "4056295" | "4120549").PN. OR ("4243279").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 22:59
S93	45	("2593998" | "2653072" | "2730423" | "3131829" | "3219400" | "3514170" | "3552817" | "3563624" | "3743372" | "3814489").PN. OR ("3999818").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:03
S94	14	("2593998").URPN.	USPAT	OR	OFF	2018/04/05 23:06
S95	52	("4081061" | "4621716" | "5316159" | "6213266" | "6213267" | "7976024" | "1084360" | "3749273" | "4570799" | "4995436" | "5779051" | "D447944" | "3103278" | "3374917" | "5000713" | "6585090" | "5098328" | "D359315" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:14

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		"20030132184" | "20050199459" | "4813542" | "0480709" | "5062539" | "5186290" | "6276550" | "D346627" | "5310071" | "20040222059" | "3583590" | "3836043" | "4287997" | "4656840" | "5167336" | "5392945" | "6257381" | "20040000458" | "4573595" | "7644828" | "D483200" | "7648407" | "3811747" | "20010027902" | "5099968" | "5485920" | "5709304" | "5735422" | "3346137").PN.				
S96	22	("3131829" | "3194426" | "3338452" | "4258847" | "4328902" | "4428479" | "5016946" | "5050755" | "5310071" | "5316159" | "5503288" | "5845790").PN. OR ("6276550").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:16
S97	41	("2454438" | "2495132" | "3131829" | "3194426" | "3297196" | "3317081" | "3343705" | "3404805" | "3851936" | "4192422").PN. OR ("4328902").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:18
S98	43	("1092651" | "2565969" | "2891639" | "3028207" | "3032381" | "3506321").PN. OR ("3974898").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:29
S99	11	("0907507" | "1626482" | "2343525" | "3974898" | "4065014").PN. OR ("4423687").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/05 23:30
S100	32	("3481502").URPN.	USPAT	OR	OFF	2018/04/05 23:38
S101	8	(("1112943") or ("2255513") or ("2849151") or ("3371816")).PN.	USPAT; USOCR	OR	OFF	2018/04/05 23:41
S102	16	("2849151").URPN.	USPAT	OR	OFF	2018/04/05 23:41
S103	8	(("0993866") or ("1342909") or ("1514512") or ("1640368")).PN.	USPAT; USOCR	OR	OFF	2018/04/05 23:42
S104	21	("1112943").URPN.	USPAT	OR	OFF	2018/04/05 23:43
S105	16	("2849151").URPN.	USPAT	OR	OFF	2018/04/06 12:32
S106	8	(("0993866") or ("1342909") or ("1514512") or ("1640368")).PN.	USPAT; USOCR	OR	OFF	2018/04/06 12:33
S107	22	("879455").URPN.	USPAT	OR	OFF	2018/04/06 12:34
S108	16	("2849151").URPN.	USPAT	OR	OFF	2018/04/06 13:10
S109	8	(("0993866") or ("1342909") or ("1514512") or ("1640368")).PN.	USPAT; USOCR	OR	OFF	2018/04/06 13:11
S110	37	("3899229" | "4431237" | "4519655" | "4828341" | "4889254" | "5191983").PN. OR ("5469961").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 13:11
S111	25	("20030155267" | "20050224494" | "20080308641" | "20090139892" | "20090178989" | "20090236255" | "2634020" | "3182856" | "3387732" | "3581928" | "4351448" | "5353948" | "5469961" | "5606820" | "5699925" | "5755180" | "6761266" | "6959507" | "7246718").PN. OR	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 13:12

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		("8677661").URPN.				
S112	24	("1226708" | "2833137" | "2834121" | "2843943" | "3139744" | "3220229" | "3545235" | "3824813" | "4507942" | "4551996" | "4663948" | "4680948" | "4821535" | "4972687" | "4989426" | "5469961" | "5653416").PN. OR ("5951130").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 13:13
S113	118	(US-20130127129-$ or US-20110155613-$ or US-20110139665-$ or US-20040195793-$ or US-20020000440-$ or US-20120292213-$ or US-20070012694-$ or US-20150336710-$ or US-20020134700-$ or US-20100270764-$ or US-20100000893-$ or US-20050062244-$ or US-20040183266-$ or US-20020014488-$ or US-20020113386-$ or US-20030196860-$ or US-20170259956-$ or US-20160144500-$ or US-20160130034-$ or US-20150274362-$ or US-20110168599-$ or US-20090178989-$ or US-20100219193-$ or US-20060254946-$ or US-20070068757-$ or US-20090178946-$).did. or (US-20050199459-$ or US-20080308369-$ or US-20050077136-$).did. or (US-7503569-$ or US-9022234-$ or US-8875888-$ or US-8657307-$ or US-8590704-$ or US-3182856-$ or US-8459495-$ or US-7097036-$ or US-6193062-$ or US-9393684-$ or US-6637592-$ or US-D730088-$ or US-5833065-$ or US-5482162-$ or US-5244265-$ or US-4244509-$ or US-9643629-$ or US-7780026-$ or US-9132543-$ or US-8567796-$ or US-8226092-$ or US-8201837-$ or US-8132819-$ or US-7997594-$ or US-3010775-$ or US-9669930-$).did. or (US-4813542-$ or US-6585090-$ or US-6085925-$ or US-D776106-$ or US-6839238-$ or US-9609964-$ or US-7152752-$ or US-9506489-$ or US-3944282-$ or US-5241765-$ or US-4389078-$ or US-1849659-$ or US-4405057-$ or US-9802741-$ or US-8851287-$ or US-8763836-$ or US-8561769-$ or US-D808164-$ or US-9550605-$ or US-4887731-$ or US-9738198-$ or US-7537119-$ or US-8813960-$ or US-9669968-$ or US-6024223-$ or US-1665238-$ or US-D333094-$).did. or (US-3376046-$ or US-4832200-$ or US-D364558-$ or US-3419184-$ or US-3117692-$ or US-8684222-$ or US-2328689-$ or US-4287997-$ or US-5628443-$ or US-9888752-$ or US-9027722-$ or US-4673070-$ or US-7526842-$ or US-5465839-$ or US-9724820-$ or US-4863222-$ or US-3743372-$ or US-6050657-$ or US-5454634-$ or US-3851936-$ or US-5602721-$ or US-3999818-$ or US-5271515-$ or US-4243279-$ or US-6276550-$ or US-4328902-$ or US-7350648-$).did. or (US-5407074-$ or US-3481502-$ or US-2849151-$ or US-3616943-$ or US-5469961-$ or US-8677661-$ or US-5951130-$).did. or (US-3117692-$ or US-2593998-$).did.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:03
S115	286	B65D21/0223.cpc.	US-PGPUB; USPAT;	OR	OFF	2018/04/06 18:05

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			USOCR			
S116	226	B65D21/0224.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:05
S117	2198	B25H3/021,022,023,04,06.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:07
S118	436	A47B47/00.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:10
S119	1076	A47B87/02,007,0276.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:10
S120	550	A47B67/04.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:11
S121	770	Y10T403/7045.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:12
S122	9	("7451578" | "6209278" | "4599841" | "6363677" | "6955020" | "7040068" | "6588166" | "6804926" | "6658808").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:14
S123	102	("0890436" | "2740167" | "3310919" | "3988187" | "5295341" | "5630304" | "6023907" | "1854396" | "2381469" | "20030029116" | "3040388" | "3192574" | "3347048" | "3526420" | "4599841" | "6098365" | "5899038" | "20020112433" | "20030029115" | "2381469" | "3673751" | "4599841" | "4819932" | "5086599" | "5363616" | "6029416" | "6216409" | "6324809" | "6546691" | "6606834" | "6647690" | "20030029115" | "3902291" | "5295341" | "5630304" | "6421970" | "6763643" | "0753791" | "20030029116" | "2430200" | "3579941" | "5283102" | "6209278" | "6647690" | "6854235" | "20030024201" | "3579941" | "3673751" | "4426820" | "4741136" | "5860267" | "6023907" | "6122879" | "6769835" | "0338653" | "1776188" | "1854396" | "20030024201" | "3172508" | "3175476" | "3902291" | "4094090" | "5706621" | "6122879" | "6397548" | "2740167" | "20020112433" | "3175476" | "4416097" | "5797237" | "6029416" | "6182410" | "6397548" | "0890436" | "0623562" | "3040388" | "3192574" | "3347048" | "4426820" | "5860267" | "6098365" | "6490836" | "20050210810" | "3310919" | "4819932" | "5086599" | "5283102" | "6006486" | "6101778" | "6209278" | "6324809" | "3720027" | "20020170258" | "4416097" | "4807416" | "5165816" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:15

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		"5618602" | "6094882" | "6101778" | "6182410" | "6513862" | "20020170258" | "20030024200" | "3657852" | "3988187" | "5165816" | "6094882" | "6591568" | "5274979" | "6772568" | "3200553" | "3657852" | "4741136" | "4819532" | "5797237" | "6006486" | "6505452" | "6591568" | "6854235" | "4094090" | "5363616" | "5618602" | "6513862" | "6606834" | "5548937" | "6880307" | "7065935" | "20030024200" | "2138085" | "2142305" | "3526420" | "5348778" | "20050210810" | "1776188" | "2138085" | "2142305" | "2430200" | "3172508" | "0338653" | "5706621" | "6490836" | "6504552" | "6546691" | "5274979" | "1723306").PN.				
S124	373	("2740167").URPN.	USPAT	OR	OFF	2018/04/06 18:16
S125	477	("0087853" | "0108068" | "0124228" | "0213740" | "0274354" | "0316176" | "0634581" | "0861911" | "1194636" | "1723306" | "1743492" | "1809393" | "1902716" | "20010024707" | "20020031646" | "20020069611" | "20020092263" | "20020170258" | "20020170259" | "20020178674" | "20020178680" | "20020189190" | "20020194807" | "20030009971" | "20030024199" | "20030037504" | "20030084636" | "20030094230" | "20030101681" | "20030145549" | "20030180091" | "20030188504" | "20030196405" | "20040016196" | "20040031227" | "20040049999" | "20040060255" | "20040068954" | "20040123548" | "20040128934" | "20040139676" | "20040139678" | "20040159066" | "20040168392" | "20040177584" | "20040182033" | "20040182036" | "20040200175" | "20040211143" | "20040244325" | "20040250492" | "20040261348" | "20050003132" | "20050028474" | "20050050827" | "20050160694" | "20050166514" | "20050205161" | "20050210810" | "20050235593" | "20050252130" | "20050268570" | "20060053724" | "20060070333" | "20060101769" | "20060156670" | "20060174577" | "20060179754" | "20060236642" | "20060260254" | "20060272262" | "20070006543" | "20070011981" | "20070028547" | "20070065293" | "20070175156" | "20070193178" | "20080000182" | "20080000186" | "20080000187" | "20080005998" | "20080010931" | "20080010937" | "20080028707" | "20080034708" | "20080041008" | "20080066415" | "20080104921" | "20080110125" | "20080134607" | "20080134613" | "20080134614" | "20080155930" | "20080216434" | "20080216920" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:17

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		"20080295432" | "20090133353").PN. OR ("20090193748" | "20100293879" | "20100300031" | "20100319290" | "20100319291" | "20110030303" | "20110041996" | "20110088344" | "20110088345" | "20110088346" | "20110154763" | "20110167750" | "20110225922" | "20110252733" | "20110283650" | "20120017533" | "20120031029" | "20120036804" | "20120151865" | "20120174515" | "20120174520" | "20120279161" | "20130008117" | "20130014463" | "20130019555" | "20130042562" | "20130042563" | "20130042564" | "20130042565" | "20130047536" | "20130081349" | "20130111845" | "20130145708" | "20130160391" | "20130232905" | "20130239508" | "20130263454" | "20130263547" | "20130318906" | "20140007539" | "20140020324" | "20140033634" | "20140053497" | "20140059966" | "20140069043" | "20140090335" | "20140109501" | "20140109506" | "20140123586" | "20140150369" | "20140190112" | "20140208677" | "20140223852" | "20140237931" | "20140250813" | "20140260060" | "20140305065" | "20140366476" | "20140373478" | "20140373480" | "20150000221" | "20150013260" | "20150059281" | "20150089896" | "20150121796" | "20150152644" | "20150167318" | "20150211239" | "20150233125" | "20150267419" | "20150300029" | "20150330088" | "20150337537" | "20160032596" | "20160060879" | "20160069088" | "20160076260" | "20160090744" | "20160153200" | "20160168866" | "20160186426" | "20160194884" | "20160201336" | "20160251859" | "20160251860" | "20160281368" | "20160281370" | "20160340913" | "20170037641" | "2026511" | "2204675" | "2266464" | "2277758" | "2430200" | "2596280").PN. OR ("2732706" | "2740167" | "2858584" | "2863185" | "2865058" | "2889016" | "3023681" | "3077703" | "3099110" | "3147522" | "3271787" | "3325585" | "3331180" | "3378958" | "3396640" | "3512324" | "3517927" | "3526071" | "3535844" | "3572224" | "3579941" | "3720027" | "3722379" | "3731445" | "3742669" | "3760547" | "3760548" | "3778954" | "3849235" | "3919820" | "3950915" | "3994609" | "4007994" | "4030852" | "4037377" | "4041665" | "4064571" | "4080086" | "4082129" | "4100710" | "4104840" | "4107892" | "4113399" | "4169688" | "4196554" | "4227430" | "4299070" | "4304083" | "4426820" | "4447172" |				

		"4512131" | "4599841" | "4648165" |						
		"4819932" | "5007222" | "5026112" |						
		"5071282" | "5135597" | "5148850" |						
		"5173012" | "5182892" | "5247773" |						
		"5272850" | "5274979" | "5295341" |						
		"5344700" | "5348778" | "5373674" |						
		"5465546" | "5485702" | "5502939" |						
		"5548937" | "5577357" | "5598682" |						
		"5618602" | "5634309" | "5658086" |						
		"5694730" | "5755068" | "5860267" |						
		"5899038" | "5910084" | "5950389" |						
		"5970675" | "6006486" | "6029416" |						
		"6052960" | "6065262" | "6173548" |						
		"6182410" | "6203653" | "6254301" |						
		"6295779" | "6314701" | "6332733" |						
		"6339908" | "6345481" | "6358352" |						
		"6363677" | "6385936" | "6418683" |						
		"6446413" | "6449918" | "6450235" |						
		"6490836" | "6505452" | "6546691" |						
		"6553724" | "6576079" | "6584747" |						
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		"6685391" | "6729091" | "6763643" |						
		"6766622" | "6769219" | "6769835").PN. OR						
		("6802166" | "6804926" | "6808777" |						
		"6854235" | "6862857" | "6865855" |						
		"6874291" | "6880307" | "6948716" |						
		"7021019" | "7040068" | "7051486" |						
		"7108031" | "7121058" | "7152383" |						
		"7188456" | "7219392" | "7251916" |						
		"7337588" | "7377081" | "7451578" |						
		"7454875" | "7516588" | "7517427" |						
		"7533500" | "7556849" | "7568322" |						
		"7584583" | "7614197" | "7617651" |						
		"7634884" | "7637068" | "7644553" |						
		"7677005" | "7716889" | "7721503" |						
		"7757452" | "7802411" | "7806624" |						
		"7841144" | "7841145" | "7841150" |						
		"7856789" | "7861482" | "7866110" |						
		"7908815" | "7908816" | "7930862" |						
		"7954295" | "7980041" | "8006458" |						
		"8033074" | "8042311" | "8061104" |						
		"8079196" | "8112967" | "8171692" |						
		"8181416" | "8234830" | "8245478" |						
		"8341914" | "8341915" | "8353140" |						
		"8359805" | "8381477" | "8387327" |						
		"8448402" | "8499521" | "8505257" |						
		"8511031" | "8528289" | "8544230" |						
		"8544234" | "8572922" | "8578675" |						
		"8596013" | "8627862" | "8640424" |						
		"8650826" | "8677714" | "8689512" |						
		"8701368" | "8707650" | "8713886" |						
		"8733065" | "8733410" | "8763341" |						
		"8769905" | "8776473" | "8844236" |						
		"8857126" | "8869485" | "8898988" |						
		"8925274" | "8959866" | "8973331" |						
		"9027306" | "9051738" | "9068360" |						
		"9091077" | "9194134" | "9212492" |						
		"9216541" | "9238917" | "9284737" |						
		"9309679" | "9316002" | "9340974" |						
		"9347469" | "9359774" | "9366036" |						
		"9376821" | "9382716" | "9388584" |						
		"9428919" | "9453347" | "9458634" |						

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		"9482012" | "9540826" | "9663940" | "RE30154").PN. OR ("9803375").URPN.				
S126	100	("2732706").URPN.	USPAT	OR	OFF	2018/04/06 18:21
S127	16	(("1351133") or ("1459189") or ("1465421") or ("1652421") or ("1652305") or ("1667160") or ("2201110") or ("2460330")).PN.	USPAT; USOCR	OR	OFF	2018/04/06 18:22
S128	6	(("0935402") or ("1925070") or ("2453918")).PN.	USPAT; USOCR	OR	OFF	2018/04/06 18:23
S129	3	("3351366").URPN.	USPAT	OR	OFF	2018/04/06 18:39
S130	51	("1575270" | "20020170933" | "20030141329" | "20050247653" | "20060237509" | "20080142462" | "20080179370" | "20080185353" | "20090145789" | "20090145866" | "20140075650" | "20170266804" | "2290468" | "2546720" | "2763377" | "2964196" | "3145031" | "3536286" | "4264013" | "4923202" | "4932576" | "5395023" | "5511705" | "5722576" | "5881891" | "5971242" | "6213365" | "6666465" | "6698632" | "6874624" | "7090075" | "7322482" | "7686196" | "7699197" | "7726495" | "7762440" | "8267260" | "8510868" | "9038869" | "D163637" | "D165553" | "D328681").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:42
S131	18	("2715966" | "20050247653" | "4771897" | "5429252" | "5740927" | "5845792" | "5915573" | "6152312" | "6267338" | "6435357" | "6564949" | "6581788" | "6698603" | "6871749" | "7014052" | "7028854" | "7117998").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:43
S132	7	("20100314271" | "8991599" | "5799787" | "7686180" | "8695795" | "8991599" | "20100314271" | "5797508" | "3862689").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:46
S133	2	("20080236562" | "7723655").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:47
S134	6	(matthew near3 vargo).inv.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:49
S135	75	(Hoppe near2 Christopher).inv.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:49
S136	14	B65D25/2823.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:54
S137	351	B65D25/06.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 18:54
S138	73	(Milwaukee adj Electric).as. and (stack box)	US-	OR	OFF	2018/04/06

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			PGPUB; USPAT; USOCR			19:01
S139	8	(Milwaukee adj Electric).as. and ("220" "206" "215").clas.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:02
S140	8	(Milwaukee and tool).as. and ("220" "206" "215").clas.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:02
S141	84	(Milwaukee and tool).as. and latch	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:03
S142	37	(Milwaukee and tool).as. and (stack stacked stacking)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:04
S143	629	("1275862" | "20010022257" | "20020008125" | "20020014507" | "20020017752" | "20020043534" | "20020074332" | "20020084159" | "20020125160" | "20020162716" | "20020163284" | "20030034636" | "20030042091" | "20030042093" | "20030075468" | "20030132080" | "20030151218" | "20040004332" | "20040026199" | "20040026294" | "20040036240" | "20040108179" | "20040112777" | "20040144606" | "20040154889" | "20040163910" | "20040188201" | "20040188205" | "20040195791" | "20040206431" | "20040245735" | "20050023096" | "20050056511" | "20050109650" | "20050121275" | "20050121868" | "20050194756" | "20050224305" | "20050279123" | "20060017293" | "20060124505" | "20060144732" | "20060151967" | "20060196744" | "20060201834" | "20060213735" | "20070045370" | "20070045974" | "20070051765" | "20070074941" | "20070137960" | "20070164064" | "20070170671" | "20070194543" | "20070200309" | "20070215425" | "20070241113" | "20070267371" | "20070290466" | "20080017463" | "20080017537" | "20080035508" | "20080035510" | "20080067206" | "20080135364" | "20080135366" | "20080136130" | "20080152944" | "20080164842" | "20080169739" | "20080217130" | "20080230416" | "20090014974" | "20090080809" | "20090139813" | "20090166141" | "20090211932" | "20090212536" | "20090236810" | "20090250365" | "20090301833" | "20100000805" | "20100012538" | "20100012655" | "20100033325" | "20100101908" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:04

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		"5605263" | "5609278" | "5620212" |					
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		"5893495" | "5915553" | "5915554" |					
		"5924533" | "5927837" | "5934425" |					
		"5941437" | "5943936" | "5967270" |					
		"5971101" | "5992588" | "5997116" |					
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		"6206063" | "6213296" | "6227339" |					
		"6230887" | "6244485" | "6244486" |					
		"6289554" | "6301746" | "6305514" |					
		"6318713" | "6328320" | "6343708" |					
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		"6446988" | "6460668" | "6471019" |					
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		"6502882" | "6505843" | "6520514" |					
		"6527309" | "6530507" | "6533138" |					
		"6550651" | "6561327" | "6561402" |					
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		"6666363" | "6675965" | "6675967" |					
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		"7237673" | "7237688" | "7240909" |					
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		"7334680" | "7357250" | "7357268" |					
		"7367451" | "7370891" | "7374183" |					
		"7387304" | "7387305" | "7387350" |					
		"7389997" | "7401698" | "7401700" |					
		"7416066" | "7418846" | "7438084" |					
		"7438308" | "7458601" | "7461730" |					
		"7467695" | "7478711" | "7500547" |					
		"7503439" | "7503440" | "7503569" |					

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		"7516502" | "7540364" | "7552560" | "7552950" | "7571915" | "7581736" | "7591627" | "7594569" | "7597341" | "7600618" | "7600640").PN. OR ("7631380" | "7661530" | "7661683" | "7780051" | "7823991" | "7837053" | "7837206" | "7845653" | "7850020" | "7854321" | "7874328" | "7883096" | "7938412" | "7946609" | "7984820" | "7997591" | "8037983" | "8056919" | "8056943" | "8061536" | "8087513" | "8123007" | "8123068" | "8132289" | "8132819" | "8152037" | "8191910" | "8210387" | "8256591" | "8262106" | "8267230" | "8267245" | "8267247" | "8272628" | "8282113" | "8327576" | "8328247" | "8328530" | "8342543" | "8365886" | "8376177" | "8434617" | "8439174" | "8469195" | "8505729" | "8517155" | "8517400" | "8534434" | "8567796" | "8657307" | "8662268" | "8695770" | "8708351" | "8752683" | "8844689" | "8851282" | "8869960" | "8888111" | "8919896" | "8936140" | "8936258" | "8960959" | "8979073" | "8979100" | "9060577" | "9066565" | "9067614" | "9095193" | "9260129" | "9295313" | "D258705" | "D259154" | "D272203" | "D309981" | "D316485" | "D326815" | "D333215" | "D333487" | "D347731" | "D355849" | "D368159" | "D370619" | "D374772" | "D375834" | "D377118" | "D378247" | "D385110" | "D386903" | "D390358" | "D402106" | "D405956" | "D414038" | "D418977" | "D437684" | "D447340" | "D447630" | "D448162" | "D449442" | "D449738" | "D451275" | "D452071" | "D453624" | "D455263" | "D459073" | "D462168" | "D465923" | "D467070" | "D470659" | "D471360" | "D472385" | "D472774" | "D480867" | "D505548" | "D509656" | "D516310" | "D516808" | "D516812" | "D520746" | "D563669" | "D572479" | "D572480" | "D588811" | "D589703" | "D599112" | "D600015").PN. OR ("D600912" | "D601797" | "D605403" | "D608094" | "D609911" | "D609913" | "D616200" | "D618911" | "D621153" | "D621610" | "D624317" | "D625515" | "D625915" | "D627968" | "D629607" | "D630435" | "D630851" | "D635769" | "D636996" | "D637812" | "D639554" | "D641552" | "D647301" | "D648532" | "D648533" | "D649350" | "D649783" | "D661858" | "D661903" | "D664354" | "D668867" | "D668868" | "D668869" | "D670500" | "D672555" | "D673774" | "D701696" | "D744750" | "D750890").PN. OR ("9616562").URPN.				
S144	325	B65D21/0212.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:09
S145	27	("4212415" | "4664283" | "4823955" |	US-	OR	OFF	2018/04/06

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		"4896926" | "5246105").PN. OR ("5544751").URPN.	PGPUB; USPAT; USOCR			19:11
S146	44	("1699130" | "2072672" | "2551814" | "2633285" | "2736487" | "3010638" | "3361322" | "3623650" | "3632037" | "3713579" | "3905478" | "3905541" | "3921896" | "4002261" | "4023617" | "4187977" | "4230233" | "4245773" | "4251006" | "4277015" | "4291830" | "4389013" | "4482074" | "4643314" | "4685610" | "4762270" | "4763833" | "4828894" | "4884739" | "4911356" | "4948039" | "4993623" | "5038998" | "5116290" | "5190213").PN. OR ("5429260").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 19:12
S147	0	("1140005").URPN.	USPAT	OR	OFF	2018/04/06 19:30
S148	119	("1267650" | "1999162" | "3163268" | "3379482" | "3419184" | "3425471" | "3498689" | "3642168" | "3700137" | "3979016" | "3987829" | "4161261" | "4293073" | "4303158" | "4523692" | "4664347" | "4799503" | "4804092" | "4819795" | "4915913" | "4982863" | "4984687" | "5011013" | "5024471" | "5040834" | "5042674" | "5065885" | "5065887" | "5080250" | "5103994" | "5117979" | "5123564" | "5176281" | "5186330" | "5190152" | "5193706" | "5244265" | "5319937" | "D237135" | "D237611" | "D238148" | "D239695" | "D246872" | "D248280" | "D257934" | "D258721" | "D277797" | "D286937" | "D292711" | "D302774" | "D312573" | "D316516" | "D319016" | "D321090" | "D321091" | "D322164" | "D325323" | "D325324" | "D326775" | "D326815" | "D327646" | "D328425" | "D328818" | "D328819" | "D329331" | "D329747" | "D330161" | "D330162" | "D330329" | "D331317" | "D335960" | "D336366" | "D339471" | "D342364").PN. OR ("5564805").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 20:05
S149	62	("0198092" | "0564782" | "1063046" | "1268124" | "1740470" | "1987822" | "2011197" | "2094805" | "2122969" | "2504722" | "2759507" | "2786500" | "2791251" | "2799306" | "3018355" | "3615087" | "3746210" | "3851756" | "4061323" | "4239195" | "4256294" | "4278243" | "4303158" | "4378828" | "4460085" | "4909491" | "4911296" | "5011013" | "5117979" | "5193706" | "D253212" | "D263533" | "D288867").PN. OR ("5595228").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 22:03
S150	15	("2587829" | "2610761" | "2740517" | "4252239" | "4733703" | "5329929" | "5595228").PN. OR ("6206063").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/06 22:04
S151	6	("4466659" | "4967944" | "5207470" | "6193118" | "6554169" | "7000810").PN.	US-PGPUB;	OR	OFF	2018/04/07 00:38

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			USPAT; USOCR			
S152	96	("1032326" | "1503894" | "1926162" | "2612200" | "2629644" | "2724595" | "2735597" | "2754079" | "2979190" | "3229946" | "3640423" | "3642168" | "3664704" | "3727971" | "3759416" | "3791547" | "3854621" | "3940009" | "3987829" | "4190281" | "4213539" | "4215896" | "4288011" | "4403786" | "4458570" | "4488669" | "4499998" | "4522326" | "4531774" | "4580827" | "4593816" | "4623071" | "4674665" | "D259413" | "D285673").PN. OR ("4967944").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 00:38
S153	25	("2967080" | "2987358" | "4844305" | "4967944" | "5419476" | "5667115").PN. OR ("5988473").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 00:40
S154	10	("2987358").URPN.	USPAT	OR	OFF	2018/04/07 00:41
S155	4	("2009/0315285").URPN.	USPAT	OR	OFF	2018/04/07 00:46
S156	223	("5072918" | "5390943" | "5871219" | "6739605" | "0875476" | "6086073" | "4743040" | "6109628" | "1427388" | "20040129658" | "20050023786" | "20050057011" | "20060232033" | "20060237091" | "3472392" | "3999775" | "4699270" | "4786122" | "5072955" | "5743607" | "5876047" | "6123346" | "6545863" | "7232136" | "D396023" | "6497423" | "D153654" | "2155769" | "3313498" | "3870177" | "4391422" | "4763799" | "4923202" | "4998023" | "5509671" | "5915646" | "6073919" | "6095156" | "6170839" | "6264216" | "D188099" | "D460235" | "D461941" | "D469235" | "5921566" | "D415867" | "20030047895" | "20030218308" | "5183372" | "5275349" | "5465988" | "5913528" | "6276471" | "6752281" | "7114733" | "7134673" | "7144020" | "4743040" | "3379431" | "4457527" | "5316232" | "5566961" | "6572123" | "D153654" | "D415867" | "6497423" | "D485037" | "20060066064" | "3698735" | "3908749" | "4895068" | "6138558" | "6251113" | "6267080" | "6471010" | "6497424" | "7207449" | "4901937" | "5308012" | "6270094" | "D463646" | "D474570" | "D485410" | "5921566" | "D273242" | "D474570" | "1149639" | "2413164" | "2575661" | "2819908" | "20050001395" | "20060006621" | "20060157944" | "4099735" | "4688860" | "5048857" | "5224531" | "5452908" | "7017603" | "7156475" | "7204374" | "7296808" | "5887878" | "1126544" | "2705114" | "20050280228" | "20050284697" | "5285981" | "6116533" | "D302064" | "D361187" | "D381168" | "D424321" | "D487604" | "D504000" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 00:50

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		"D469235" | "1200008" | "1471446" | "1562089" | "2623642" | "2845780" | "20010045718" | "20020084607" | "20020096844" | "20060076306" | "3965969" | "4138504" | "4165088" | "4373761" | "4880248" | "6539831" | "7044569" | "5154544" | "20040065989" | "20040227315" | "3212645" | "4179080" | "4759560" | "5188308" | "5362078" | "5495951" | "5687928" | "5839739" | "5971512" | "6497423" | "6669214" | "D336183" | "D471687" | "6086073" | "D302064" | "D336183" | "20020060438" | "20040056439" | "20060208440" | "4518208" | "4832355" | "5221132" | "5375860" | "5873585" | "6022088" | "6101831" | "6206385" | "D140635" | "4380293" | "6109437" | "3610431" | "4743040" | "5269545" | "5848798" | "6241181" | "6315376" | "D391032" | "D395108" | "D403826" | "D468881" | "D471688" | "D485037" | "20030122331" | "4923202" | "1487856" | "20030107195" | "3606445" | "3873114" | "5011240" | "5634649" | "5716116" | "5941229" | "6578938" | "6783563" | "6910710" | "D469235" | "4815394" | "1660521" | "3759538" | "4564152" | "4585130" | "5016948" | "5123666" | "5595395" | "6102497" | "6109628" | "6322061" | "6615973" | "D361188" | "D153654" | "1649065" | "20020064478" | "20030121874" | "20050127627" | "3722700" | "4019793" | "5282678" | "6857644" | "D147135").PN.				
S157	18	("1193809" | "1268124" | "1521310" | "3696850" | "4724976" | "4756394" | "4787488" | "5209279" | "5219423" | "5314046" | "5971119" | "0622263" | "0695149").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 00:56
S158	31	("0783059" | "2878928" | "3245528" | "3319685" | "3386607" | "3605374" | "3835992" | "3992810" | "4320846" | "4627595" | "4799590" | "4890741" | "5135823" | "5370255").PN. OR ("5676274").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 16:50
S159	26	("1101357" | "1149266" | "1862868" | "2702116" | "3145871" | "4154362" | "4503955" | "4705316" | "4896926" | "4998616").PN. OR ("5415255").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 16:53
S160	37	("3182856" | "3565146" | "4951812" | "4998616" | "5036980" | "5040681" | "5060851" | "5117979").PN. OR ("5325966").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 16:55
S161	6	("3412888" | "4204609" | "5409126" | "5499715" | "5769229").PN. OR ("6467681").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/07 17:17
S162	173	(US-20130127129-$ or US-20110155613-$ or US-20110139665-$ or US-20040195793-$ or US-20020000440-$ or US-20120292213-$ or US-20070012694-$ or US-20150336710-$ or US-20020134700-$ or US-20100270764-$ or	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/09 01:25

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		US-20100000893-$ or US-20050062244-$ or US-20040183266-$ or US-20020014488-$ or US-20020113386-$ or US-20030196860-$ or US-20170259956-$ or US-20160144500-$ or US-20160130034-$ or US-20150274362-$ or US-20110168599-$ or US-20090178989-$ or US-20100219193-$ or US-20060254946-$ or US-20070068757-$ or US-20090178946-$).did. or (US-20050199459-$ or US-20080308369-$ or US-20050077136-$ or US-20080104921-$ or US-20160153200-$ or US-20080134613-$ or US-20080134607-$ or US-20070193178-$ or US-20170266804-$ or US-20140075650-$ or US-20090145866-$ or US-20170217464-$ or US-20170174392-$ or US-20170166352-$ or US-20160023349-$ or US-20140166516-$ or US-20120326406-$ or US-20110121695-$ or US-20070194543-$ or US-20070170671-$ or US-20110049824-$ or US-20130056378-$ or US-20120312812-$ or US-20120187013-$ or US-20120080432-$ or US-20120061930-$ or US-20050280228-$).did. or (US-20060027475-$ or US-20050155889-$ or US-20160168880-$).did. or (US-7503569-$ or US-9022234-$ or US-8875888-$ or US-8657307-$ or US-8590704-$ or US-3182856-$ or US-8459495-$ or US-7097036-$ or US-6193062-$ or US-9393684-$ or US-6637592-$ or US-D730088-$ or US-5833065-$ or US-5482162-$ or US-5244265-$ or US-4244509-$ or US-9643629-$ or US-7780026-$ or US-9132543-$ or US-8567796-$ or US-8226092-$ or US-8201837-$ or US-8132819-$ or US-7997594-$ or US-3010775-$ or US-9669930-$).did. or (US-4813542-$ or US-6585090-$ or US-6085925-$ or US-D776106-$ or US-6839238-$ or US-9609964-$ or US-7152752-$ or US-9506489-$ or US-3944282-$ or US-5241765-$ or US-4389078-$ or US-1849659-$ or US-4405057-$ or US-9802741-$ or US-8851287-$ or US-8763836-$ or US-8561769-$ or US-D808164-$ or US-9550605-$ or US-4887731-$ or US-9738198-$ or US-7537119-$ or US-8813960-$ or US-9669968-$ or US-6024223-$ or US-1665238-$ or US-D333094-$).did. or (US-3376046-$ or US-4832200-$ or US-D364558-$ or US-3419184-$ or US-3117692-$ or US-8684222-$ or US-2328689-$ or US-4287997-$ or US-5628443-$ or US-9888752-$ or US-9027722-$ or US-4673070-$ or US-7526842-$ or US-5465839-$ or US-9724820-$ or US-4863222-$ or US-3743372-$ or US-6050657-$ or US-5454634-$ or US-3851936-$ or US-5602721-$ or US-3999818-$ or US-5271515-$ or US-4243279-$ or US-6276550-$ or US-4328902-$ or US-7350648-$).did. or (US-5407074-$ or US-3481502-$ or US-2849151-$ or US-3616943-$ or US-5469961-$ or US-8677661-$ or US-5951130-$ or US-7451578-$ or US-6122879-$ or US-3526420-$ or US-2740167-$ or US-9803375-$ or US-9663940-$ or US-7841144-$ or US-9616562-$ or US-5544751-$ or US-5429260-$ or US-7946609-$ or US-6578708-$ or US-				

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		6176559-$ or US-5927837-$ or US-5564805-$ or US-5595228-$ or US-6206063-$ or US-7000810-$ or US-4967944-$ or US-5988473-$).did. or (US-6641013-$ or US-2987358-$ or US-4576423-$ or US-4756394-$ or US-4896926-$ or US-5325966-$ or US-5697500-$ or US-6467681-$).did. or (US-3117692-$ or US-2593998-$).did.				
S163	3	(("20170166352") or ("20110139665") or ("5628443")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/09 01:26
S164	28	(US-20170166352-$ or US-20110139665-$ or US-20170266804-$ or US-20170217464-$ or US-20170174392-$ or US-20160168880-$ or US-20160144500-$ or US-20160130034-$ or US-20140166516-$ or US-20120326406-$ or US-20100219193-$ or US-20090145866-$ or US-20070194543-$ or US-20070068757-$ or US-20060254946-$ or US-20060027475-$).did. or (US-5628443-$ or US-9132543-$ or US-9506489-$ or US-8813960-$ or US-8677661-$ or US-8459495-$ or US-8132819-$ or US-6641013-$ or US-6085925-$ or US-5988473-$ or US-5595228-$ or US-3117692-$).did.	US-PGPUB; USPAT	OR	OFF	2018/04/09 01:36
S165	7	(("5240264") or ("7503569") or ("20020000440") or ("20040195793") or ("20110139665") or ("20110155613") or ("20130127129")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/09 01:37
S166	27	S164 not S165	US-PGPUB; USPAT; USOCR	OR	OFF	2018/04/09 01:37
S167	1	("2011/0139665").URPN.	USPAT	OR	OFF	2018/11/21 18:13
S168	56	("1932429" | "20060016811" | "20060070906" | "20060237341" | "20070080089" | "20080110190" | "20080112782" | "20080121253" | "20080128414" | "20090178989" | "20090184021" | "20110139665" | "2178091" | "2259041" | "5271515" | "5429260" | "5531517" | "5544751" | "5549241" | "5860527" | "6062388" | "6581772" | "6880705" | "6991106" | "7044483" | "7063210" | "7516854" | "7661549" | "8342329" | "8640871" | "8973811" | "8997993" | "9056694" | "9101212" | "D277532" | "D277723" | "D277819" | "D347130" | "D385306" | "D406478" | "D470641" | "D529755" | "D538571" | "D543030" | "D589723" | "D590021" | "D645902" | "D654726" | "D664034" | "D689718" | "D709716" | "D773217" | "D781625").PN. OR ("D815471").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:13
S169	5	(("20160144500") or ("0784114") or ("20110073516") or ("20150274362")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:16
S170	4	(("20160144500") or ("7841144") or	US-	OR	OFF	2018/11/21

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		("20110073516") or ("20150274362")).PN.	PGPUB; USPAT; USOCR			18:17
S171	554	("0124228" | "0213740" | "0714987" | "0753791" | "1124228" | "1194636" | "1371856" | "1407679" | "1454250" | "1468288" | "1477813" | "1510924" | "1540128" | "1575821" | "1602256" | "1602267" | "1615096" | "1622103" | "1622104" | "1637634" | "1644710" | "1660480" | "1714738" | "1718702" | "1723306" | "1734826" | "1743492" | "1764331" | "1778069" | "1787027" | "1790178" | "1809393" | "1823039" | "1859667" | "1898364" | "1902716" | "1906411" | "1925070" | "1929871" | "1940377" | "1953306" | "1986739" | "1988201" | "1995264" | "20010029720" | "20020007608" | "20020007609" | "20020014047" | "20020020127" | "20020031646" | "20020046528" | "20020056245" | "20020069611" | "20020083673" | "20020092263" | "20020100231" | "20020160610" | "20020178673" | "20020178674" | "20020178682" | "20030009971" | "20030009972" | "20030024199" | "20030033777" | "20030033784" | "20030037504" | "20030041545" | "20030084636" | "20030101674" | "20030101681" | "20030115812" | "20030115821" | "20030180091" | "20030188504" | "20030196405" | "20030221387" | "20030233809" | "20040016196" | "20040031227" | "20040035078" | "20040035079" | "20040060255" | "20040068954" | "20040115921" | "20040139678" | "20040168392" | "20040177584" | "20040182036" | "20040200175" | "20040206036" | "20040211143" | "20040241374" | "20040255541" | "20050034404" | "20050034405" | "20050097860" | "20050102937" | "20050108970" | "20050138881" | "20050160694" | "20050161468" | "20050166516" | "20050193677" | "20050208255").PN. OR ("20050210810" | "20050235593" | "20050252130" | "20050268570" | "20060032168" | "20060048474" | "20060070333" | "20060073320" | "20060075713" | "20060101769" | "20060117696" | "20060179773" | "20060196139" | "20060236642" | "20060260254" | "20060283127" | "20070006543" | "20070028547" | "20070119110" | "20070151189" | "20070193178" | "20080000186" | "20080010931" | "20080010937" | "20080028707" | "20080034708" | "20080066415" | "20080104921" | "20080110125" | "20080134607" | "20080134613" | "20080134614" | "20080295432" |	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:17

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		"20090193748" | "2015813" | "2026511" |					
		"2044216" | "2088238" | "2089075" |					
		"2204675" | "2266464" | "2276071" |					
		"2303745" | "2324628" | "2398632" |					
		"2430200" | "2495862" | "2596280" |					
		"2732706" | "2740167" | "2780253" |					
		"2851740" | "2865058" | "2894292" |					
		"2947040" | "3023681" | "3045294" |					
		"3100556" | "3120083" | "3125138" |					
		"3182769" | "3200553" | "3203149" |					
		"3247638" | "3267630" | "3282010" |					
		"3301147" | "3310919" | "3347048" |					
		"3377931" | "3378958" | "3387422" |					
		"3436888" | "3460304" | "3481810" |					
		"3508523" | "3512324" | "3517927" |					
		"3526071" | "3526420" | "3535844" |					
		"3538665" | "3548559" | "3553919" |					
		"3554850" | "3555762" | "3572224" |					
		"3579941" | "3694983" | "3714747" |					
		"3731445" | "3742669" | "3759007" |					
		"3768846" | "3786608" | "3842562" |					
		"3849235" | "3857749" | "3859000" |					
		"3902293" | "3908053" | "3919820" |					
		"3936551" | "3988187" | "4037377" |					
		"4082129" | "4084996" | "4090338" |					
		"4099358" | "4100710" | "4107892" |					
		"4113399" | "4169688").PN. OR ("4196554" |					
		"4227430" | "4242390" | "4299070" |					
		"4304083" | "4426820" | "4471012" |					
		"4489115" | "4501102" | "4561233" |					
		"4567706" | "4599841" | "4612074" |					
		"4612745" | "4641469" | "4643237" |					
		"4646494" | "4648165" | "4653242" |					
		"4703597" | "4715162" | "4716700" |					
		"4738071" | "4769963" | "4819932" |					
		"4822440" | "4831806" | "4845907" |					
		"4905442" | "5029425" | "5113632" |					
		"5117603" | "5148850" | "5165816" |					
		"5179812" | "5182892" | "5216861" |					
		"5247773" | "5253464" | "5271564" |					
		"5286545" | "5295341" | "5344700" |					
		"5349796" | "5390457" | "5433806" |					
		"5465546" | "5474831" | "5497589" |					
		"5502939" | "5540025" | "5560569" |					
		"5567497" | "5570554" | "5597024" |					
		"5598682" | "5613894" | "5618602" |					
		"5630304" | "5634309" | "5653099" |					
		"5671575" | "5695875" | "5706621" |					
		"5755068" | "5768850" | "5797237" |					
		"5823240" | "5827592" | "5860267" |					
		"5899038" | "5900099" | "5925211" |					
		"5935668" | "5943239" | "5968625" |					
		"5987839" | "6006486" | "6023907" |					
		"6029416" | "6052960" | "6094882" |					
		"6101778" | "6119423" | "6134854" |					
		"6148884" | "6173548" | "6182410" |					
		"6203653" | "6205639" | "6209278" |					
		"6216403" | "6216409" | "6247285" |					
		"6314701" | "6324803" | "6332733" |					
		"6339908" | "6345481" | "6358842" |					
		"6363677" | "6385936" | "6397547" |					
		"6421970" | "6438919" | "6446405" |					
		"6446413" | "6490836" | "6497079" |					
		"6505452" | "6510665" | "6516579" |					

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		"6526719" | "6532709" | "6536178" | "6553724" | "6584747" | "6591568" | "6601359" | "6606834" | "6647689" | "6647690" | "6670019" | "6672030" | "6684592").PN. OR ("6715253" | "6722809" | "6763643" | "6769218" | "6769219" | "6854235" | "6862857" | "6874292" | "6933043" | "7003924" | "7003925" | "7022189" | "7040068" | "7051486" | "7275350" | "7377081" | "7568322" | "7584583" | "7614197").PN. OR ("7841144").URPN.				
S172	969	Y10S292/38,53.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:25
S173	35	E04F2201/013.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:25
S174	1351	E04F2201/0146,023,05.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:26
S175	514	B25H3/02.cpc.	USPAT	OR	OFF	2018/11/21 18:45
S176	1041	B25H3/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:45
S177	165	B25H3/021.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:45
S178	0	("2018/0213934").URPN.	USPAT	OR	OFF	2018/11/21 18:46
S179	369	A47B88/90.cpc.	USPAT	OR	OFF	2018/11/21 18:46
S180	81	A47B2210/19.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:47
S181	29	("2614016" | "2676080" | "3001564" | "3079037" | "3974898" | "4040538" | "4119204" | "4239309" | "4287997" | "4293072" | "4865404" | "5190156").PN. OR ("5407074").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:50
S182	27	("0224486" | "1472676" | "2975930" | "3159436" | "3424334" | "3506321" | "3584738" | "3737031" | "4155452").PN. OR ("4293072").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:51
S183	48	("3506321").URPN.	USPAT	OR	OFF	2018/11/21 18:54
S184	46	("1092651" | "2565969" | "2891639" | "3028207" | "3032381" | "3506321").PN. OR ("3974898").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 18:56
S185	520	B65D21/0204.cpc.	US-PGPUB;	OR	OFF	2018/11/21 19:01

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			USPAT; USOCR			
S186	868	A47B87/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:02
S187	2232	312/107,111.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:02
S188	703	A47B88/90.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:15
S189	50	(("BRUNNER") near3 ("Yaron")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:23
S190	34	("0455883" | "0484121" | "0918297" | "20060175945" | "20100052276" | "20110279956" | "20120086319" | "20130134850" | "2341434" | "2431830" | "2441728" | "3058320" | "3135570" | "3326203" | "3712697" | "4590709" | "5011240" | "5026130" | "5048902" | "5145245" | "5673984" | "6068356" | "6164738" | "8201900" | "D322875").PN. OR ("9872562").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:24
S191	45	("1223455" | "2123803" | "2704699" | "3272581" | "3316045" | "3796474" | "4155611" | "4505526" | "4577773" | "4848588" | "5205595" | "5246105" | "5299688" | "5344226" | "5358321" | "5426885").PN. OR ("5603559").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:27
S192	36	("1253546" | "1619761" | "1857640" | "2004900" | "3133771" | "3409162" | "3529878" | "3606506" | "3729242" | "3758181").PN. OR ("5246105").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 19:28
S193	16	("20080000899" | "20120312812" | "20130127129" | "3379482" | "3811559" | "4118048" | "4619363" | "5125697" | "5904269" | "6082539" | "6371320" | "6874634" | "6889838" | "7387350" | "7516842").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:02
S194	75	("0440957" | "1933637" | "2511949" | "2789828" | "2981549" | "3055723" | "3349924" | "3379482" | "3891230" | "3905662").PN. OR ("4118048").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:03
S195	45	("0273398" | "0325555" | "0825642" | "0953715" | "0953815" | "1143711" | "1365098" | "1495046" | "1611034" | "2055657" | "2565969" | "2714433" | "3828899" | "3891230" | "3974898" | "3987875" | "4066155" | "4118048" | "4139084" | "4202586" | "4389078" | "4693345").PN. OR ("4813521").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:04
S196	29	("2472491" | "2925283" | "3057636").PN. OR ("3891230").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:05

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S197	143	("0344661" | "0687619" | "1424819" | "20010052681" | "20020014488" | "20020067027" | "20020074905" | "20020113386" | "20020185831" | "20030001348" | "20030146589" | "20040265104" | "20050062244" | "20050104308" | "20050258610" | "20050275178" | "20060006619" | "20060012139" | "20060038367" | "20070080512" | "20070194543" | "20070273114" | "20080084036" | "20080121547" | "20080128305" | "20080143069" | "20090020528" | "20090026901" | "20090096181" | "20090309323" | "20100052276" | "20100290877" | "20100327562" | "20110049824" | "20110181008" | "20120160886" | "20120326406" | "20140001719" | "20140023221" | "20140375181" | "2554091" | "2588830" | "2901262" | "2964328" | "3168329" | "3393951" | "3734526" | "3804432" | "3891230" | "3990653" | "4169607" | "4363496" | "4448434" | "4619363" | "4884689" | "4936594" | "4984704" | "5104135" | "5123666" | "5207723" | "5333885" | "5362078" | "5378005" | "5464104" | "5474312" | "5595395" | "5626352" | "5634649" | "5720535" | "5799958" | "5845915" | "5906381" | "5913527" | "5931483" | "5934466" | "5938396" | "6000713" | "6050660" | "6079719" | "6082539" | "6109627" | "6113129" | "6123344" | "6131926" | "6135466" | "6176559" | "6254112" | "6347847" | "6357063" | "6371320" | "6394471" | "6398235" | "6474930" | "6561528" | "6601930" | "6616152" | "6659476" | "6666465" | "6874634" | "6889838" | "6945546" | "7063339" | "7066475" | "7108131" | "7168715" | "7188846" | "7188847" | "7210689" | "7263742" | "7328905" | "7367571" | "7500681").PN. OR ("7503569" | "7686260" | "7703776" | "7819407" | "7823893" | "7845653" | "7883096" | "7905502" | "7938412" | "8132819" | "8226092" | "8567796" | "8657307" | "8668209" | "9132543" | "D437484" | "D542496" | "D640869" | "D653832" | "D654241").PN. OR ("9566990").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:05
S198	18	("2042387" | "2528872" | "3401420" | "3891230" | "4989291" | "5915438" | "6230361" | "7000287").PN. OR ("7263742").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:07
S199	37	("5013055" | "5207723" | "5378005").PN. OR ("5799958").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:08
S201	2395	280/47.26,47.28,652.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:09

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S202	1975	280/47.26,47.28.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:10
S203	518	280/652.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/21 20:10
S204	1	"15826201"	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 00:33
S205	12	(US-0271616-$ | US-0320243-$ | US-1276744-$ | US-1477050-$ | US-15826201-$ | US-20080308369-$ | US-3616562-$ | US-3875888-$).DID.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 03:39
S206	2	(("8875888") or ("9616562") or ("20080308369")).PN.	USPAT; USOCR	OR	OFF	2018/11/22 03:40
S207	3	(("8875888") or ("9616562") or ("20080308369")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 03:40
S208	64	("20020113387" | "20070194543" | "20080079227" | "20080084036" | "20110049824" | "3522955" | "4118048" | "4119044" | "4281843" | "5176281" | "5193706" | "5244265" | "5378005" | "5634649" | "5641170" | "5680932" | "5799958" | "5906381" | "5938396" | "5950828" | "6131926" | "6170839" | "6176559" | "6264220" | "6347847" | "6371320" | "6601930" | "6761366" | "6817623" | "7367571" | "7467801" | "7503569" | "7628406" | "7845653" | "7883096" | "7938412" | "D404916" | "D437484" | "D462168" | "D462170").PN. OR ("8132819").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 19:37
S209	269	("20020014507" | "20020043534" | "20020074332" | "20020125160" | "20030075468" | "20040112777" | "20050109650" | "20060017293" | "20060124505" | "20060144732" | "20060201834" | "20070137960" | "20070194543" | "20070241113" | "20080017537" | "20080035508" | "20080035510" | "20080067206" | "20080152944" | "20080164842" | "20080169739" | "20080230416" | "20090080809" | "20090211932" | "20090236810" | "20090250365" | "20100012538" | "20100012655" | "20100033325" | "20100224527" | "20100258465" | "20110084075" | "20110094910" | "20110132046" | "20110174648" | "20110268374" | "20120018330" | "20120152944" | "20120206907" | "20120257379" | "20120267374" | "20120292213" | "20120312708" | "20120317933" | "20120318792" | "20120326406" | "20120326669" | "20130007979" | "20130186795" | "20140102928" | "2125856"	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 19:39

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| "2145143" | "2799306" | "2883184" | "3177023" | "3259411" | "3394955" | "3817419" | "3851756" | "3924844" | "4105112" | "4278187" | "4353182" | "4890414" | "5042193" | "5165148" | "5295742" | "5379887" | "5386907" | "5429287" | "5470000" | "5501379" | "5518139" | "5562208" | "5580137" | "5595228" | "5620212" | "5660276" | "5672145" | "5732987" | "5755311" | "5762411" | "5915553" | "5915554" | "5924533" | "6006906" | "6015064" | "6038747" | "6073766" | "6081695" | "6082538" | "6167680" | "6176559" | "6203075" | "6206063" | "6213296" | "6230887" | "6244485" | "6244486" | "6343708" | "6343815" | "6347847" | "6371320" | "6405864" | "6415924" | "6478463" | "6502882" | "6527309").PN. OR ("6533138" | "6561402" | "6614337" | "6622856" | "6675965" | "6675967" | "6695142" | "6698609" | "6722524" | "6755302" | "6755448" | "6761366" | "6789670" | "6860059" | "6915902" | "6955381" | "6978890" | "7008031" | "7021637" | "7048133" | "7108131" | "7121407" | "7158376" | "7225923" | "7228983" | "7237673" | "7237688" | "7246704" | "7316309" | "7322470" | "7326428" | "7334680" | "7357250" | "7357268" | "7367451" | "7370891" | "7401698" | "7401700" | "7418846" | "7540364" | "7552560" | "7552950" | "7600640" | "7661530" | "7837053" | "7845653" | "7854321" | "7874328" | "7883096" | "7938412" | "7984820" | "8056943" | "8061536" | "8132819" | "8152037" | "8191910" | "8210387" | "8267245" | "8267247" | "8272628" | "8327576" | "8328247" | "8376177" | "8434617" | "8469195" | "8505729" | "8657307" | "D259154" | "D272203" | "D309981" | "D326815" | "D333215" | "D333487" | "D347731" | "D355849" | "D368159" | "D370619" | "D374772" | "D375834" | "D377118" | "D378247" | "D385110" | "D386903" | "D390358" | "D402106" | "D405956" | "D414038" | "D418977" | "D437684" | "D447340" | "D447630" | "D448162" | "D449442" | "D449738" | "D451275" | "D452071" | "D453624" | "D455263" | "D459073" | "D462168" | "D465923" | "D467070" | "D470659" | "D471360" | "D472774" | "D480867" | "D505548" | "D509656" | "D516310" | "D516808" | "D516812" | "D520746" | "D563669" | "D572479" | "D572480" | "D588811" | "D589703" | "D599112" | "D600015" | "D600912" | "D601797" | "D605403" | "D608094" | "D609911" | "D609913").PN. OR ("D616200" | "D618911" | "D624317" | "D627968" | "D629607" | "D630435" | "D630851" | "D635769" | "D636996" | "D637812" |

		"D639554" | "D641552" | "D647301" | "D648532" | "D648533" | "D649350" | "D649783" | "D661858" | "D661903" | "D664354" | "D668867" | "D668868" | "D668869" | "D670500" | "D672555" | "D673774" | "D701696" | "D744750" | "D750890").PN. OR ("9539722").URPN.				
S210	15	("2007/0194543").URPN.	USPAT	OR	OFF	2018/11/22 19:40
S211	56	("1478913" | "20010035704" | "20050159784" | "20050269792" | "20060006621" | "20060144732" | "20070194543" | "20070235959" | "20080128305" | "20090301913" | "20100289236" | "20100295430" | "20110127736" | "20120292870" | "20130118818" | "3861703" | "3874531" | "4435115" | "4726602" | "4822116" | "4846485" | "4858940" | "4976450" | "4993551" | "5174447" | "5378005" | "5452908" | "5573089" | "5743607" | "5799958" | "5893572" | "6027128" | "6170839" | "6439585" | "6446987" | "6702168" | "6935641" | "6945546" | "7044569" | "7083174" | "7314134" | "7328905" | "7431313" | "7434819" | "7503569" | "7661685" | "7905502" | "8226092" | "8376376" | "8668209" | "D182716").PN. OR ("8915504").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 19:40
S212	2	("2012/0292870").URPN.	USPAT	OR	OFF	2018/11/22 19:41
S213	52	("6264083" | "6666362" | "7204374" | "20120247044" | "4249684" | "6264220" | "6935641" | "7048320" | "7165702" | "20040194333" | "20040251227" | "20070210021" | "20100300996" | "20120199708" | "4944416" | "7487981" | "6615973" | "6786374" | "20070137532" | "5628534" | "7017254" | "6932406" | "20040051016" | "20050006539" | "20080296245" | "7740329" | "20060021985" | "5913380" | "6736265" | "20020100396" | "20120131872" | "3610429" | "6629654" | "4535897" | "6581920" | "20110107704" | "0332360" | "5406894" | "6474245" | "20050269792" | "5582269" | "20070012636" | "5687856" | "5899544" | "6247720" | "6814362" | "20040222176" | "20110168651" | "4630739" | "4961295" | "5730414").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 19:46
S214	39	("2320387" | "3052484" | "3179270" | "3734526" | "4281843" | "4363496" | "4790549" | "5464104" | "5465987" | "5474312" | "5595395" | "5671933").PN. OR ("6131926").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/22 23:52
S215	1	"12736715"	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 01:36
S216	1	("2011/0139665").URPN.	USPAT	OR	OFF	2018/11/23 01:36
S217	20	("2807387" | "20060220503" | "3219400" |	US-	OR	OFF	2018/11/23

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		"3424334" | "4293072" | "4643494" | "4782619" | "4996628" | "5184726" | "5246105" | "5427394" | "5544751" | "5699925" | "5901998" | "5924778" | "6367631" | "6983946").PN.	PGPUB; USPAT; USOCR			01:37
S218	36	("1253546" | "1619761" | "1857640" | "2004900" | "3133771" | "3409162" | "3529878" | "3606506" | "3729242" | "3758181").PN. OR ("5246105").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 01:38
S219	13	("3379482").URPN.	USPAT	OR	OFF	2018/11/23 02:28
S220	0	("2012/0152800").URPN.	USPAT	OR	OFF	2018/11/23 02:30
S221	12	("20080060964" | "3568879" | "4592601" | "4685565" | "20060071581" | "4258847" | "4863222" | "2858957" | "7311202" | "3346137").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 02:30
S222	1041	B25H3/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 02:39
S223	140	S222 and (snap)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 02:39
S224	67	(US-20170166352-$ or US-20110139665-$ or US-20170266804-$ or US-20170217464-$ or US-20170174392-$ or US-20160168880-$ or US-20160144500-$ or US-20160130034-$ or US-20140166516-$ or US-20120326406-$ or US-20100219193-$ or US-20090145866-$ or US-20070194543-$ or US-20070068757-$ or US-20060254946-$ or US-20060027475-$ or US-20150274362-$ or US-20110073516-$ or US-20090193748-$ or US-20080134607-$ or US-20080104921-$ or US-20180313094-$ or US-20180213934-$ or US-20150102717-$ or US-20180161975-$ or US-20140305829-$).did. or (US-20120312812-$ or US-20180290288-$ or US-20180162592-$ or US-20170239808-$ or US-20170121056-$ or US-20130127129-$ or US-20060038367-$ or US-20160114822-$ or US-20080308369-$ or US-20080169739-$ or US-20120292870-$).did. or (US-5628443-$ or US-9132543-$ or US-9506489-$ or US-8813960-$ or US-8677661-$ or US-8459495-$ or US-8132819-$ or US-6641013-$ or US-6085925-$ or US-5988473-$ or US-5595228-$ or US-3117692-$ or US-5429260-$ or US-7841144-$ or US-5407074-$ or US-4293072-$ or US-3506321-$ or US-3974898-$ or US-6109707-$ or US-4423687-$ or US-9872562-$ or US-6547347-$ or US-4619363-$ or US-4118048-$ or US-3891230-$ or US-9566990-$).did. or (US-5799958-$ or US-9616562-$ or US-5184726-$).did. or (US-2430200-$).did.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 14:36
S225	3	("20080308369" | "8875888" | "9616562").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 14:37

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S226	28	(US-20170266804-$ or US-20170217464-$ or US-20170174392-$ or US-20170166352-$ or US-20160168880-$ or US-20160144500-$ or US-20160130034-$ or US-20140166516-$ or US-20120326406-$ or US-20100219193-$ or US-20090145866-$ or US-20070194543-$ or US-20070068757-$ or US-20060254946-$ or US-20060027475-$ or US-20110139665-$).did. or (US-9506489-$ or US-9132543-$ or US-8813960-$ or US-8677661-$ or US-8459495-$ or US-8132819-$ or US-6641013-$ or US-6085925-$ or US-5988473-$ or US-5628443-$ or US-5595228-$ or US-3117692-$).did.	US-PGPUB; USPAT	OR	OFF	2018/11/23 14:37
S227	37	S224 not (S225 S226)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 14:37
S228	1	"20170174392".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 14:54
S229	14	(US-20180290288-$ or US-20180161975-$ or US-20170239808-$ or US-20170121056-$ or US-20080169739-$ or US-20080134607-$ or US-20080104921-$ or US-20060038367-$).did. or (US-9872562-$ or US-9566990-$ or US-7841144-$ or US-6547347-$ or US-5429260-$).did. or (US-2430200-$).did.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/11/23 21:07
S230	6	(("20120228074") or ("20120152800") or ("20170318927") or ("20110220531") or ("20110073516") or ("7841144")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:31
S231	5	("20040163913" | "20050199459" | "20100147642" | "20120228074" | "20120312812").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:33
S232	14	("1299291" | "1643397" | "2706036" | "3811562" | "4020930" | "4790417" | "5671830" | "0758019" | "D135357").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:35
S233	325	A45C7/0045.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:40
S234	0	("2018/0161975").URPN.	USPAT	OR	OFF	2019/02/20 19:42
S235	18	("20080308369" | "20080134607" | "9566990" | "9872562" | "20170121056" | "20170239808" | "5429260" | "7841144" | "20080169739" | "6547347" | "9616562" | "20060038367" | "20080104921" | "20180161975" | "2430200" | "8875888" | "20180290288").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:57
S236	16	("20080134607" | "9566990" | "9872562" | "20170121056" | "20170239808" | "5429260" | "7841144" | "20080169739" | "6547347" | "20060038367" | "20080104921" | "20180161975" | "2430200" | "20170174392" | "20180290288").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:58

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S237	14	("20050139745" | "20080277221" | "20090145790" | "20100147642" | "20110073516" | "20110181008" | "20130121783" | "20170318927" | "20180044059" | "20190002004" | "5608603" | "6637707" | "8177463" | "9701443").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:58
S238	33	S235 S236 S237	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 19:58
S239	932	A45C5/14.cpc.	USPAT	OR	OFF	2019/02/20 20:01
S240	28	B65D21/00.cpc.	USPAT	OR	OFF	2019/02/20 20:01
S241	8	(US-20080134607-$ or US-20080104921-$ or US-20060038367-$ or US-20120228074-$).did. or (US-9872562-$ or US-7841144-$ or US-6547347-$).did. or (US-2430200-$).did.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 22:58
S242	18	("20080308369" | "20080134607" | "9566990" | "9872562" | "20170121056" | "20170239808" | "5429260" | "7841144" | "20080169739" | "6547347" | "9616562" | "20060038367" | "20080104921" | "20180161975" | "2430200" | "8875888" | "20180290288").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 22:59
S243	1	S241 not S242	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 22:59
S244	8	(US-20080134607-$ or US-20080104921-$ or US-20060038367-$ or US-20120228074-$).did. or (US-9872562-$ or US-7841144-$ or US-6547347-$).did. or (US-2430200-$).did.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 23:00
S245	26	(US-20180290288-$ or US-20180161975-$ or US-20170239808-$ or US-20170121056-$ or US-20080169739-$ or US-20170318927-$ or US-20120152800-$ or US-20110220531-$ or US-20110073516-$ or US-20070012694-$ or US-20190039781-$ or US-20190002004-$ or US-20060006770-$ or US-20170166352-$).did. or (US-9566990-$ or US-5429260-$ or US-5890613-$ or US-5099968-$ or US-4693345-$ or US-3319744-$ or US-9108764-$ or US-9701443-$ or US-3974898-$ or US-3506321-$).did.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 23:00
S246	19	S245 not S242	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 23:00
S247	1	"20170166352".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 23:25
S248	1	"20180161975"	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/20 23:28
S278	0	"20011012717".pn.	US-PGPUB; USPAT;	OR	OFF	2019/02/21 19:51

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			USOCR			
S279	0	"2001012717".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/21 19:51
S280	0	"20011012717".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/21 19:52
S281	0	(("20011012717") or ("20080257905")).PN.	USPAT; USOCR	OR	OFF	2019/02/21 19:52
S282	1	(("20011012717") or ("20080257905")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/21 19:52
S283	2	(("20110012717") or ("20080257905")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/21 19:52
S284	1	"20110012717".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/21 19:53
S285	5359	"20110602".pd.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/21 19:54
S286	32	"20110602".pd. and chan.inv.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/02/21 19:54
S287	24	("20030115715" | "20030205877" | "20060186624" | "20080115312" | "20080271280" | "20090071990" | "20100139566" | "20120180250" | "20120207571" | "20130024468" | "20130031731" | "20130031732" | "20160023349" | "20170165828" | "20170257958" | "20180220758" | "2042387" | "5105947" | "7263742" | "8689396" | "9643629" | "D663952" | "D664354").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 04:31
S288	0	"201200207571".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 04:37
S289	1	"20120207571".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 04:37
S290	1	"20090071990".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 04:38
S291	0	"2011155613".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 04:46
S292	1	"20110155613".pn.	US-PGPUB;	OR	OFF	2019/04/27 04:46

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			USPAT; USOCR			
S293	24	("20030115715" | "20030205877" | "20060186624" | "20080115312" | "20080271280" | "20090071990" | "20100139566" | "20120180250" | "20120207571" | "20130024468" | "20130031731" | "20130031732" | "20160023349" | "20170165828" | "20170257958" | "20180220758" | "2042387" | "5105947" | "7263742" | "8689396" | "9643629" | "D663952" | "D664354").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/04/27 05:03
S294	1	"20140161518".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/14 19:30
S295	10	(US-15826201-$ | US-20050139745-$ | US-20080277221-$ | US-20090145790-$ | US-20100147642-$ | US-20110181008-$ | US-20130121783-$ | US-20180044059-$ | US-5608603-$ | US-6637707-$ | US-8177463-$).DID.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/05/18 17:19

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S249	139	A45C7/0045.cpc.	USPAT	OR	OFF	2019/02/20 19:41
S250	447	A47B47/00.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:07
S251	475	A47B67/04.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:07
S252	542	A47B87/02,007.00276.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:07
S253	849	B65D21/0024,02,00,0223,0212.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:07
S254	1073	B65D21/0217,0219,0222,0228,023.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:08
S255	348	B65D25/2823,06.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:08
S256	2120	B25H3/021,022,023,04,06.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:08
S257	598	Y10T403/7045.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:09
S258	522	A47B88/90.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:09
S259	916	B25H3/02.cpc.	US-PGPUB;	OR	OFF	2019/02/20 20:09

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IPR2024-01400

			USPAT			
S260	471	B65D21/0204.cpc.	US-PGPUB; USPAT	OR	OFF	2019/02/20 20:09
S261	139	A45C7/0045.cpc.	USPAT	OR	OFF	2019/02/20 20:09
S263	1674	206/508,511,504,302,501.ccls.	USPAT	OR	OFF	2019/02/20 20:10
S264	2380	280/47.18,47.19,47.26,79.2.ccls.	USPAT	OR	OFF	2019/02/20 20:10
S265	554	280/47.28,652.ccls.	USPAT	OR	OFF	2019/02/20 20:11
S266	1372	312/107,111.ccls.	USPAT	OR	OFF	2019/02/20 20:11
S267	0	("9701443").URPN.	USPAT	OR	OFF	2019/02/20 20:49
S268	0	("2019/0039781").URPN.	USPAT	OR	OFF	2019/02/20 20:54
S269	0	("2019/0002004").URPN.	USPAT	OR	OFF	2019/02/20 21:02
S270	0	("2009/0103279").URPN.	USPAT	OR	OFF	2019/02/20 21:06
S271	0	("2009/0103279").URPN.	USPAT	OR	OFF	2019/02/20 21:07
S272	1	("2006/0006770").URPN.	USPAT	OR	OFF	2019/02/20 21:07
S273	40	("1092651" | "2565969" | "2891639" | "3028207" | "3032381" | "3506321").PN. OR ("3974898").URPN.	US-PGPUB; USPAT	OR	OFF	2019/02/20 21:55
S274	48	("3506321").URPN.	USPAT	OR	OFF	2019/02/20 21:56
S275	46	("2988412" | "3032381" | "3506321" | "3514170" | "3529878").PN. OR ("3642337").URPN.	US-PGPUB; USPAT	OR	OFF	2019/02/20 21:57
S276	24	"Term Removed" or "Term Removed"	US-PGPUB; USPAT	OR	OFF	2019/02/20 22:58
S277	24	"Term Removed" or "Term Removed"	US-PGPUB; USPAT	OR	OFF	2019/02/20 23:00

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Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	15/826,232	Filing Date	2017-11-29	Docket Number (if applicable)	55390-501C01US	Art Unit	3736
First Named Inventor	Yaron Brunner			Examiner Name	G. R. Weinerth		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☐ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☒ Other Cited References

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 50-0311

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

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Signature	/Elissa M. Kingsland/	Date (YYYY-MM-DD)	2019-06-18
Name	Elissa M. Kingsland	Registration Number	63259

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1) Family number: 16928858 (DE29708343U1) © PatBase

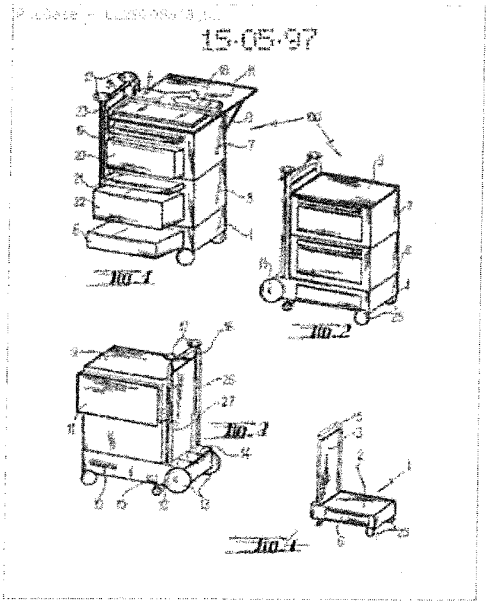
Title:	Tool and accessory car
Priority:	DE19972008343U 19970512

Family:

Publication number	Publication date	Application number	Application date
DE29708343 U1	19970814	DE19972008343U	19970512

Probable Assignee:	FLIESEN RICHTER GMBH
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Assignee(s):	FLIESEN RICHTER GMBH 51766 ENGELSKIRCHEN DE
International class (IPC 8-9):	B25H1/00 B25H1/12 B25H3/00 (Advanced/Invention); B25H1/00 B25H3/00 (Core/Invention)
International class (IPC 1-7):	B25H3/00 B62B3/04
CPC:	B25H1/0035 B25H1/12 B25H3/00
European class:	B25H1/00C2 B25H1/12 B25H3/00
Classification Explorer	
Forward Citations:	EP2998075, EP2998075, DE102013016853, CN108436852, CN104493796, CN102730033,

Abstract:
Source: DE29708343U1 [DE] (Claim 1) A : F LR9_A 1 . T AT Ansprueche 1. Werkzeug- und Zubehoerwagen, bestehend aus einem alsTransportwagen nutzbaren Basisgestell mit einer horizontal liegenden Ladeflaeche (2), die seitlich mit einer aufragendenRueckwand (3) versehen ist, die an ihrer Oberkante in einem Schiebegriff (5) endet,dadurch gekennzeichnet, dass die horizontal liegende Ladeflaeche (2) mit einem darunterliegenden Schubkasten (6) ausgestattet ist und auf die Ladeflaeche entfernbare, seitlich zugaengliche Ladekaesten (7, 8) gestapelt sind, die nach ? - oben im Bereich der Oberkante mit einer Arbeitsflaeche (9)abschliessen.



Machine translation: (Claim 1) A: F LR9_A 1. T RK of claims 1. Tool and accessory car, consisting of an as carriage usable basis rack with a horizontal lying loading area (2), which laterally with a rising rear wall (3) is provided, which ends at its upper edge in a Schiebegriff (5), is characterized by that the horizontal lying loading area (2) is equipped with an underlying thrust box (6) and is stacked on the loading area removable, laterally accessible load boxes (7, 8), after? - lock above within the range of the upper edge with a work surface (9).

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(54) Werkzeug- und Zubehörwagen

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BUNDESDRUCKEREI 06. 97 702 233/366

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15.05.97

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15.05.97

A:FLR1_T1.TAT

Werkzeug- und Zubehörwagen

Die Erfindung betrifft einen Werkzeug- und Zubehörwagen, bestehend aus einem als Transportwagen nutzbaren Basisgestell mit einer horizontal liegenden Ladefläche, die seitlich mit einer aufragenden Rückwand versehen ist, die an ihrer Oberkante in einem Schiebegriff endet.

Schiebewerkzeuge der vorgenannten Art sind beispielsweise in Bau- und Supermärkten als Kundenfahrzeuge bekannt.

Es stellt sich die Aufgabe, einen solchen an sich bekannten Werkzeug- und Zubehörwagen durch im Prinzip einfache Maßnahmen für Handwerker, die im Außendienst arbeiten, insbesondere für Elektrohandwerker und Fliesenleger, so auszustatten, daß der Wagen in einfacher Weise und arbeitstechnisch günstig sowohl in einem Fahrzeug transportiert als auch an einer Arbeitsstelle raumsparend aufgestellt werden kann.

Diese Aufgabe wird gelöst bei einem Werkzeug- und Zubehörwagen der eingangs genannten Art, der dadurch gekennzeichnet ist, daß bei ihm die horizontal liegende Ladefläche des Baisgestells mit einem darunterliegenden Schubkasten ausgestattet ist und auf die Ladefläche entfernbare, seitlich zugängliche Ladekästen gestapelt sind, die nach oben im

Bereich der Oberkante mit einer Arbeitsfläche abschließen.

Mit dem so ausgestatteten Werkzeug- und Zubehörwagen lassen sich in den Ladekästen die erforderlichen Werkzeuge und Zubehörteile unterbringen, wobei verschieden bestückte Ladekästen bereitgehalten werden können, die je nach Anforderung der Baustellle vor Beginn der Arbeitzeit auswechselbar sind. Die Ladekästen können ganz oder teilweise aus Metall oder Kunststoff bestehen, aber auch teilweise aus Holz gefertigt sein.

Insbesondere wird vorgeschlagen, daß der unter der Ladefläche liegende Schubkasten eine Kabeltrommel mit einem herausziehbaren Elektrokabel und an wenigstens einer seiner Außenseiten mit dem Elektrokabel verbundene Stromanschlüsse, insbesondere Steckdosen, umfaßt. Der Werkzeug- und Zubehörwagen dient damit auch als Stromverteilungszentrale für verschiedene, elelektromotorisch angetriebene Werkzeuge, Lampen u. dgl.

Die obenliegende Arbeitsfläche kann durch Ausklappen eines Tischelementes erweiterbar sein, so daß eine vregrößerte rbeitsfläche zur Verfügung steht.

Weiterhin ist möglich, daß das Basisgestell mit einer vor die Rückwand gebauten Treppensteigvorrichtung mit zwei Zusatzrädern ausgestattet ist, so daß der Werkzeug- und Zubehörwagen auch über Treppen leichter transportierbar ist. Die Treppensteigvorrichtung kann überdies über einen als Aufnahmekasten gestalteten Vorbau mit den Zusatzrädern verbunden sein, so daß hier weiterer, leicht zugänglicher Ablageraum zur Verfügung steht.

Mit Vorteil wird an den Schiebegriffen wenigstens ein Stativfuß befestigt, auf dem beispielsweise eine starke Arbeitslampe, ein Laser-Gerät od. dgl. zu befestigen sind.

Insbesondere soll der Werkzeug- und Zubehörwagen als

Werkzeugwagen für das Fliesenlegen ausgestattet sein. Hierzu wird beispielsweise vorgeschlagen, auf den in Draufsicht oberhalb der Ladefläche liegenden Teil der Arbeitsfläche eine Fliesenschneidemaschine aufzubauen.

Als vorteilhaft hat sich ferner erwiesen, auf die unten liegende Ladefläche zwei Ladekästen zu stapeln, von denen wenigstens der obere eine seitlich herausziehbare Schublade und einen in dieselbe Richtung ausziehbaren Schubkasten enthält, in die entsprechend ihrer Gebrauchsfrequenz Einzelwerkzeuge und Zubehör eingelegt sind. So können beispielsweise wenigstens Fliesenmeißel, Fliesenkeile und -kreuze sowie Fliesenschnüre in diese oberste Schublade eingelegt sein. In dem darunterliegenden Schubkasten können wenigstens Fliesenmeißel, Mauerhammer, Fliesenlochzange und Kellen vorhanden sein.

Auch braucht der Fliesenleger gelegentlich Einhand-Winkelschleifer und dessen Zubehör, die ebenfalls in einem entsprechenden Schubkasten enthalten sein können.

Seitlich an dem oberen Ladekasten kann entfernbar ein Fugbrett angehängt werden.

Ein Ausführungsbeispiel des Werkzeug- und Zubehörwagens ist in der beigefügten Zeichnung dargestellt. Die Figuren zeigen im einzelnen:

Fig. 1 in perspektivischer Darstellung einen Werkzeug- und Zubehörwagen mit ausgezogenen Schubkästen;

Fig. 2 in etwas verkleinerter Darstellung den Werkzeug- und Zubehörwagen gemäß Fig. 1 mit geschlossenen Schubkästen;

Fig. 3 den Werkzeug- und Zubehörwagen gemäß Fig. 2, von der Rückseite her gesehen;

Fig. 4 das Basisgestell eines Werkzeug- und Zubehörwagens gemäß den Fig. 1 bis 3.

Ein Werkzeug- und Zubehörwagen 100 gemäß Fig. 1 bis 3 ist in modulartiger Bauweise auf einem Basisgestell 1, wie es in Fig. 4 dargestellt ist, aufgebaut. Das Basisgestell besitzt vier Rollen 25, eine Ladefläche 2 und eine seitlich daran befestigte und aufragende Rückwand 3. Die Rückwand besteht im wesentlichen aus einem U-förmig gebogenen Rohr, das im Quersteg des U's einen Schiebegriff 5 ausbildet. Unterhalb der Ladefläche 2 ist diese mit mit einem darunterliegenden Schubkasten 6 versehen. Diese Teile bilden zunächst das Basisgestell.

Das Basisgestell dient gleichzeitig als eine Stromverteilungsanordnung. Im Schubkasten 6 ist eine Kabeltrommel mit einem herausziehbaren Elektrokabel 15 angeordnet. Wie aus der Fig. 3 ersichtlich ist, sind ferner an der Außenseite des Basisgestells 1 fünf Steckdosen 10 angebracht, in die übliche Stecker von Elektrowerkzeugen eingesteckt werden können, um diese mit Strom zu versorgen, sobald das Haupt-Elektrokabel 15 mit einer entsprechenden Steckdose verbunden ist.

Das Basisgestell ist ferner mit einer vor die Rückwand 3 gebauten Treppensteigvorrichtung 12 verbunden, die mit zwei Zusatzrädern 13 ausgestattet ist. Diese Treppensteigvorrichtung dient zur Erleichterung beim Transport. Sie kann auch abgebaut oder weggelassen werden. Mit Vorteil wird der Vorbau 14 der Treppensteigvorrichtung 12 mit von oben zugänglichen Kästen versehen, so daß hier weitere Aufbewahrungsvorrichtungen geschaffen sind.

Um Werkzeug- und Zubehörwagen auf das Basisgestell aufzubauen, werden auf die Ladefläche 2, vorzugsweise mit sockelartigen Verbindern od. dgl., zwei gleiche Ladekästen 7 und 8 aufgesetzt. Die oberste Fläche des Ladekastens wird als Arbeitsfläche 9 gestaltet und benutzt. Wie aus Fig. 1 hervor-

geht, kann die Arbeitsfläche 9 durch Ausklappen eines Tischelementes 11 in ihrer Größe noch erweitert werden. Vorzugsweise wird für den Fliesenleger eine Fliesenschneidmaschine vorgesehen, die auf den in Draufsicht oberhalb der Ladefläche 2 liegenden Teil der Arbeitsfläche 9 liegt, so daß der Werkzeug- und Zubehörwagen nicht beim Arbeiten mit der Fliesenschneidemaschine ins Kippen kommt.

Zur weiteren Arbeitserleichterung ist seitlich am oberen Ladekasten 7 noch entfernbar ein Fugbrett 23 angehängt.

Die Ladekästen sind jeweils mit herausziehbaren oberen Schubladen und einem unteren Schubkasten versehen, die entsprechend bestückt werden können. Ferner ist, wie insbesondere aus Fig. 3 erkennbar ist, an jeder der Streben 26, 27 mit Hilfe von entsprechenden Schellen ein herausziehbares Stativ 16 befestigt, das an seinem oberen Ende einen Stativfuß 17 trägt, auf dem eine Arbeitslampe, ein Läser-Meßgerät od.dgl. aufgesetzt und verstellbar gehalten ist.

Somit sind auf der Ladefläche zwei Ladekästen - vorzugsweise aus Metall - gestapelt, die beide eine seitlich herausziehbare Schublade und einen in dieselbe Richtung ausziehbaren Schubkasten enthalten, in die entsprechend ihrer Gebrauchsfrequenz Einzelwerkzeuge und Zubehör eingelegt sind. Für den Fliesenleger empfiehlt es sich, die oberste Schublade mit Fliesenmeißel, Fliesenkeilen, Fugenkreuzen, Schnurstiften, Fliesenschnur, Gummischnur, Putzhaken, Fliesenhexe und ähnlichen, oft gebrauchten Werkzeugen zu bestücken. In den darunterliegenden Schubkasten werden beispielsweise Universalmesser, Maurer- und Hartstahlhammer, Fäustel, Meißel und Putzkellen eingelegt.

Der direkt auf der Ladefläche aufliegende Ladekasten 8 mit Schublade 21 und Schubkasten 22 sollte wenigstens einen Einhand-Winkelschleifer und dessen Zubehör enthalten. Auch die auf den Stativfuß aufzusteckenden Teile, wie Lampe und Laser-Gerät, können dort transportgerecht untergebracht

werden.

Insgesamt ergibt sich ein Werkzeug- und Zubehörwagen, der insbesondere auf die Bedürfnisse des Fliesenlegers ausgerichtet und ausgestattet ist. Von besonderem Vorteil ist, daß beim Entfernen der Fliesenschneidemaschine und Austausch beispielsweise des oberen Ladekasten gegen einen entsprechend bestückten Ladekasten der Werkzeugwagen in kürzester Zeit für Elektro-Arbeiten ausgestattet und umgerüstet werden kann.

Gerade für kleine Werkstätten, in denen von einer Person mehrere Gewerke hintereinander erledigt werden müssen, ist damit der Werkzeug- und Zubehörwagen ein idealer Helfer auf vielen Arbeitsgebieten.

15.05.97

A:RICHTBL.TAT

BEZUGSZEICHENLISTE

100	Werkzeug- und Zubehörwagen
1.	Basisgestell
2.	Ladefläche
3.	Rückwand
4.	Oberkante
5.	Schiebegriff
6.	Schubkasten
7.	Ladekasten
8.	Ladekasten
9.	Arbeitsfläche
10.	Steckdosen
11.	Tischelement
12.	Treppensteigvorrichtung
13.	Zusatzrädern
14.	Vorbau
15.	Elektrokabel
16.	Stativ
17.	Stativfuß
18.	Fliesenschneidemaschine
19.	Schublade
20.	Schubkasten
21.	Schublade
22.	Schubkasten
23.	Fugbrett
24.	
25.	Rollen
26.	Strebe
27.	Strebe

15.05.97

1

A:FLR9_A1.TAT

Ansprüche

5

1. Werkzeug- und Zubehörwagen, bestehend aus einem als Transportwagen nutzbaren Basisgestell mit einer horizontal liegenden Ladefläche (2), die seitlich mit einer aufragenden Rückwand (3) versehen ist, die an ihrer Oberkante in einem
10 Schiebegriff (5) endet,
dadurch gekennzeichnet, daß die horizontal liegende Ladefläche (2) mit einem darunterliegenden Schubkasten (6) ausgestattet ist und auf die Ladefläche entfernbare, seitlich zugängliche Ladekästen (7, 8) gestapelt sind, die nach
15 oben im Bereich der Oberkante mit einer Arbeitsfläche (9) abschließen.

2. Werkzeug- und Zubehörwagen nach Anspruch 1, dadurch gekennzeichnet, daß der unter der Ladefläche (2) liegende
20 Schubkasten (6) eine Kabeltrommel mit einem herausziehbaren Elektrokabel (15) und an wenigstens einer seiner Außenseiten mit dem Elektrokabel verbundene Stromanschlüsse, insbesondere Steckdosen (10), umfaßt.

25 3. Werkzeug- und Zubehörwagen nach Anspruch 1 und 2, dadurch gekennzeichnet, daß die Arbeitsfläche (9) durch Ausklappen eines Tischelementes (11) erweiterbar ist.

4. Werkzeug- und Zubehörwagen nach Anspruch 1 bis 3,
30 dadurch gekennzeichnet, daß das Basisgestell mit einer vor die Rückwand gebaute Treppensteigvorrichtung (12) mit zwei Zusatzrädern (13) ausgestattet ist.

5. Werkzeug- und Zubehörwagen nach Anspruch 4, dadurch
35 gekennzeichnet, daß die Treppensteigvorrichtung über einen als Aufnahmekasten gestalteten Vorbau (14) mit den Zusatzrädern verbunden ist.

-A 2-

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6. Werkzeug- und Zubehörwagen nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß an dem Schiebegriff wenigstens ein vorzugsweise ausziehbarer Stativfuß befestigt (17) ist.

7. Werkzeug- und Zubehörwagen nach einem der vorhergehenden Ansprüche und insbesondere ausgestattet als Werkzeugwagen für das Fliesenlegen, dadurch gekennzeichnet, daß auf den in Draufsicht oberhalb der Ladefläche liegenden Teil der Arbeitsfläche eine Fliesenschneidemaschine aufgebaut ist.

8. Werkzeug- und Zubehörwagen nach einem der vorhergehenden Ansprüche und insbesondere ausgestattet als Werkzeugwagen für das Fliesenlegen, dadurch gekennzeichnet, daß wenigstens der obere der auf die Ladefläche gestapelten Ladekästen (7,8) wenigstens eine seitlich herausziehbare Schublade (19, 21) und einen in dieselbe Richtung ausziehbaren Schubkasten (20, 22) enthält, in die entsprechend ihrer Gebrauchsfrequenz Einzelwerkzeuge und Zubehör eingelegt sind.

9. Werkzeug- und Zubehörwagen nach Anspruch 8, dadurch gekennzeichnet, daß in die oberste Schublade (19) wenigstens Fliesenmeißel, Fliesenkeile und -kreuze sowie Fliesenschnüre eingelegt sind.

10. Werkzeug- und Zubehörwagen nach Anspruch 8 oder 9, dadurch gekennzeichnet, daß in den Schubkasten (20) wenigstens Fliesenmeißel, Maurerhammer, Fliesenlochzange und Kellen eingelegt sind.

11. Werkzeug- und Zubehörwagen nach Anspruch 8, dadurch gekennzeichnet, daß die seitlich herausziehbare Schublade (21) des Ladekastens (8) und der in dieselbe Richtung ausziehbare Schubkasten (22) wenigstens einen Einhand-Winkelschleifer und dessen Zubehör enthalten.

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12. Werkzeug- und Zubehörwagen nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß seitlich an den oberen Ladekasten entfernbar ein Fugbrett (23) angehängt ist.

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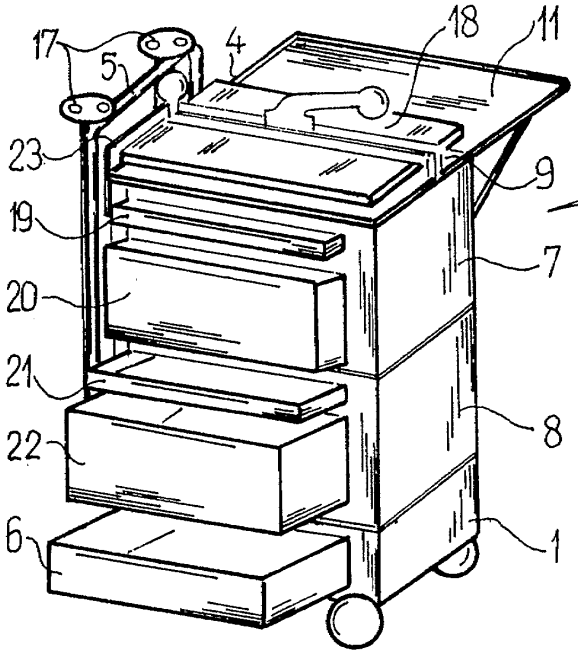


Fig. 1

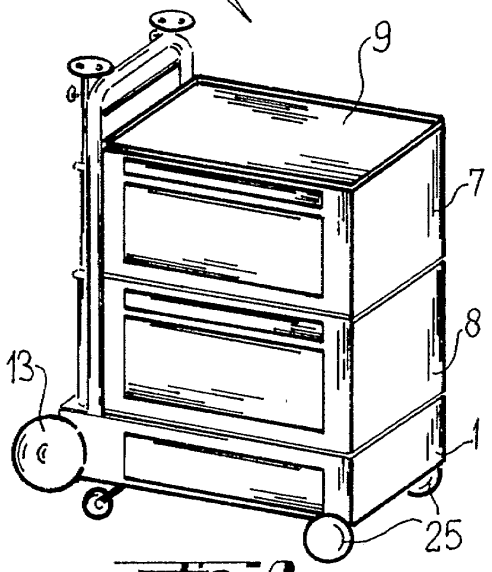


Fig. 2

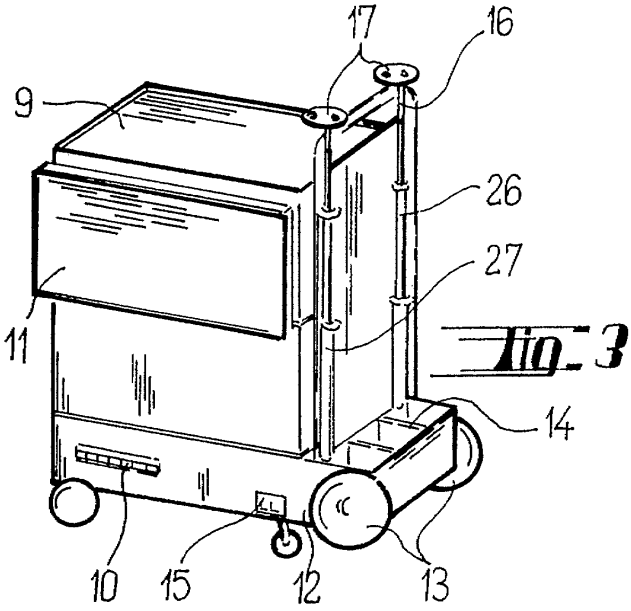


Fig. 3

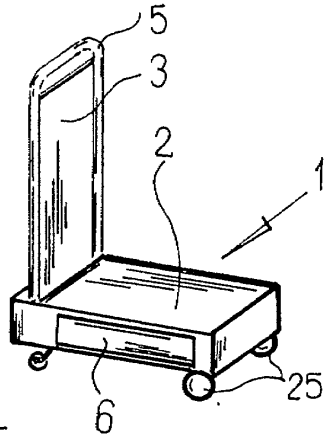


Fig. 4

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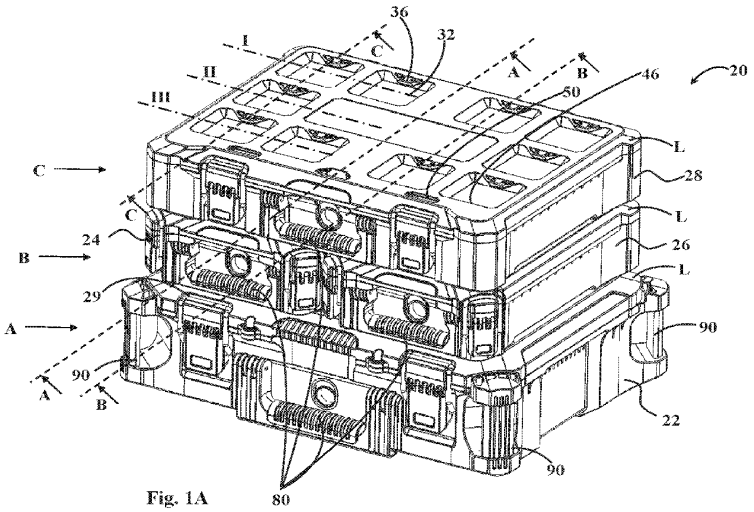


Fig. 1A

(57) Abstract: The present disclosure concerns a coupling mechanism for detachably attaching two or more utility modules to one another, utility assembles, mobile carriers and other attachable modules and articles.

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UTILITY ASSEMBLY AND COUPLING MECHANISM

TECHNOLOGICAL FIELD

The present disclosure is directed to a container assembly and more specifically to a utility assembly comprising two or more detachably attachable utility modules. The disclosure is further concerned with a coupling mechanism facilitating detachably attaching the utility modules to one another.

The term 'utility *module'* is used hereinafter in its broad meaning and is meant to denote a variety of articles such as, storage containers, travel luggage, tool boxes, organizers, compacted work benches, cable storage, tools (e.g. hand tools, power generators and power sources), communication modules, carrying platforms, locomotion platforms, etc., of any shape and size, and wherein any utility module can be detachably attached to any other utility module.

The term *'utility assembly*' as used herein denotes any set of utility modules configured for articulation to one another, either as a stationary unit or locomotive.

GENERAL DESCRIPTION

A first aspect of the disclosure concerns a coupling mechanism configured for readily detachably attaching any first article to any second article, wherein any first article and any second article can be any utility module.

The coupling mechanism comprises a male coupler at a face of one of the first utility module and the second utility module, and a female coupler at a face of the other one of the first utility module and the second utility module, said female coupler has a depressed locking location configured with at least one locking rib extending above a depressed surface and along a sliding path, and having an open edge facing in a first sense; said male coupler has a projecting locking location disposed in register with said depressed locking location and configured with at least one locking tongue extending along said engaging sliding path at a second sense, opposite to said first sense, and configured for arresting engagement at a space between said locking rib and depressed surface, the coupling mechanism further comprises at least one locking member for

arresting the first utility module with respect to said second utility module and preventing sliding displacement along said sliding path.

The arrangement is such that at a locked position of a utility assembly the at least one locking tongue of the male coupler engages below said at least one locking rib of the female coupler and the at least one locking member is engaged, thus preventing any respective displacement between the first utility module and the second utility module, and retaining the coupling mechanism at an engaged and locked position.

The term *'first utility module'* as used herein denotes any utility module bearing at least one second utility module over a first surface thereof. The second utility module of a utility assembly may comprise three or more stages of utility modules, and functions as first utility module with respect to a third stage utility module mounted thereover and serving in turn as a second utility module.

According to certain embodiments, one or more female couplers are configured at the top face of the first utility module, and one or more male couplers are configured at the bottom face of the second utility module

The disclosed subject-matter is directed to a utility module configured with at least one of a male coupling mechanism and a female coupling mechanism of the disclosure, a module assembly comprising one or more utility modules of the aforementioned type and a set of utility modules of the aforementioned type.

According to a configuration of the first aspect, there is provide a utility assembly comprising at least a first utility module and at least a second utility module, and comprising a coupling mechanism configured between the first utility module and the second utility module; said coupling mechanism comprising at one of a top face of the first utility module and a bottom face of the second utility module one or more depressed locking locations each configured with a locking rib, and at least one locking latch arresting location; and the other one of said top face of the first utility module and a bottom face of the second utility module comprises one or more projecting portions each configured with a locking tongue disposed in register with said one or more depressed locking locations, and at least one locking latch disposed in register with said at least one locking latch arresting location.

The arrangement is such that, at a locked position, the bottom face of the second utility module at least partially rests over the top face of the first utility module, and the one or more projecting tongues are arrested by the corresponding one or more locking

ribs, and the at least one locking latch is arrested by corresponding at least one locking latch arresting location, thereby preventing sliding displacement between the first utility module and the second utility module, and further wherein disengaging the second utility module from the first utility module is facilitated by disengaging the at least one locking latch from the at least one locking latch arresting location.

Locking engagement between the second utility module and the first utility module is obtained when the one or more depressed locking locations and the one or more projecting portions are disposed behind one another (though not necessarily aligned).

According to a particular configuration of the coupling mechanism, the one or more depressed locking locations and the one or more locking latch arresting locations are configured at the top face of the first utility module, and the one or more projecting portions and the at least one locking latch are configured at the bottom face of the second utility module. According to this configuration, locking between the first utility module and the second utility module is obtained by positioning the second utility module over the second utility module such that one or more locking tongues of the projecting portions engages with one or more respective locking ribs of the depressed locking locations, and wherein the locking latch interlocks with the respective locking latch arresting location.

The arrangement being such that the attaching engagement between the second utility module and the first utility module takes place when the one or more locking tongues and the corresponding one or more respective locking ribs are engaged, thereby preventing vertical separation between the utility modules (i.e. preventing lifting of the second utility module of the first utility module), and further when the locking latch is arrested by the respective locking latch arresting location, thereby preventing sliding displacement of the utility modules one with respect to the other (i.e. sliding displacement of the second module over the first module).

Disengaging the second utility module from the first utility module can be facilitated only after disengaging the locking latch from said locking latch arresting location.

According to a second aspect of the disclosure there is disclosed a coupling mechanism for a utility assembly comprising at least a first utility module and at least a second utility module, said coupling mechanism is configured between the first utility

module and the second utility module and comprises at one of a top face of the first utility module and a bottom face of the second utility module with at least one depressed locking location configured with a locking rib, and at least one locking latch arresting location; and the other one of said top face of the first utility module and a bottom face of the second utility module comprises at least one projecting portion with a locking tongue disposed in register with said at least one depressed locking location, and at least one locking latch disposed in register with said at least one locking latch arresting location; and wherein at a locked position the bottom face at least partially rests over the top face, and the at least one projecting tongue is arrested by the corresponding at least one locking rib and the at least one locking latch is arrested by corresponding at least one locking latch arresting location, and further wherein disengaging the second utility module from the first utility module is facilitated by disengaging the at least one locking latch from the at least one locking latch arresting location.

Engaging the first and second utility modules into the locked position is provided by sliding the second utility module with respect to the first utility module along a sliding path defined by at least one of said at least one locking rib and said at least one locking tongue.

According to one particular configuration the at least one locking rib extends substantially parallel to the sliding path and according to another configuration the at least one locking rib extends substantially perpendicular and intersects the sliding path.

A third aspect of the present disclosure is directed to a utility module being a mobile carrier unit and comprising at least one carrier engagement surface, compatible for interlocking engagement in a detachable manner with a first engagement surface of a utility module.

The term *carrier unit* as used herein denotes any kind of propelled cart configured for detachably attaching and carrying load. The carrier unit may be a hand cart, a mobile tool cart, a mobile workshop, traveling luggage cart, a trolley, etc.

With particular reference to the third aspect, the carrier engagement surface can be larger than the utility module's first engagement surface corresponding with it. In this case, several utility modules may be interlocked simultaneously upon one carrier unit.

According to one configuration there is disclosed a carrier unit comprising a manipulating arrangement, a locomotion system, and an engagement surface comprising

one or more engaging elements. The carrier unit is designated for detachable interlocking engagement with one or more utility modules, each comprising a first engagement surface configured with one or more first engaging elements compatible for detachable interlocking engagement with the carrier engaging elements.

According to yet configuration there is disclosed an assembly comprising a carrier unit comprising an engagement surface comprising one or more engaging elements, and at least one utility module configured with at least one first engagement surface comprising one or more first engaging elements compatible for detachable interlocking engagement with the carrier unit's engaging elements.

According to a modification of this aspect, there is also provided a container unit comprising a top member configured with a second engagement surface of the utility module, said top member, according to one example constitutes a cover of the utility module.

The arrangement is such that a container unit can be readily and easily applied over and interlockingly articulated to a carrier unit, or over a utility module configured with a second engagement surface mimicking the first engagement surface second engagement surface mimicking the first engagement surface of the carrier unit.

Engagement between the carrier unit and the container, and further between two containers, is facilitated by any locking mechanism of the disclosure hereinabove and hereinafter.

According to a specific example, there is a latching mechanism, wherein the first engaging elements of the carrier unit are configured for interlocking engagement with engaging elements of the mating surface of the respective utility module. The latching mechanism may assume various configurations, e.g. male-female couplings, dovetail couplings, and the like. The arrangement being such that only a minor displacement is required in order to lockingly mount, and respectively detach, a utility module over the carrier unit.

According to one specific configuration, the detachable interlocking engagement mechanism between the carrier engaging elements and the utility module`s first engaging elements is a dovetail engagement mechanism, comprising laterally projecting shoulders configured on one of the carrier engagement surfaces and the first engagement surface of a utility module, and a shoulder receiving recess configured on the other one of one of the carrier engagement surfaces and the first engagement surface

of a utility module; where said laterally projecting shoulders are configured for sliding engagement with said shoulder receiving recess.

According to a particular configuration, one or both of the carrier engagement surfaces and the first engagement surface of a respective utility module are configured with depressions, each accommodating respective laterally projecting locking shoulders.

Said dovetail engagement mechanism members constitute said engaging elements, wherein said carrier engaging elements comprise one of said dovetail engagement members, while the utility module`s first engaging element comprises the respective said dovetail engagement member.

According to another configuration, the detachable interlocking engagement mechanism between the carrier engaging elements and the utility module`s first engaging elements is an undercut engagement mechanism, comprising lateral projections configured on one of the carrier engagement surfaces and the first engagement surface of a container unit, and a receiving recess configured on the other one of one of the carrier engagement surfaces and the first engagement surface of a utility module; where said lateral projections are configured for engagement with said receiving recess.

Interlocking engagement of the utility module and the carrier unit takes place by placing the first engagement surface of a utility module over the carrier engagement surface, such that the utility module`s first engaging elements are disposed shifted over the respective carrier engaging elements of the carrier unit, and are then slidingly shifted to obtain sliding interlocking engagement therebetween.

The detachable interlocking engagement mechanism may further comprise a locking mechanism configured for preventing unintentional detaching of the slidingly engaging elements once they are fully interlocked, i.e. to prevent detaching of the utility module from the carrier unit or from another utility module.

According to one configuration, the locking mechanism, comprises a locking pin that is configured for snapingly protruding from one of the engagement surfaces into a designated nook on the other engagement surface. This prevents the engaging surfaces from sliding relatively to each other, and by that it prevents said engaging elements from being slidingly separated once interlocked.

According to one configuration, the carrier engagement surface of the carrier unit constitutes a top wall of the carrier unit, when the carrier unit is balanced

horizontally to the ground, and wherein the utility module`s first engagement surface constitutes a bottom wall of the container unit, when the utility module is balanced horizontally to the ground. The utility module can further comprise a second engagement surface constituting its top wall, or a cover, when the utility module is balanced horizontally to the ground. The second engagement surface of the utility module simulates the carrier engagement surface as it is compatible for engaging with another utility module's first engagement surface.

Any one or more of the following features, designs and configurations, can be implemented in a utility module, a utility assembly, locking mechanism, and the carrier unit and assembly according to the present disclosure, individually or in various combinations thereof:

- A single locking rib can extend at rear end of a depressed locking location (i.e. the female coupler may comprise a single locking rib) and substantially perpendicular to the sliding path;
- Two locking ribs can extend at side edges of a depressed locking location (i.e. the female coupler may comprise two locking ribs) and disposed substantially parallel to the sliding path;
- Two locking ribs can each extend at a respective side edge of two neighboring depressed locking locations, said locking ribs disposed substantially parallel to the sliding path;
- The utility assembly can be modular wherein a top face of a first utility module can interlock with a bottom face of a second utility module disposed thereover in a substantially fully overlapping relation, or with a bottom face of at least one second utility module only partially overlapping therewith;
- A second utility module overlapping a significant portion of a first utility module can be configured with a single release latch for displacing several locking latches articulated therewith;
- Two or more second utility modules can be mounted over a first utility module, each being independently detachable attachable over the first utility module;
- The at least one second utility module is configured for snap-type locking over the first utility module;

- A release latch for displacing the locking latch into disengagement from the locking latch arresting location can be disposed at a front face of the respective second utility module;
- The at least one locking latch and the at least one locking latch arresting location can be disposed at a front portion of the respective utility modules;
- At least one of the first utility module and the second utility module are configured with a gliding surface facilitating displacement and positioning the respective second utility module at the locking position with respect to the first utility module;
- The gliding surface reduces tolerances between the projecting portion and the depressed locking location receiving same;
- One or both of the locking tongue and locking rib can be configured with a slanting surface at corresponding orientation, along the sliding path, for reducing or substantially elimination tolerance therebetween;
- One or both of a front edge of the projecting portion and a corresponding front edge of the depressed locking location can be slanted for gliding positioning of the second utility module into true locking position over the first utility module;
- The locking latch can be configured for displacement in a direction substantially normal to a respective face of a utility module;
- The locking latch can be spring biased and configured for normally projecting from a face of the respective first or second utility module;
- The locking latch can be manipulable to be opened through an opening configured at a front wall of the respective utility module;
- Corners of the utility modules can be reinforced;
- One or more of the utility modules can be a container module, and the utility assembly can be a container assembly/tool caddy;
- The container module can be compartmented and can be configured with sub-containers and sub-compartments;
- The top face of the container module can be configured as a lid or as a functional component of the container module;
- A lid of a second container can be opened also when articulated and locked in position over a first container;

- A lid of a first container can be opened also when a second container is articulated and locked in position thereabove;
- At least one of the container modules can be a locomoting container and can be configured with an arrangement for locomoting said container module. Where the locomoting container is attached to other container modules it can facilitate for locomoting the utility assembly;
- The container modules can be configured with carrying arrangement disposed at any one or more of its faces. According to a particular configuration, a front face of the container modules is configured with a carrying handle and according to another configuration side faces of the container modules can be configured with a carrying handle;
- Examples of utility modules can be any one or more of a cooler box, a workpiece grip, a power supply (e.g. power bank, generator), hand tools, power tools, a locomotive platform (e.g. a work dolly), powered or not, a tactical unit (e.g. military gear, scientific equipment, communications equipment, personal gear, outdoor gear, etc.);
- A tool caddy can be configured with a carrying handle (e.g. telescopic);
- A utility module can be a soft-shell container with at least a rigid face portion configured with a male/female coupler;
- The utility module can be an interface coupling module, i.e. functions only as a coupling interface;
- The interface coupling module can be attached to a surface of any element or object and by different arrangements, fixedly or detachably;
- The interface coupling module can be a cargo interface module for a utility vehicle, so as to attach one or more utility modules to the vehicle;
- The cargo interface module can be a bed cargo module, a roof rack module, etc.;
- The interface coupling module can be a surface mount for attaching utility modules, e.g. a floor mount, wall mount, wall rack, etc.;
- The interface coupling module can be a tool mount/rack;
- The interface coupling module can be belt mount for mounting of utility modules (e.g. a hand tool) to a workers belt;

- The interface coupling module can be an interface mount module for coupling two utility modules to one another, e.g. for articulating two utility modules, both configured with a similar male coupler or a female coupler, and wherein the interface mount module is configured at both faces with an other of male coupler or a female coupler;
- The interface coupling module can be a back pack carrying module, for facilitating attachment and carrying of utility modules;
- A top face of a utility module can be configured with a carrying handle, said carrying handle displaceable between a stowed position and a carrying position, wherein at the stowed position said carrying handle at least partially extends within a niche and does not to interfere with the coupling mechanism;
- The carrier unit may include one or more auxiliary engagement surfaces positioned on an exterior face of the carrier unit. For example, an auxiliary engagement surface can be configured at a bottom face of the carrier unit;
- The carrier unit may include a second engagement surface simulating/mimicking the first engagement surface of the utility module;
- A utility module may be configured with one or more auxiliary first and second engagement surfaces;
- The carrier engagement surface may be a connectivity platform detachably attached to the exterior surface of the carrier unit, facilitating a cart unit or a carrier unit according to the present disclosure;
- One or both of the utility module's first and second engagement surfaces may be detachably attached to an exterior surface of the utility module;
- The carrier engagement surface and the utility module's first engagement surface may be like elements;
- The utility module's first and second engagement surfaces may be like elements;
- The carrier unit's engaging elements and the utility module's first engaging elements may be similar elements;
- One engagement surface may include several engaging elements and one locking mechanism;

- The coupling mechanism is configured for spontaneous displacement into locking engagement within a locking receptacle, wherein manual interference is required only for unlocking the locking mechanism and detaching a utility module from a respective utility module or carrier unit;
- The coupling mechanism can be a spring biased locking pin, normally projecting from a respective engagement surface;
- One or both of the carrier unit and the utility module may further include a locking mechanism designated to prevent unintentional separation of the engagement surfaces while they are interlocked;
- The locking mechanism is manipulable between an unlocked position in which said engagement surfaces may slide upon each other, and a locked state in which the engagement surfaces may not slide upon each other;
- The locking mechanism may be configured with a biasing mechanism for snap arresting at least at its locked state;
- The locking mechanism may be configured with a manually operated activating portion for switching between said unlocked and locked positions.
- The carrier unit may be assembled together with other carrier units the same way it's assembled with the utility modules;
- The locomotion system of the carrier unit may comprise a wheel system (e.g. axially fixed roller wheels, swivel wheels, etc.), a sliding platform, caterpillar tracks, etc;
- The locomotion system of the carrier unit comprises, according to a particular example, several fixed axis wheels, wherein the perimeter of said wheels is tangent with a base edge of the carrier unit;
- At an assembled configuration, where one or more utility modules are attached to the carrier unit, the assembly can be positioned vertically wherein a side face of the one or more containers rest over a supporting surface. According to a particular example, at this position the carrier unit and container assembly are configured with stability members for retaining their stability while positioned vertically to the ground;
- The carrier unit may be stable while positioned horizontally to the ground, by a support system projecting from a bottom face thereof. The support system

may comprise friction enhancing surfaces to restrict displacement of the assembly while placed over a bearing surface;

- The carrier unit may be foldable to a more compact configuration;
- The carrier unit may comprise an external storage box detachably interconnectable to its exterior walls;
- The carrier unit may comprise a power supply detachably interconnectable to its exterior walls;
- The carrier unit's transporting system may be motorized while powered via said power supply;
- The carrier unit may further include a locking mechanism to insure interlocking connection of the engagement surfaces;
- The container unit may comprise non-rigid portions;
- The carrier unit may comprise at least one manipulating arrangement, configurable between a stowed position in which the manipulating arrangement is retracted, and a manipulating position in which the manipulating arrangement is extracted. The manipulating arrangement may be a telescopic or foldable handle;
- The manipulating arrangement may be a gripping handle, a D-grip handle, a T-grip handle, a flexible strap, etc.

EMBODIMENTS

The present disclosure also encompasses embodiment as defined in the following numbered phrases. It should be noted that these numbered embodiments intended to add to this disclosure and is not intended in any way to be limiting.

1. A coupling mechanism configured for readily detachably attaching a first utility module to a second utility module, the coupling mechanism comprising a male coupler at a face of one of the first utility module and the second utility module, and a female coupler at a face of the other one of the first utility module and the second utility module, said female coupler having a depressed locking location configured with at least one locking rib extending above a depressed surface and along a sliding path, and having an open edge facing in a first sense; said male coupler having a projecting

locking location disposed in register with said depressed locking location and configured with at least one locking tongue extending along said engaging sliding path at a second sense, opposite to said first sense, and configured for arresting engagement at a space between said locking rib and depressed surface, the coupling mechanism further comprises at least one locking member for arresting the first utility module with respect to said second utility module and preventing sliding displacement along said sliding path.

2. The coupling mechanism of embodiment 1, wherein said female coupler is configured at the top face of the first utility module, and the male coupler is configured at the bottom face of the second utility module.

3. The coupling arrangement of embodiment 1 or 2, wherein the at least one locking rib extends substantially parallel to the sliding path.

4. The coupling arrangement of embodiment 1 or 2, wherein the at least one locking rib extends substantially perpendicular and intersects the sliding path.

5. The coupling arrangement of embodiment 1 or 2, wherein the female coupler comprises a single locking rib extends at rear end of a depressed locking location and substantially perpendicular to the sliding path.

6. The coupling arrangement of embodiment 1 or 2, wherein the female coupler comprises two locking ribs extend at side edges of a depressed locking location and disposed substantially parallel to the sliding path.

7. The coupling arrangement of embodiment 1 or 2, wherein the female coupler comprises two locking ribs each extend at a respective side edge of two neighboring depressed locking locations, said locking ribs disposed substantially parallel to the sliding path.

8. A coupling mechanism for a utility assembly that comprises at least a first utility module and at least a second utility module, said coupling mechanism is configured between the first utility module and the second utility module; one of a top face of the first utility module and a bottom face of the second utility module comprises at least one depressed locking location configured with a locking rib, and at least one locking latch arresting location; and the other one of said top face of the first utility module and a bottom face of the second utility module comprises at least one projecting portion with a locking tongue disposed in register with said at least one depressed locking location, and at least one locking latch disposed in register with said at least one locking latch

arresting location; and wherein at a locked position the bottom face at least partially rests over the top face, and the at least one projecting tongue is arrested by the corresponding at least one locking rib and the at least one locking latch is arrested by corresponding at least one locking latch arresting location, and further wherein disengaging the second utility module from the first utility module is facilitated by disengaging the at least one locking latch from the at least one locking latch arresting location, such that engaging the first and second utility modules into the locked position is provided by sliding the second utility module with respect to the first utility module along a sliding path defined by at least one of said at least one locking rib and said at least one locking tongue.

9. The coupling arrangement of embodiment 8, wherein the at least one locking rib extends substantially parallel to the sliding path.

10. The coupling arrangement of embodiment 8, wherein the at least one locking rib extends substantially perpendicular and intersects the sliding path.

11. The coupling arrangement of embodiment 8, wherein a single locking rib extends at rear end of a depressed locking location and substantially perpendicular to the sliding path.

12. The coupling arrangement of embodiment 8, wherein two locking ribs extend at side edges of a depressed locking location and disposed substantially parallel to the sliding path.

13. The coupling arrangement of embodiment 8, wherein two locking ribs each extend at a respective side edge of two neighboring depressed locking locations, said locking ribs disposed substantially parallel to the sliding path.

14. The coupling arrangement of any one of embodiments 8 to 13, further comprising a release latch for displacing the locking latch into disengagement from the locking latch arresting location can be disposed at a front face of the respective second utility module.

15. The coupling arrangement of any one of embodiments 8 to 14, wherein the at least one locking latch and the at least one locking latch arresting location are disposed at a front portion of the respective utility modules.

16. The coupling arrangement of any one of embodiments 8 to 15, wherein the locking latch is configured for displacement in a direction substantially normal to a respective face of a utility module.

17. The coupling arrangement of any one of embodiments 8 to 16, wherein locking latch is spring biased and configured for normally projecting from a face of the respective first or second utility module.

18. The coupling arrangement of any one of embodiments 8 to 17, wherein the locking latch is manipulable to be opened through an opening configured at a front wall of the respective utility module.

19. The coupling arrangement of any one of embodiments 1 to 18, wherein one or both of the locking tongue and locking rib are configured with a slanting surface at corresponding orientation along the sliding path.

20. The coupling arrangement of any one of embodiments 1 to 19, wherein one or both of a front edge of the projecting portion (or the projecting locking location) and a corresponding front edge of the depressed locking location are slanted for gliding positioning of the second utility module into locking position over the first utility module.

21. The coupling mechanism of any one of embodiments 1 to 20, wherein the first utility module is configured for detachably attaching one or more second utility modules thereto.

22. A coupling mechanism for a utility assembly comprising at least a first utility module and at least a second utility module, said coupling mechanism is configured between the first utility module and the second utility module and comprises at one of a top face of the first utility module and a bottom face of the second utility module with at least one depressed locking location configured with a locking rib, and at least one locking latch arresting location; and the other one of said top face of the first utility module and a bottom face of the second utility module comprises at least one projecting portion with a locking tongue disposed in register with said at least one depressed locking location, and at least one locking latch disposed in register with said at least one locking latch arresting location; and wherein at a locked position the bottom face at least partially rests over the top face, and the at least one projecting tongue is arrested by the corresponding at least one locking rib and the at least one locking latch is arrested by corresponding at least one locking latch arresting location, and further wherein disengaging the second utility module from the first utility module is facilitated by disengaging the at least one locking latch from the at least one locking latch arresting location.

23. A utility assembly comprising at least a first utility module and at least a second utility module, and comprising a coupling mechanism according to any one of embodiments 1 to 21, the coupling mechanism being configured between the first utility module and the second utility module.

24. A utility assembly comprising at least a first utility module and at least a second utility module, and comprising a coupling mechanism for readily detachably attaching the first and second utility modules, the coupling mechanism being configured between the first utility module and the second utility module; said coupling mechanism comprising at one of a top face of the first utility module and a bottom face of the second utility module one or more depressed locking locations each configured with a locking rib, and at least one locking latch arresting location; and the other one of said top face of the first utility module and a bottom face of the second utility module comprises one or more projecting portions each configured with a locking tongue disposed in register with said one or more depressed locking locations, and at least one locking latch disposed in register with said at least one locking latch arresting location; such that at a locked position, the bottom face of the second utility module at least partially rests over the top face of the first utility module, and the one or more projecting tongues are arrested by the corresponding one or more locking ribs, and the at least one locking latch is arrested by corresponding at least one locking latch arresting location, thereby preventing sliding displacement between the first utility module and the second utility module, and disengaging the second utility module from the first utility module is facilitated by disengaging the at least one locking latch from the at least one locking latch arresting location.

25. The utility assembly of embodiment 24, wherein the first and second utility modules are in a locking engagement when said one or more depressed locking locations and the one or more projecting portions are disposed behind one another.

26. The utility assembly of embodiment 24 or 25, wherein said one or more depressed locking locations and said one or more locking latch arresting locations are configured at the top face of the first utility module, and the one or more projecting portions and the at least one locking latch are configured at the bottom face of the second utility module.

27. The utility assembly of any one of embodiments 24 to 26, wherein at least one second utility module is configured for snap-type locking over the first utility module.

28. The utility assembly of any one of embodiments 24 to 27 wherein engaging the first and second utility modules into the locked position is provided by sliding the second utility module with respect to the first utility module along a sliding path defined by at least one of said at least one locking rib and said at least one locking tongue.

29. The utility assembly of any one of embodiments 24 to 28, wherein the at least one locking rib extends substantially parallel to the sliding path.

30. The utility assembly of embodiment 29, wherein the at least one locking rib extends substantially perpendicular and intersects the sliding path.

31. The utility assembly of embodiment 29, wherein a single locking rib extends at rear end of a depressed locking location and substantially perpendicular to the sliding path.

32. The utility assembly of embodiment 29 wherein two locking ribs extend at side edges of a depressed locking location and disposed substantially parallel to the sliding path.

33. The utility assembly of embodiment 29, wherein two locking ribs each extend at a respective side edge of two neighboring depressed locking locations, said locking ribs disposed substantially parallel to the sliding path.

34. The utility assembly of any one of embodiments 24 to 33, wherein a top face of a first utility module interlocks with a bottom face of a second utility module disposed thereover in a substantially fully overlapping relation, or with a bottom face of at least one second utility module only partially overlapping therewith.

35. The utility assembly of any one of embodiments 24 to 33, wherein the second utility module overlaps a significant portion of a first utility module and is configured with a single release latch for displacing several locking latches articulated therewith.

36. The utility assembly of any one of embodiments 24 to 35, further comprising a release latch for displacing the locking latch into disengagement from the locking latch arresting location can be disposed at a front face of the respective second utility module.

37. The utility assembly of any one of embodiments 24 to 36, wherein the locking latch is configured for displacement in a direction substantially normal to a respective face of a utility module.

38. The utility assembly of any one of embodiments 24 to 37, wherein the locking latch is spring biased and configured for normally projecting from a face of the respective first or second utility module.

39. The utility assembly of any one of embodiments 24 to 38, wherein two or more second utility modules can be mounted over a first utility module, each being independently detachable attachable over the first utility module.

40. The utility assembly of any one of embodiments 24 to 39, wherein at least one of the first utility module and the second utility module are configured with a gliding surface facilitating displacement and positioning the respective second utility module at the locking position with respect to the first utility module.

41. The utility assembly of any one of embodiments 24 to 40, wherein one or more of the utility modules is a container module, and the utility assembly is a container assembly or a tool caddy.

42. The utility assembly of embodiment 41, wherein the container module is compartmented and optionally configured with sub-containers and sub-compartments.

43. The utility assembly of embodiment 41 or 42, wherein a top face of the container module is configured as a lid or as a functional component of the container module.

44. The utility assembly of any one of embodiments 41 to 43, wherein the container modules is a locomoting container, configured with an arrangement for locomoting said utility assembly.

45. The utility assembly of any one of embodiments 41 to 44, wherein the container modules is configured with a carrying arrangement disposed at any one or more of its faces, optionally being a carrying handle.

46. The utility assembly of any one of embodiments 24 to 40, wherein one or more of the utility modules is a soft-shell container with at least a rigid face portion.

47. The utility assembly of any one of embodiments 24 to 40, wherein said first utility module is a mobile carrier unit.

48. The utility assembly of any one of embodiments 24 to 47, further comprising a locking mechanism for preventing unintentional separation of the modules while they are interlocked.

49. The utility assembly of any one of embodiments 24 to 48, wherein the first utility module is configured for detachably attaching at least two second utility modules thereto.

50. A mobile carrier unit comprising at least one carrier engagement surface, compatible for interlocking engagement in a detachable manner with a first engagement

surface of a utility module, said carrier engagement surface having (i) one or more depressed locking locations each configured with a locking rib and at least one locking latch arresting location, configured for engagement with said first engagement surface of a utility module that comprises at least one locking latch and one or more projecting portions, each projecting portion being configured with a locking tongue, or (ii) at least one locking latch and one or more projecting portions each configured with a locking tongue for engagement with said first engagement surface of a utility module that comprises one or more depressed locking locations, each depressed locking locations configured with a locking rib and at least one locking latch arresting location.

51. The mobile carrier unit of embodiment 50, wherein once associated with the utility module, said locking tongue becomes disposed in register with said one or more depressed locking locations, and at least one locking latch become disposed in register with said at least one locking latch arresting location.

52. The mobile carrier unit of embodiment 50 or 51, configured for detachable interlocking engagement with one or more utility modules, each utility module comprising a first engagement surface.

53. The mobile carrier unit of any one of embodiments 50 to 52, further comprising at least one of a manipulating arrangement and a locomotion system.

54. An assembly comprising a mobile carrier unit of any one of embodiments 50 to 53 having at least one carrier engagement surface, and at a least one utility module having a first engagement surface, the utility module being detachably interlocked with the mobile carrier unit by engaging said first engagement surface with said carrier engagement surface.

55. The assembly of embodiment 54, wherein the mobile carrier unit and the at least one utility module are detachably interlocked with one another by a dovetail engagement mechanism, that comprises laterally projecting shoulders configured on one of the carrier engagement surfaces and the first engagement surface of a utility module, and a shoulder receiving recess configured on the other one of one of the carrier engagement surfaces and the first engagement surface of a utility module; where said laterally projecting shoulders are configured for sliding engagement with said shoulder receiving recess.

56. The assembly of embodiment 55, wherein one or both of the carrier engagement surfaces and the first engagement surface of a respective utility module are configured with depressions, each accommodating respective laterally projecting locking shoulders.

57. The assembly of embodiment 54, wherein the mobile carrier unit and the at least one utility module are detachably interlocked with one another by an undercut engagement mechanism, comprising lateral projections configured on one of the carrier engagement surfaces and the first engagement surface of a container unit, and a receiving recess configured on the other one of one of the carrier engagement surfaces and the first engagement surface of a utility module; where said lateral projections are configured for engagement with said receiving recess, such that interlocking engagement of the utility module and the carrier unit takes place by placing the first engagement surface of a utility module over the carrier engagement surface, such that the utility module`s first engaging elements are disposed shifted over the respective carrier engaging elements of the carrier unit, and are then slidingly shifted to obtain sliding interlocking engagement therebetween.

58. The assembly of any one of embodiments 54 to 57, further comprising a locking mechanism configured for preventing unintentional detaching of the utility module from the carrier unit.

59. The assembly of embodiment 58, wherein the locking mechanism comprises a locking pin that is configured for snapingly protruding from one of the engagement surfaces into a designated nook on the other engagement surface.

60. An interface coupling module comprising at least one engagement surface, compatible for interlocking engagement in a detachable manner with a first engagement surface of a utility module, said interface coupling module comprising an engagement surface having (i) one or more depressed locking locations each configured with a locking rib and at least one locking latch arresting location, configured for engagement with said first engagement surface of a utility module that comprises at least one locking latch and one or more projecting portions, each projecting portion being configured with a locking tongue, or (ii) at least one locking latch and one or more projecting portions each configured with a locking tongue for engagement with said first engagement surface of a utility module that comprises one or more depressed locking locations, each depressed locking locations configured with a locking rib and at least one locking latch arresting location

61. The interface coupling module of embodiment 60, being configured for detachable or fixed attachment to a surface of an object.

62. The interface coupling module of embodiment 60 or 61, being a cargo interface module for a utility vehicle configured for attaching one or more utility modules to the vehicle.

63. The interface module of embodiment 60 or 61, being a surface mount for attaching utility modules

64. The interface module of embodiment 60 or 61, being a tool mount or a tool rack.

65. The interface module of embodiment 60 or 61, being a belt mount for mounting of utility modules to a workers belt;

66. The interface module of embodiment 60 or 61, being an interface mount module for coupling two utility modules to one another.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to better understand the subject matter that is disclosed herein and to exemplify how it may be carried out in practice, embodiments will now be described, by way of non-limiting examples only, with reference to the accompanying drawings, in which:

Figs. 1 to **6** are directed to a first example of a locking mechanism, wherein:

Fig. 1A is a top perspective view of a container assembly according to an example of the present disclosure;

Fig. 1B is an exploded perspective view of the container assembly of Fig. 1A;

Fig. 1C is a bottom, front perspective view of Fig. 1B;

Fig. 1D is a bottom, rear perspective view of Fig. 1B;

Fig. 2A is a sectioned portion along line A-A in Fig. 1A;

Fig. 2B is a sectioned portion along line B-B in Fig. 1A;

Fig. 2C is a sectioned portion along line C-C in Fig. 1A;

Figs. 3A to **3D** are consecutive steps illustrating locking engagement of the locking tongue of the second container with the respective locking rib of the first container;

Figs. 4A to **4D** are consecutive steps illustrating locking engagement of the locking latch of the second container with the respective locking latch arresting location of the first container;

Figs. 5A to **5E** schematically demonstrate modularity of a container assembly according to the disclosure;

Figs. 6A to **6G** are various combinations of a modular container assembly according to examples of the present disclosure.

Figs 7 to **12** are directed to a carrier unit and another example of a locking mechanism, wherein:

Fig. 7A is container carrier assembly according to an example of the disclosure, illustrating a top, left perspective view of a container unit, mounted on top of a carrier unit;

Fig. 7B is a top, left perspective view of a second container unit, mounted on top of a first container unit, which in turn is mounted on top of a carrier unit according to an example of the present disclosure;

Fig. 8A is a top, left perspective view of a carrier unit, illustrating the carrier engagement surface in further detail;

Figs. 8B and **8C** are a top and a bottom perspective view of a carrier unit, illustrating the container unit's first engagement surface in further detail;

Fig. 9A is a side section along line F-F in Fig. 7A, illustrating the container unit and the carrier unit unattached;

Fig. 9B is a side section along line F-F in Fig. 7A illustrating the container unit and the carrier unit attached;

Fig. 9C is a close-up view of Fig. 9B;

Fig. 9D is a sectioned view along line F-F in Fig. 7A illustrating the interlocking engagement of the carrier engaging elements together with the container unit's first engaging elements;

Fig. 10A is a sectioned view along line D-D in Fig. 7A, illustrating the locking mechanism;

Fig. 10B is an enlarged image of the portion marked M in Fig. 10A;

Fig. 11A illustrates different sizes of container units forming an assembly, at a tilted orientation;

Fig. 11B illustrates an assembled configuration balanced vertically relatively to the ground;

Fig. 12A shows a container assembly wherein the female coupler comprises two locking ribs extending at respective side edges of two neighboring depressed locking locations;

Fig. 12B is a section along line H-H in Fig. 12A;

Fig. 12C illustrates the utility module apart from the container and flipped, so as to expose the mating coupling mechanism.

Figs. 13 to **24** are different embodiments and configurations of utility modules and utility assemblies according examples of this disclosure.

DETAILED DESCRIPTION OF EMBODIMENTS

Reference is first being made to Figs. 1 to 6, directed to a first configuration of a coupling mechanism. For sake of convenience the utility modules are exemplified as containers and respectively the utility assembly is illustrates as a tool caddy. It is however appreciated that the utility modules can be of any type, shape or size, as discussed hereinabove and as will be exemplified below.

Attention is first directed to Figs. 1 to 4, illustrating a container assembly generally designated **20**, comprising four containers **22**, **24**, **26** and **28** disposed in a triple stage configuration, the stages designated **A**, **B** and **C**. In the illustrated example containers **24** and **26** of the second stage are half-size and overlap the footprint of the first stage container **22** and the third stage container **28**, wherein the first container **22** is for example a hand tool container and containers **22** to **28** are organizers or the like.

The term *'first container'* as used herein denotes a container bearing over a top face thereof at least one other container, said at least one other container denoted herein as a *'second container'*. It is thus appreciated that a second container of a container assembly comprising three or more stages of containers' serves as second container when referred to the first stage container, and as a first container when referred to a third stage container mounted thereover. Accordingly, in the illustrated example of Figs. 1 and 2, container **22** is a first container and containers **24** and **26** are second containers,

whilst they function as first containers when discussing locking arrangement with respect to third stage container **28**.

Each of the containers is configured with a lid **L** constituting a top face of the respective container, said lids being pivotally attached and securely articulated to the respective container through a toggle locking latch **29**. Each top face (see Fig.1B) is configured with several depressed locking locations **32** and it is seen that the at least two depressed locking locations are disposed behind one another along imaginary lines **I**, **II** and **III** (though not necessarily aligned).

Each such depressed locking location is in turn configured with a laterally projecting locking rib **36** extending from a rear portion of the depressed locking location **32** towards a front face of the container. The locking rib **36** has a flat top surface **38** substantially flush with a top surface of the respective lid **L**, and a slanting bottom surface **40**. A front portion **46** of the depressed locking location **32** is slanted too, in the same orientation as bottom surface **40** (i.e. substantially parallel thereto).

Furthermore, the top face, namely lid **L** of the containers, is configured with at least one locking latch arresting location in the form of a recess **50** disposed at a front portion of the respective top face and configured with a slanted rear wall portion **52** and a right angled front wall portion **53**.

A bottom face **54** of each container **22**, **24**, **26** and **28** is configured with several projecting portions **56**, extending in register with the depressed locking locations **32**, and it is seen that the at least two projecting portions **56** are disposed behind one another along the imaginary lines **I**, **II** and **III** (though not necessarily aligned).

Each projecting portions **56** is configured with a locking tongue **60** laterally projecting rearwards and having a slanted surface **62** corresponding with slanting surface **40** of locking rib **36**. Also, a front portion **66** of the projecting portions **56** slants substantially parallel to the slanted surface **62** of the locking tongue **60**.

It is essential that the at least two depressed locking locations **32** and the at least two projecting portions **54** be disposed behind one another (though not necessarily aligned), as exemplified by imaginary lines **I**, **II** and **III** (though not necessarily aligned).

A plunger-like locking latch **70** is disposed at a front portion of each container, said locking latch **70** disposed in register with the recesses **50** and configured with a slanting rear wall portion **72** and a right angled front wall portion **74**, corresponding

with the sloping wall portions of the recesses **50**. The locking latch **70** has an elongate finger engaging aperture **73** (Fig. 2A) accessible through an aperture **75** formed in register at a front wall face of the respective second container, said locking latch **70** being normally biased to project under force of coiled spring **71**, such that the locking latch **70** is axially displaceable between a projecting, locked position and a temporary retracted position during transition into the locked position.

When it is required to detachably attach a second container over a first container, the former is placed over the later (Fig. 3A), placing the projecting portions **56** within the depressed locking location **32** (Fig. 3B) with the locking tongues **60** engaging below and being gradually arrested by the respective locking ribs **36** arresting is obtained (Fig. 3C) until complete arresting is obtained (Fig. 3D). Simultaneously, as the locking tongues **60** arrest by the locking ribs **36**, the locking latch **70** of the second container slides into the locking latch arresting location (recess **50**) and finally snaps into locking engagement therewith. It is noted (Figs 4A to 4D) that first (Figs. 4B and 4C) the locking latch **70** displaces upwards against the biasing effect of spring **71**, and when the second container reaches the final locking position over the first container, the locking latch **70** plunges into arresting position within the recess **50**.

At the locked position the second container is attached over the top face of the first container, such that they can be moved as an integrated unit. Detaching of a second container from a first container is easily facilitated by unlocking, obtained by displacing the locking latch **70** upwards against the biasing effect of spring **71**, whereby the second container can be displaced with respect to the first container and detached therefrom.

As further seen in Figs. 1-4, each of the containers **22**, **24**, **26** and **28**, is configured at a front face thereof with a tiltable carrying handle **80**, for carrying a respective container or the entire container assembly **20**. Also seen, some of the containers can be configured with fender-like protectors **90** at their corners.

Further attention is now directed to Figs. 5A to 5E demonstrating examples of modularity of a container assembly according to the disclosure. Fig. 5A is a planner top view of a first container **94** and Figs. 5B to 5E illustrate second containers superimposed over the first container **94**. In Fig. 5B a second container **96** is substantially as big as the first container **94**, i.e. having the same footprint. In Fig. 5C a second container **98** is as wide as the first container **94**, however narrower in depth, and disposed at a front portion of the first container. In Fig. 5D two second containers **99A**

and **99B** are mounted over the first container **94** and occupy substantially the entire footprint thereof, whereby each of containers **99A** and **99B** is independently attachable and detachable from the first container **94**, as exemplified hereinabove. In Fig. 5E two second containers **100A** and **100B** are positioned over the first container **94**, occupying the entire width though narrower in depth and extending from a front portion of the first container **94**.

Turning now to Figs. 6A to 6K, there are illustrated several examples of container assemblies, subassemblies and their components. Fig. 6A illustrates a disassembled container assembly collectively designated **104** and comprising a base container **106**, a chest of drawers module **108** comprising three drawers, a tool caddy module **110**, a compartmented storage module **112** and a half-sized compartmented storage module **124** (typically two of which). It is noted that the base container is configured for locomoting and comprises at a rear thereof wheels **116** and a telescopic handle **118**.

As can be appreciated from Figs. 6B through 6D, various container assemblies are illustrated, the arrangement is such that in practice any module can constitute either a first container or a second container, as defined hereinabove (though it is more likely that base container **106** serves as a first container).

Figs. 6E and 6F illustrate a chest of drawers module **108**, illustrated separately in Fig. 6E and mounted over a similar drawer module **108** in Fig. 6F. It is appreciated that the drawers of each module can be locked at their closed position to prevent spontaneous opening thereof whilst carrying a module. Furthermore, each module **108** is configured with a pair of carrying handles **115** disposed at top side wall portions thereof, to facilitate carrying of the module.

In Fig. 6G there is illustrated a subassembly comprising a first container in the form of a tool caddy module **110** and second container in the form of a compartmented storage module **112** attached thereto, whilst the lid **119** of the first container is open facilitating access to the contents thereof.

Further attention is now directed to Figs. 7 to 16, showing a third aspect of the disclosure, namely a utility module being a mobile carrier unit and comprising at least one carrier engagement surface, compatible for interlocking engagement in a detachable manner with a first engagement surface of a second utility module. For sake of example only, the second utility module exemplified in the annexed drawings is in the form of a

utility container. It is however appreciated that the utility modules can be of any type, shape or size, as discussed hereinabove and as will be exemplified below. Accordingly, the term *container unit* as used in the following description denotes any type of a utility module, as discussed herein the specification.

Attention is first directed to Fig. 7A, illustrating a container carrier assembly generally designated **200** comprising a container unit **202** (utility module) mounted on top of a carrier unit **206**. The carrier unit **206** is equipped with a telescopic manipulating handle **210**, a pair of rear wheels **208** and a set of horizontally stabilizing support legs **212** at a front portion of the carrier unit **206**. The carrier unit **206** and the container unit **202** are engaged in an interlocking engagement via their engagement surfaces, i.e. a carrier engagement surface **216** at a top face of the a carrier unit **206** (best seen in Fig. 8A), and the container unit's first engagement surface **220** (namely its bottom face; best seen in Figs. 8B and 8C). The container unit **202** is configured with yet a second engagement surface **226** (namely the container's top face), simulating the carrier engagement surface **216**. The container unit **202** further comprises a locking mechanism **230** configured for arresting within a respective notch **231** at the carrier engagement surface **216**, to thereby to prevent displacement and separation of the engagement surfaces **216** and **220** once they are interlocked, as later will be explained.

The carrier engagement surface **216** seen in greater detail in Fig. 8A, illustrates a top perspective view of a carrier unit **206** with the telescopic handle **210** in a retracted position. The carrier engagement surface **216** comprises multiple carrier engaging elements **236**, depressed from the surface, and designated for interlockingly receiving respective container unit's first engaging elements **240**, projecting from the first engagement surface (bottom face) **220** of the container unit **202**.

Each carrier engaging element **240**, is a so-called female coupler and has a depressed locking location configured with at least one locking rib extending above a depressed surface and along a sliding path and having an open edge facing in a first sense. As seen in the drawings, it is generally constituted by a receiving recessed depression **244** in the carrier engagement surface **216**, configured with a pair of facing locking ribs **248**, forming the aforementioned recess. The locking ribs **248** extend substantially parallel to sliding path of the container unit **202** with respect to the carrier unit **206**, said path (designated **P** in Figs. 7A and 9B). Further noted, side walls **250** of

depressions **244** are sloped in order to allow directing of a container unit's first engaging element **240**, mounted upon it, to its interlocking position.

A corresponding coupler configured at the container unit is a so-called male coupler comprising a projecting locking location disposed in register with said depressed locking location and configured with at least one locking tongue extending along said engaging sliding path at a second sense, opposite to said first sense, and configured for arresting engagement at a space between said locking rib and depressed surface. As seen, a single container unit's engaging element **240** is generally constituted a downwardly projecting outwards protrusion **258**, projecting from the bottom face **220** of the container **202**.

In order to lock the container **202** over the carrier unit **206**, upon placing the container **202** over the carrier engagement surface **216** of carrier unit **206** one must mount the container unit's first engaging elements **240** into the depressions **244** and then slide the container **202** along the sliding path **P** (i.e. towards the locking ribs **248**) so that the engaging elements **240** engage below said projecting ribs/shoulders **248** and the engaging elements **240** are thus arrested at a space between said locking ribs and the depressed surface, as seen in Fig. 9C. interlocking engagement of the container (or any other utility module) can be facilitated by a single male-female locking mechanism of the aforementioned type, or by a plurality of such locking mechanism, at any location over the carrier unit **206**.

The shape and size of the locking members is modular as far as the depression **244** in the carrier engagement surface **216**, can be single or double in size (e.g. **236A** in Fig, 8A), so it is large enough to accommodate two container unit's first engaging elements **240**, or two neighboring container unit's first engaging elements. Locking/engaging and detaching of this configuration is similar to a single locking module.

The engagement and locking mechanism is modular in the sense that any first article can be easily and readily articulated to a surface of any second article, wherein the articulation is strong and firm (i.e. substantially motionless).

With further reference to Fig. 7B, there are illustrated two containers **202A** and **202B** articulated over one another, the arrangement being such that the bottom face of the intermediate container **202A** serves for engaging with the top face of the carrier unit **206** and likewise, the top face of the intermediate container **202A** serves for engaging

with the bottom face of the top container **202B**, as discussed herein above. The arrangement is such that each stage is lockingly secured by the locking mechanism **230**, wherein each stage can be detached from the stage below upon releasing locking engagement of the respective locking mechanism **230**.

The locking mechanism **230** is shown in further detail in Figs. 13A and 13B. The locking mechanism comprises a locking pin **231** normally biased by spring **233** such that a tip **235** projects from a bottom surface of the container **202** (see also Fig. 8B) and is configured for snap arresting within a respective notch **231** configured at the engagement surface **216** of the carrier unit **206** (seen also in Fig. 8A). The locking pin **231** is slidable within a race at the side wall of the container, and comprises a finger manipulating portion at **237** (accessible through an opening at the side wall of the container), for displacing the locking pin, against the biasing effect of spring **233**, into its disengaged position, thus facilitating sliding the container along the path **P** into disengagement from the carrier unit (or respective other container or utility module).

The carrier unit **206** is further configured at a bottom end, with a pair of stability supports **264** (Figs. 8A, 14A, 14B and 14C), configured for supporting the carrier unit, with or without a container attached thereto, at an upright, i.e. vertical position, thus preventing it from tipping over, in particular with containers or any other utility module articulated thereto. Stability supports **264** can be, according to a particular configuration, an extension of the telescopic handle **210**, whereby the stability supports are functional as such only when the handle is fully contracted. However, in the illustration of Fig. 16 the utility assembly **253** is maintained at its upright position owing to said stability supports **264** and further bearing over a side face **266** of the intermediate container **202A**, being substantially flush with a bottom face of the stability supports **264**.

With further reference to Figs. 12A to 12C there is illustrated a modification of articulation between a first utility module (container **300** in the particular example) and a second utility module (two work-piece supports **304** in the particular example). The container **300** is substantially similar to that illustrated in the previous examples, wherein the cover/lid **308** is configured with a plurality of female coupler members **310**, each configured with a depressed locking location and a pair of locking ribs extending above the depressed surface and along a sliding path. The opposing locking ribs **312A** and **312B** have an open edge facing in a first sense (the introducing direction).

In the examples hereinbefore, engagement with a corresponding male coupler took place within the vicinity of a single coupling element, i.e. over two engaging ribs **312A** and **321B** of a single depressed locking location **308**, facing each other. However, in the example of Figs. 12A-12C engagement of the work-piece supports **304** takes place over two engaging ribs **312A** and **321B** of two neighboring depressed locking locations **308A** and **308B**. Accordingly, the male coupler of the two work-piece supports **304** is configured for arresting with the two engaging ribs **312A** and **321B** by two individual (separate) male couplers **316A** and **316B**, each configured for arresting one of the respective engaging ribs **312A** and **321B**. Arresting of the male projections **316** takes place as discussed before, by arresting below the respective engaging ribs, within the space at the depressed locking location. In spite of the relative narrow body structure of the work-piece supports **304**, they are each configured with a locking mechanism 330, similar to locking mechanism **230** discussed hereinbefore.

Turning now to Figs. 13 to 24, there are illustrated various examples of utility modules, utility assemblies and various configurations according to the disclosure.

Fig. 13A illustrates a utility module assembly generally designated **400**, comprising a wheeled base container **402** supporting an intermediate container **404**, bearing in turn a cooler box **406** and a power unit **408** disposed side by side over the intermediate container. At least the intermediate container **404** is configured at a bottom face thereof with a male-type coupling arrangement, for attachment over the cover of the base container, said cover configured with a respective female coupling arrangement. The cover of the intermediate container **404** is configured with a similar female coupling arrangement, and can thus engage with one the utility modules **406** and **408**, each configured at its bottom face with a respective male-type coupling arrangement.

It is seen in Figs. 13B through 13D that the intermediate container **404** is fitted with a pivotal carrying handle **418** articulated at the top side walls thereof. The carrying handle has a thickness **t** and the arrangement is such that at the stowed/folded position (Figs. 13B, 13D) the handle **418** is received within a peripheral groove **422** extending over a top edge of the intermediate container **404** and a peripheral groove **424** extending at a bottom edge of the utility modules **408** and **406** (cooler box **406** and a power unit **408**), such that the handle **418** does not constitute an obstacle in mounting and interlocking a utility module over another utility module. It is also seen that at least

some of the utility modules are configured with side handles **428** serving both as carrying handles and as bumpers.

Figs. 14A to 14C illustrate a first utility module in the form of a container **230** supporting two detachable workpiece-piece supports **232** (attached as discussed herein before with reference to Figs. 12). Fig. 14C illustrates a utility module in the form of a work surface **236** configured with a vice race **238**, so that a vice **240**, or other workshop tools can be used. The workpiece-piece supports **232** are configured with a male type coupling having projecting locking locations **244** for engaging with respective female couplers.

In Figs. 15A and 15B there is illustrated a back-rack **250** being a substantially rigid platform having a carrying handle **251** and configured at one side thereof with a pair of adjustable shoulder harnesses **252**, and an adjustable waist harness **254**. The other side of the back-rack is configured as a universal utility mounting platform **258**, configured with a plurality of attachment locations **260**. In the illustrated example all attachment locations **260** are so-called female attachments (as discussed hereinabove in detail), however it is appreciated that the attachment locations can just as well be male-type attachments, or a combination of male and female attachments. According to yet an example (not shown), one side of the carrying platform can be configured with male-type attachments, and an opposite side of the platform be configured with female-type attachments, wherein a used has the choice of attaching the platform to the harness system at an orientation of choice.

In Fig. 16A there is illustrated a utility module in the form of a wheeled carrying unit **264** (shown from a bottom side), similar to that disclosed in connection with Figs. 7 to 11. The carrying unit **264** comprises a rigid platform **266** fitted at a top face thereof with a female/male attaching arrangement in accordance with the disclosure, such that any utility module according to the disclosure can be detachably attached thereto. Also provided is a telescopic manipulating handle **268** and a pair of wheels **266**. The carrying unit can be fitted with a collapsible support plate configuring it into a pushcart (not shown).

Fig. 16B shows a utility assembly **276** comprising a wheeled base container **278** interlocked with a first intermediate container **280** mounted thereover (constituting a second stage of the assembly), and a second intermediate container **282** mounted thereover (constituting a third stage of the assembly **276**), there being yet a fourth stage

utility module container **284** mounted over the second intermediate container **282**. Whilst the second intermediate container **282** has a wider footprint than the first intermediate container **280**, this does not constitute any difficulty as far as attaching it over the second intermediate container **282**, and further, the top face of the second intermediate container **282** has a great surface suited for articulation thereof of several fourth stage utility modules (only one shown).

Fig. 17 shows a carrying bag **280** having soft side walls **282** (in the example illustrated made of fabric), however fitted with (integrally or detachable) an articulation platform base **284,** said articulation platform made of a firm rigid material and is configured with four male-type coupling locations **288** of the type disclosed hereinabove. The carrying bag **280** has a carrying strap **290** useful for hand held or shoulder carrying of the bag.

Figure 18A shows a rigid coupling platform **296**, configured with a plurality of female coupling locations (of the type disclosed herein) and further configured with bolt eyes **298** for securing to any desired surface, and carrying bars **313**.

The coupling platform **296** can be attached for example to a truck bed **306** (Fig. 20), directly over the truck bed or over a cargo container attached to the truck. The coupling platform **296** can be attached to a wall, as in Fig. 18B, wherein a plurality of various utility modules can be articulated thereto. For example, utility modules can be an electric charger **315** of a power tool, a wall mounted sorting container **314**, a hand tool rack **318** (Fig. 18C), a tool coupling adaptor **320** (Fig. 18C), etc.

In Fig. 19 there is illustrated a belt-mount **319** configured as a female coupler according to the disclosure, wherein a tool **321** or a bag/pouch configured with a male coupler can be detachably attached thereto.

In Fig. 21 there is illustrated a wall rack **326** comprising four utility modules in the form of articulation platforms **328** (mountable at different elevations about the wall supports **327**) each configured for bearing and attaching thereto any utility module in accordance with the disclosure.

In Fig. 22 there is illustrated a mobile work stand **340** comprising a wheeled base **242** supporting two racks 344 with four utility modules in the form of articulation platforms **346** (mountable at different elevations about the wall supports **327**) each configured for bearing and attaching thereto any utility module (e.g. containers **348**) in accordance with the disclosure.

In Fig. 23 the utility module is in the form of a dolly **352** configured with wheels **354** and having a top surface configured with an array of female type couplings, as discussed.

In Fig. 24 there is illustrated a utility coupling platform **358** suited for articulation to any desired article (e.g. a bag, a tool, etc.). the utility coupling platform is configured at least at one face thereof with a male coupling locations **360** mimicking the coupling arrangement of the disclosure, rendering it suitable for articulation with a coupling system according to the disclosure.

CLAIMS:

1. A coupling mechanism configured for readily detachably attaching a first utility module to a second utility module, the coupling mechanism comprising a male coupler at a face of one of the first utility module and the second utility module, and a female coupler at a face of the other one of the first utility module and the second utility module, said female coupler having a depressed locking location configured with at least one locking rib extending above a depressed surface and along a sliding path, and having an open edge facing in a first sense; said male coupler having a projecting locking location disposed in register with said depressed locking location and configured with at least one locking tongue extending along said engaging sliding path at a second sense, opposite to said first sense, and configured for arresting engagement at a space between said locking rib and depressed surface, the coupling mechanism further comprises at least one locking member for arresting the first utility module with respect to said second utility module and preventing sliding displacement along said sliding path.

2. The coupling mechanism of claim 1, wherein said female coupler is configured at the top face of the first utility module, and the male coupler is configured at the bottom face of the second utility module.

3. The coupling arrangement of claim 1 or 2, wherein the at least one locking rib extends substantially parallel to the sliding path.

4. The coupling arrangement of claim 1 or 2, wherein the at least one locking rib extends substantially perpendicular and intersects the sliding path.

5. The coupling arrangement of claim 1 or 2, wherein the female coupler comprises a single locking rib extends at rear end of a depressed locking location and substantially perpendicular to the sliding path.

6. The coupling arrangement of claim 1 or 2, wherein the female coupler comprises two locking ribs extend at side edges of a depressed locking location and disposed substantially parallel to the sliding path.

7. The coupling arrangement of claim 1 or 2, wherein the female coupler comprises two locking ribs each extend at a respective side edge of two neighboring depressed locking locations, said locking ribs disposed substantially parallel to the sliding path.

8. A coupling mechanism for a utility assembly that comprises at least a first utility module and at least a second utility module, said coupling mechanism is configured between the first utility module and the second utility module; one of a top face of the first utility module and a bottom face of the second utility module comprises at least one depressed locking location configured with a locking rib, and at least one locking latch arresting location; and the other one of said top face of the first utility module and a bottom face of the second utility module comprises at least one projecting portion with a locking tongue disposed in register with said at least one depressed locking location, and at least one locking latch disposed in register with said at least one locking latch arresting location; and wherein at a locked position the bottom face at least partially rests over the top face, and the at least one projecting tongue is arrested by the corresponding at least one locking rib and the at least one locking latch is arrested by corresponding at least one locking latch arresting location, and further wherein disengaging the second utility module from the first utility module is facilitated by disengaging the at least one locking latch from the at least one locking latch arresting location, such that engaging the first and second utility modules into the locked position is provided by sliding the second utility module with respect to the first utility module along a sliding path defined by at least one of said at least one locking rib and said at least one locking tongue.

9. The coupling arrangement of claim 8, wherein the at least one locking rib extends substantially parallel to the sliding path.

10. The coupling arrangement of claim 8, wherein the at least one locking rib extends substantially perpendicular and intersects the sliding path.

11. The coupling arrangement of claim 8, wherein a single locking rib extends at rear end of a depressed locking location and substantially perpendicular to the sliding path.

12. The coupling arrangement of claim 8, wherein two locking ribs extend at side edges of a depressed locking location and disposed substantially parallel to the sliding path.

13. The coupling arrangement of claim 8, wherein two locking ribs each extend at a respective side edge of two neighboring depressed locking locations, said locking ribs disposed substantially parallel to the sliding path.

14. The coupling arrangement of any one of claims 8 to 13, further comprising a release latch for displacing the locking latch into disengagement from the locking latch arresting location can be disposed at a front face of the respective second utility module.

15. The coupling arrangement of any one of claims 8 to 14, wherein the at least one locking latch and the at least one locking latch arresting location are disposed at a front portion of the respective utility modules.

16. The coupling arrangement of any one of claims 8 to 15, wherein the locking latch is configured for displacement in a direction substantially normal to a respective face of a utility module.

17. The coupling arrangement of any one of claims 8 to 16, wherein locking latch is spring biased and configured for normally projecting from a face of the respective first or second utility module.

18. The coupling arrangement of any one of claims 8 to 17, wherein the locking latch is manipulable to be opened through an opening configured at a front wall of the respective utility module.

19. The coupling arrangement of any one of claims 1 to 18, wherein one or both of the locking tongue and locking rib are configured with a slanting surface at corresponding orientation along the sliding path.

20. The coupling arrangement of any one of claims 1 to 19, wherein one or both of a front edge of the projecting portion (or the projecting locking location) and a corresponding front edge of the depressed locking location are slanted for gliding positioning of the second utility module into locking position over the first utility module.

21. The coupling mechanism of any one of claims 1 to 20, wherein the first utility module is configured for detachably attaching one or more second utility modules thereto.

22. A coupling mechanism for a utility assembly comprising at least a first utility module and at least a second utility module, said coupling mechanism is configured between the first utility module and the second utility module and comprises at one of a top face of the first utility module and a bottom face of the second utility module with at least one depressed locking location configured with a locking rib, and at least one locking latch arresting location; and the other one of said top face of the first utility module and a bottom face of the second utility module comprises at least one projecting

portion with a locking tongue disposed in register with said at least one depressed locking location, and at least one locking latch disposed in register with said at least one locking latch arresting location; and wherein at a locked position the bottom face at least partially rests over the top face, and the at least one projecting tongue is arrested by the corresponding at least one locking rib and the at least one locking latch is arrested by corresponding at least one locking latch arresting location, and further wherein disengaging the second utility module from the first utility module is facilitated by disengaging the at least one locking latch from the at least one locking latch arresting location.

23. A utility assembly comprising at least a first utility module and at least a second utility module, and comprising a coupling mechanism according to any one of claims 1 to 21, the coupling mechanism being configured between the first utility module and the second utility module.

24. A utility assembly comprising at least a first utility module and at least a second utility module, and comprising a coupling mechanism for readily detachably attaching the first and second utility modules, the coupling mechanism being configured between the first utility module and the second utility module; said coupling mechanism comprising at one of a top face of the first utility module and a bottom face of the second utility module one or more depressed locking locations each configured with a locking rib, and at least one locking latch arresting location; and the other one of said top face of the first utility module and a bottom face of the second utility module comprises one or more projecting portions each configured with a locking tongue disposed in register with said one or more depressed locking locations, and at least one locking latch disposed in register with said at least one locking latch arresting location; such that at a locked position, the bottom face of the second utility module at least partially rests over the top face of the first utility module, and the one or more projecting tongues are arrested by the corresponding one or more locking ribs, and the at least one locking latch is arrested by corresponding at least one locking latch arresting location, thereby preventing sliding displacement between the first utility module and the second utility module, and disengaging the second utility module from the first utility module is facilitated by disengaging the at least one locking latch from the at least one locking latch arresting location.

25. The utility assembly of claim 24, wherein the first and second utility modules are in a locking engagement when said one or more depressed locking locations and the one or more projecting portions are disposed behind one another.

26. The utility assembly of claim 24 or 25, wherein said one or more depressed locking locations and said one or more locking latch arresting locations are configured at the top face of the first utility module, and the one or more projecting portions and the at least one locking latch are configured at the bottom face of the second utility module.

27. The utility assembly of any one of claims 24 to 26, wherein at least one second utility module is configured for snap-type locking over the first utility module.

28. The utility assembly of any one of claims 24 to 27 wherein engaging the first and second utility modules into the locked position is provided by sliding the second utility module with respect to the first utility module along a sliding path defined by at least one of said at least one locking rib and said at least one locking tongue.

29. The utility assembly of any one of claims 24 to 28, wherein the at least one locking rib extends substantially parallel to the sliding path.

30. The utility assembly of claim 29, wherein the at least one locking rib extends substantially perpendicular and intersects the sliding path.

31. The utility assembly of claim 29, wherein a single locking rib extends at rear end of a depressed locking location and substantially perpendicular to the sliding path.

32. The utility assembly of claim 29 wherein two locking ribs extend at side edges of a depressed locking location and disposed substantially parallel to the sliding path.

33. The utility assembly of claim 29, wherein two locking ribs each extend at a respective side edge of two neighboring depressed locking locations, said locking ribs disposed substantially parallel to the sliding path.

34. The utility assembly of any one of claims 24 to 33, wherein a top face of a first utility module interlocks with a bottom face of a second utility module disposed thereover in a substantially fully overlapping relation, or with a bottom face of at least one second utility module only partially overlapping therewith.

35. The utility assembly of any one of claims 24 to 33, wherein the second utility module overlaps a significant portion of a first utility module and is configured with a single release latch for displacing several locking latches articulated therewith.

36. The utility assembly of any one of claims 24 to 35, further comprising a release latch for displacing the locking latch into disengagement from the locking latch arresting location can be disposed at a front face of the respective second utility module.

37. The utility assembly of any one of claims 24 to 36, wherein the locking latch is configured for displacement in a direction substantially normal to a respective face of a utility module.

38. The utility assembly of any one of claims 24 to 37, wherein the locking latch is spring biased and configured for normally projecting from a face of the respective first or second utility module.

39. The utility assembly of any one of claims 24 to 38, wherein two or more second utility modules can be mounted over a first utility module, each being independently detachable attachable over the first utility module.

40. The utility assembly of any one of claims 24 to 39, wherein at least one of the first utility module and the second utility module are configured with a gliding surface facilitating displacement and positioning the respective second utility module at the locking position with respect to the first utility module.

41. The utility assembly of any one of claims 24 to 40, wherein one or more of the utility modules is a container module, and the utility assembly is a container assembly or a tool caddy.

42. The utility assembly of claim 41, wherein the container module is compartmented and optionally configured with sub-containers and sub-compartments.

43. The utility assembly of claim 41 or 42, wherein a top face of the container module is configured as a lid or as a functional component of the container module.

44. The utility assembly of any one of claims 41 to 43, wherein the container modules is a locomoting container, configured with an arrangement for locomoting said utility assembly.

45. The utility assembly of any one of claims 41 to 44, wherein the container modules is configured with a carrying arrangement disposed at any one or more of its faces, optionally being a carrying handle.

46. The utility assembly of any one of claims 24 to 40, wherein one or more of the utility modules is a soft-shell container with at least a rigid face portion.

47. The utility assembly of any one of claims 24 to 40, wherein said first utility module is a mobile carrier unit.

48. The utility assembly of any one of claims 24 to 47, further comprising a locking mechanism for preventing unintentional separation of the modules while they are interlocked.

49. The utility assembly of any one of claims 24 to 48, wherein the first utility module is configured for detachably attaching at least two second utility modules thereto.

50. A mobile carrier unit comprising at least one carrier engagement surface, compatible for interlocking engagement in a detachable manner with a first engagement surface of a utility module, said carrier engagement surface having (i) one or more depressed locking locations each configured with a locking rib and at least one locking latch arresting location, configured for engagement with said first engagement surface of a utility module that comprises at least one locking latch and one or more projecting portions, each projecting portion being configured with a locking tongue, or (ii) at least one locking latch and one or more projecting portions each configured with a locking tongue for engagement with said first engagement surface of a utility module that comprises one or more depressed locking locations, each depressed locking locations configured with a locking rib and at least one locking latch arresting location.

51. The mobile carrier unit of claim 50, wherein once associated with the utility module, said locking tongue becomes disposed in register with said one or more depressed locking locations, and at least one locking latch become disposed in register with said at least one locking latch arresting location.

52. The mobile carrier unit of claim 50 or 51, configured for detachable interlocking engagement with one or more utility modules, each utility module comprising a first engagement surface.

53. The mobile carrier unit of any one of claims 50 to 52, further comprising at least one of a manipulating arrangement and a locomotion system.

54. An assembly comprising a mobile carrier unit of any one of claims 50 to 53 having at least one carrier engagement surface, and at a least one utility module having a first engagement surface, the utility module being detachably interlocked with the mobile carrier unit by engaging said first engagement surface with said carrier engagement surface.

55. The assembly of claim 54, wherein the mobile carrier unit and the at least one utility module are detachably interlocked with one another by a dovetail engagement

mechanism, that comprises laterally projecting shoulders configured on one of the carrier engagement surfaces and the first engagement surface of a utility module, and a shoulder receiving recess configured on the other one of one of the carrier engagement surfaces and the first engagement surface of a utility module; where said laterally projecting shoulders are configured for sliding engagement with said shoulder receiving recess.

56. The assembly of claim 55, wherein one or both of the carrier engagement surfaces and the first engagement surface of a respective utility module are configured with depressions, each accommodating respective laterally projecting locking shoulders.

57. The assembly of claim 54, wherein the mobile carrier unit and the at least one utility module are detachably interlocked with one another by an undercut engagement mechanism, comprising lateral projections configured on one of the carrier engagement surfaces and the first engagement surface of a container unit, and a receiving recess configured on the other one of one of the carrier engagement surfaces and the first engagement surface of a utility module; where said lateral projections are configured for engagement with said receiving recess, such that interlocking engagement of the utility module and the carrier unit takes place by placing the first engagement surface of a utility module over the carrier engagement surface, such that the utility module`s first engaging elements are disposed shifted over the respective carrier engaging elements of the carrier unit, and are then slidingly shifted to obtain sliding interlocking engagement therebetween.

58. The assembly of any one of claims 54 to 57, further comprising a locking mechanism configured for preventing unintentional detaching of the utility module from the carrier unit.

59. The assembly of claim 58, wherein the locking mechanism comprises a locking pin that is configured for snapingly protruding from one of the engagement surfaces into a designated nook on the other engagement surface.

60. An interface coupling module comprising at least one engagement surface, compatible for interlocking engagement in a detachable manner with a first engagement surface of a utility module, said interface coupling module comprising an engagement surface having (i) one or more depressed locking locations each configured with a locking rib and at least one locking latch arresting location, configured for engagement with said first engagement surface of a utility module that comprises at least one

locking latch and one or more projecting portions, each projecting portion being configured with a locking tongue, or (ii) at least one locking latch and one or more projecting portions each configured with a locking tongue for engagement with said first engagement surface of a utility module that comprises one or more depressed locking locations, each depressed locking locations configured with a locking rib and at least one locking latch arresting location

61. The interface coupling module of claim 60, being configured for detachable or fixed attachment to a surface of an object.

62. The interface coupling module of claim 60 or 61, being a cargo interface module for a utility vehicle configured for attaching one or more utility modules to the vehicle.

63. The interface module of claim 60 or 61, being a surface mount for attaching utility modules

64. The interface module of claim 60 or 61, being a tool mount or a tool rack.

65. The interface module of claim 60 or 61, being a belt mount for mounting of utility modules to a workers belt;

66. The interface module of claim 60 or 61, being an interface mount module for coupling two utility modules to one another.

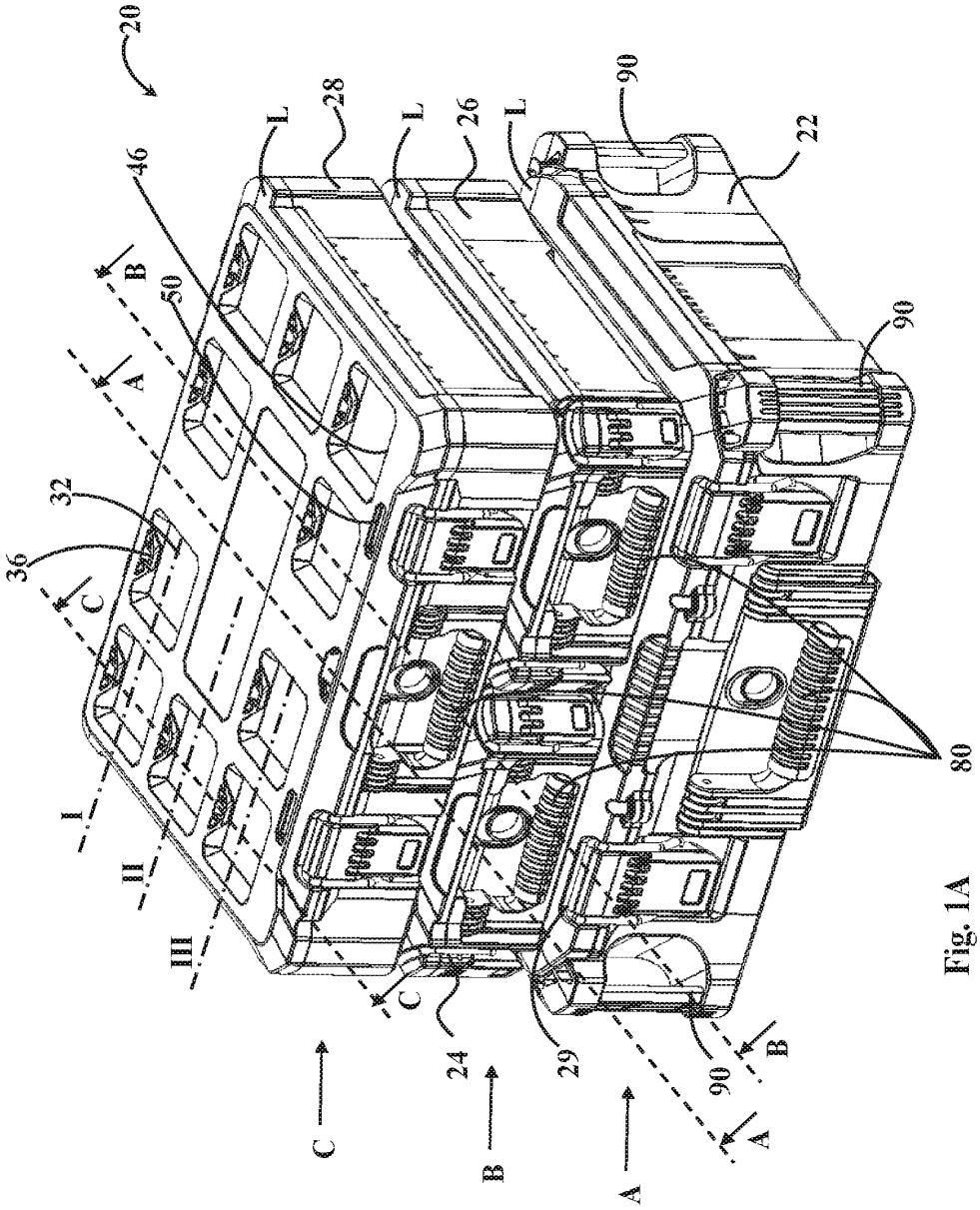


Fig. 1A

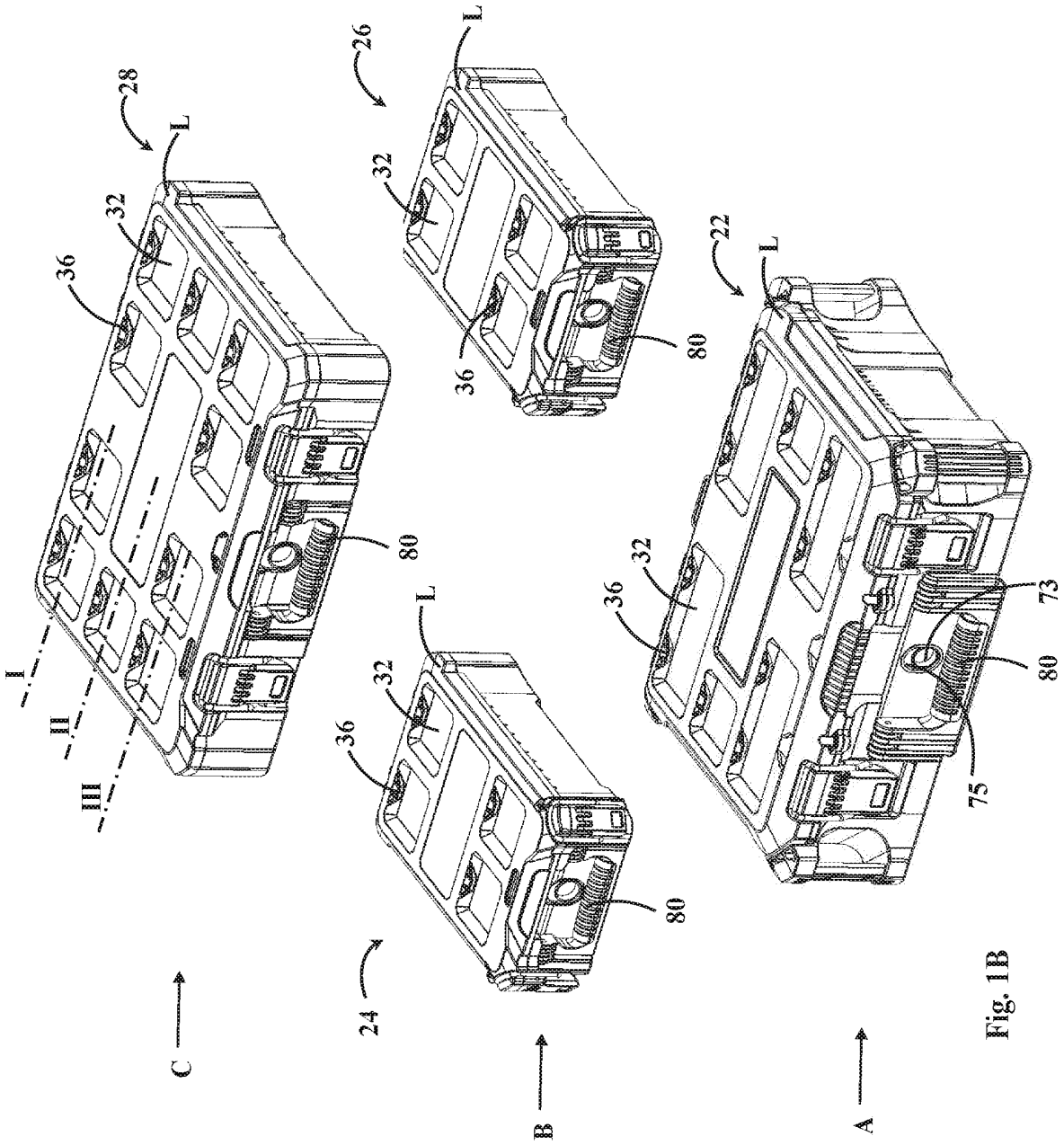


Fig. 1B

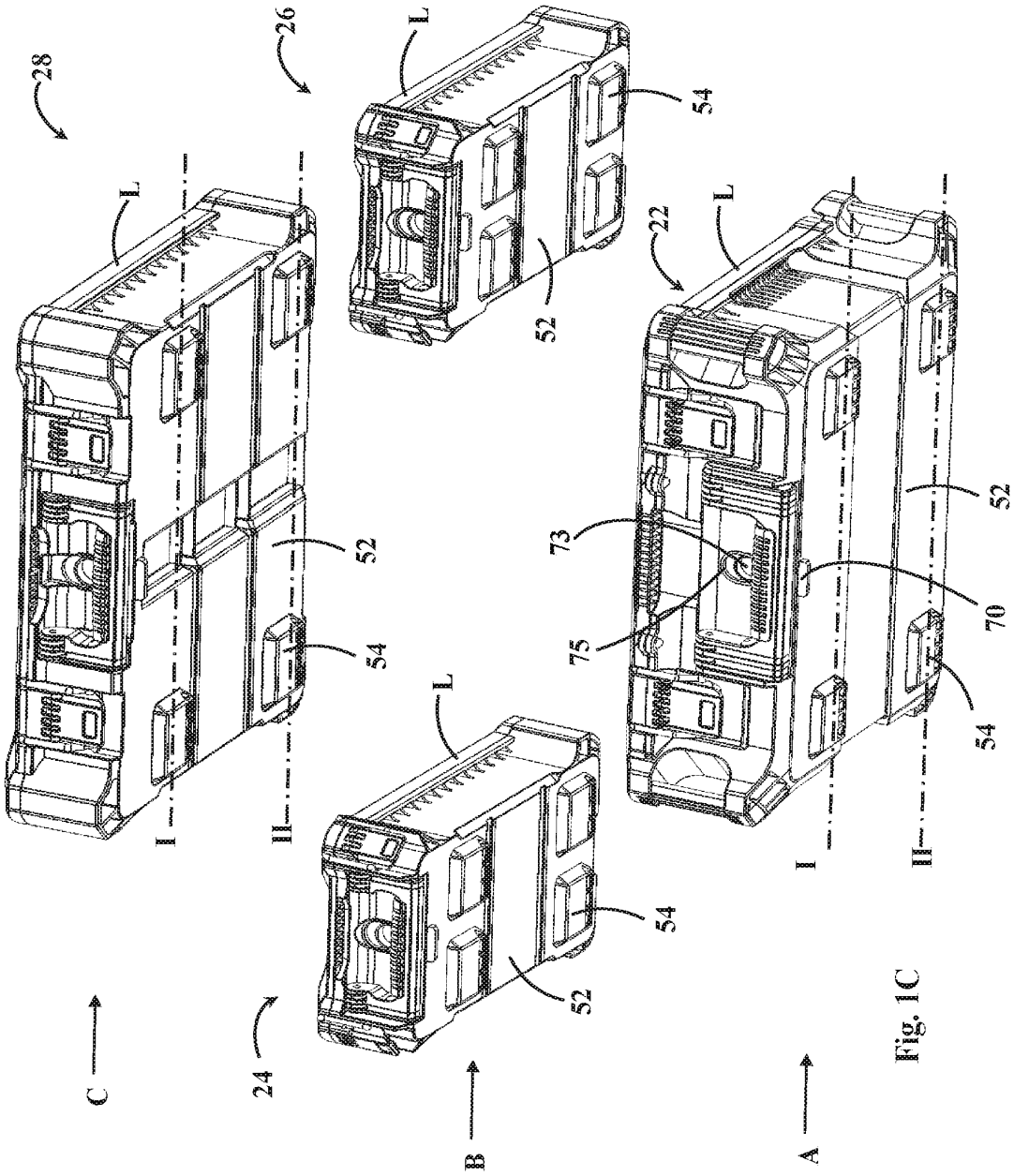


Fig. 1C

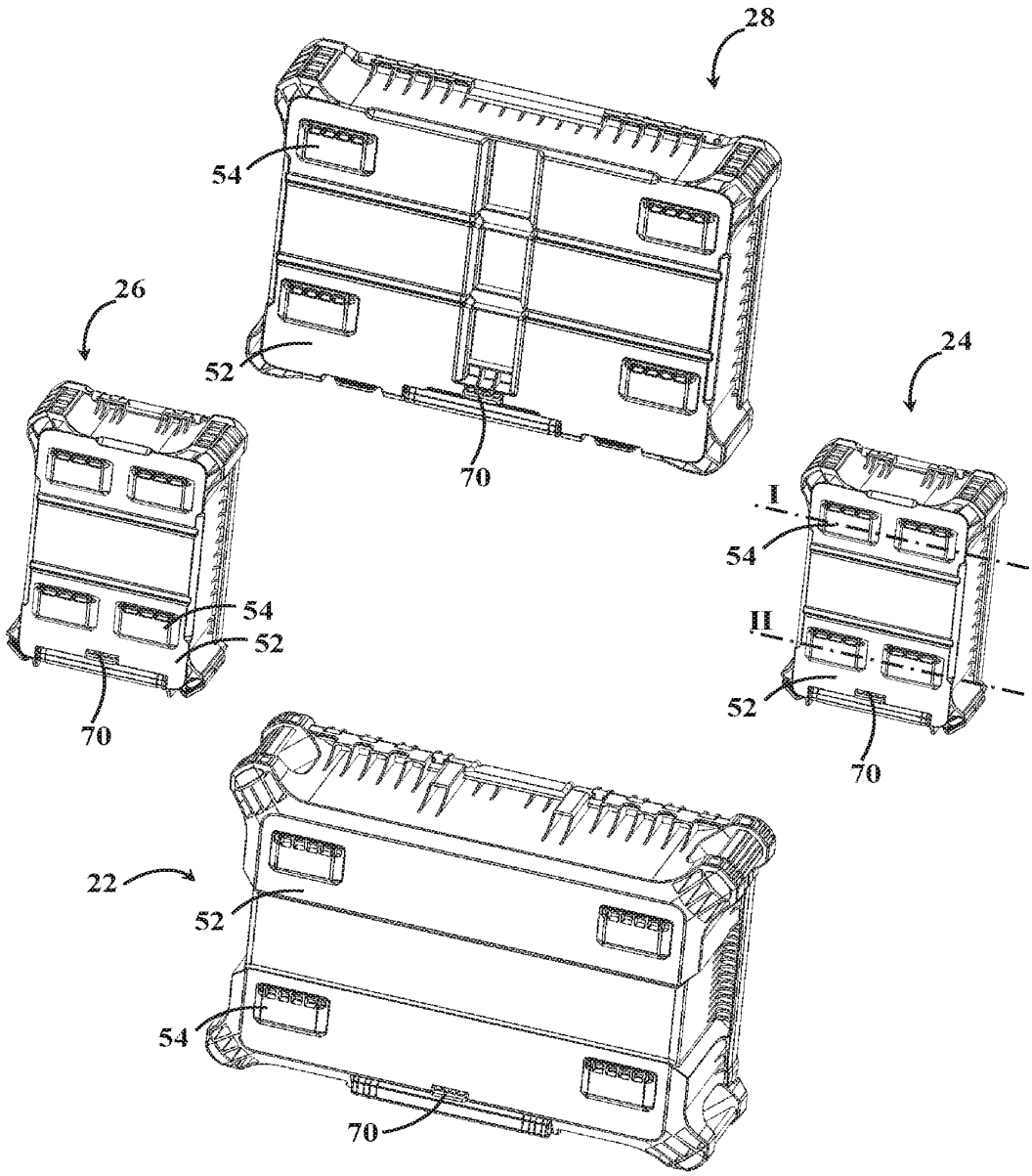


Fig. 1D

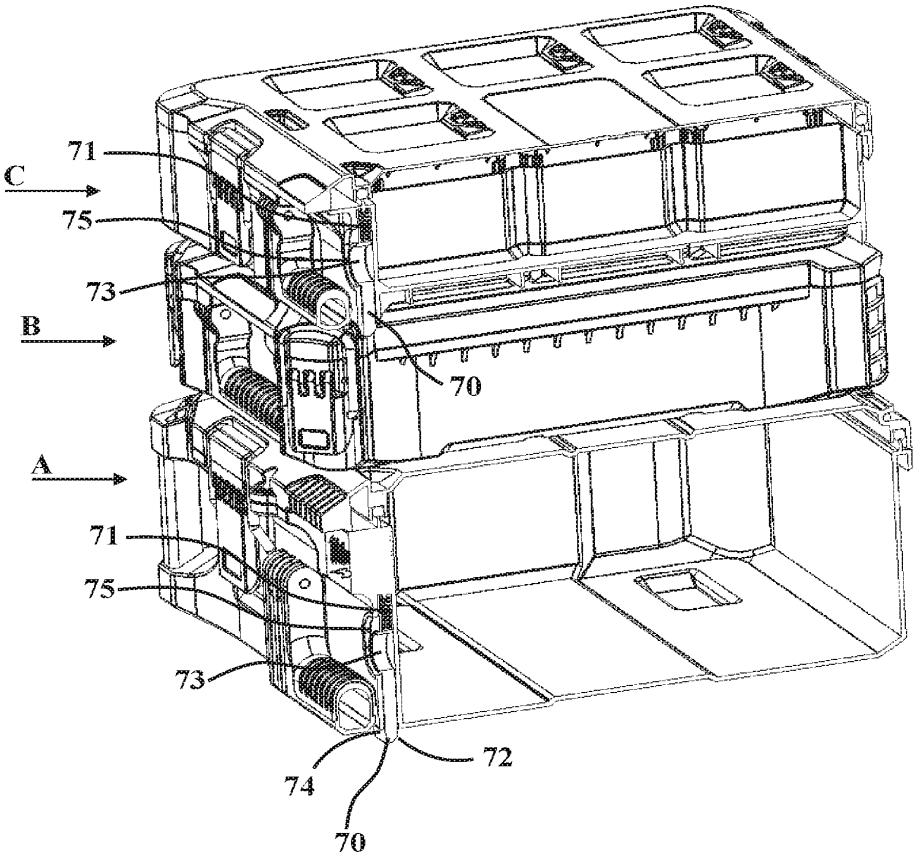


Fig. 2A

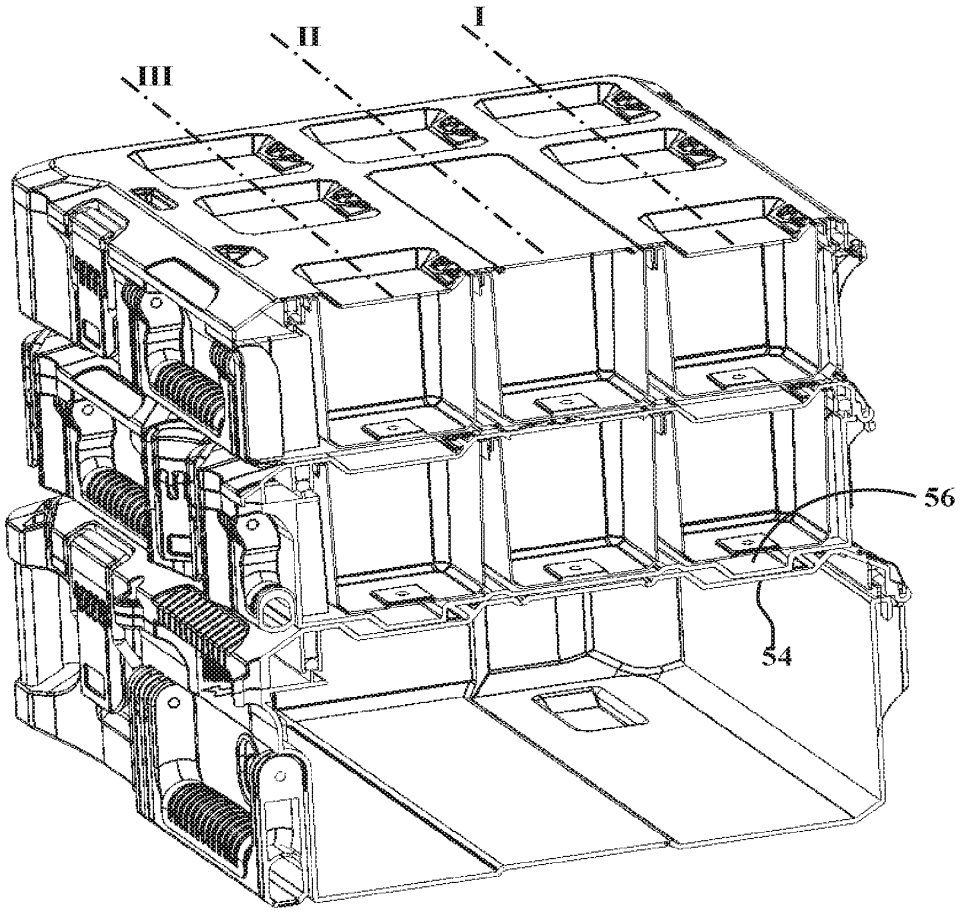


Fig. 2B

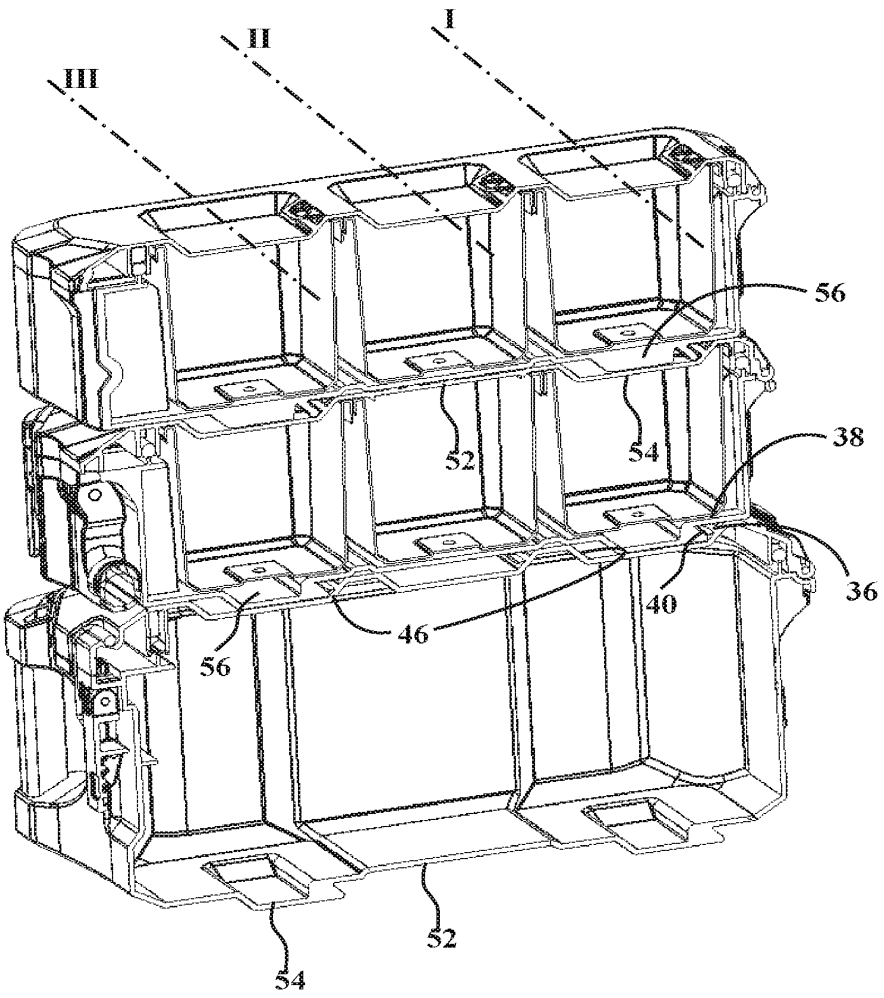


Fig. 2C

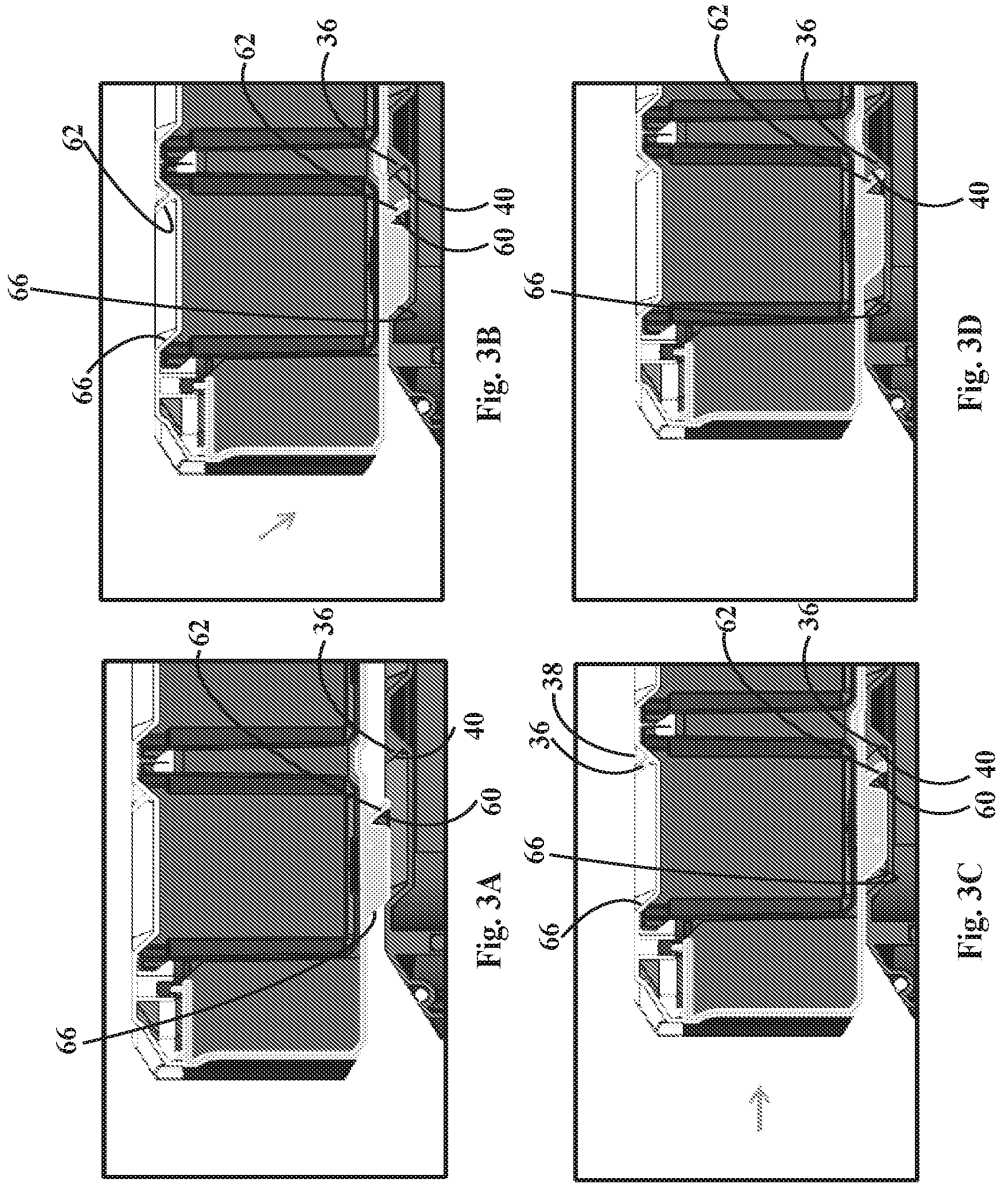
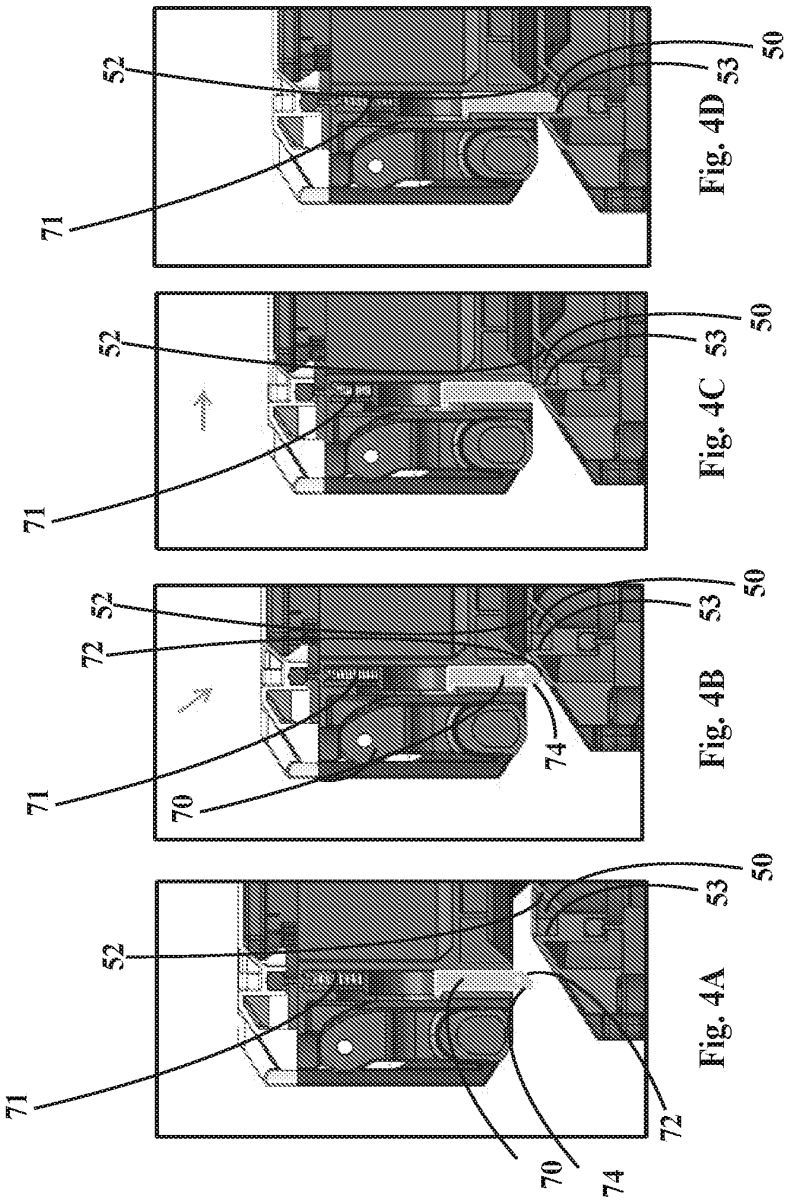


Fig. 3B Fig. 3D

Fig. 3A Fig. 3C


52
71
53
50
Fig. 4D
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71
53
50
Fig. 4C
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71
70
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53
50
Fig. 4B
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71
70
74
72
53
50
Fig. 4A

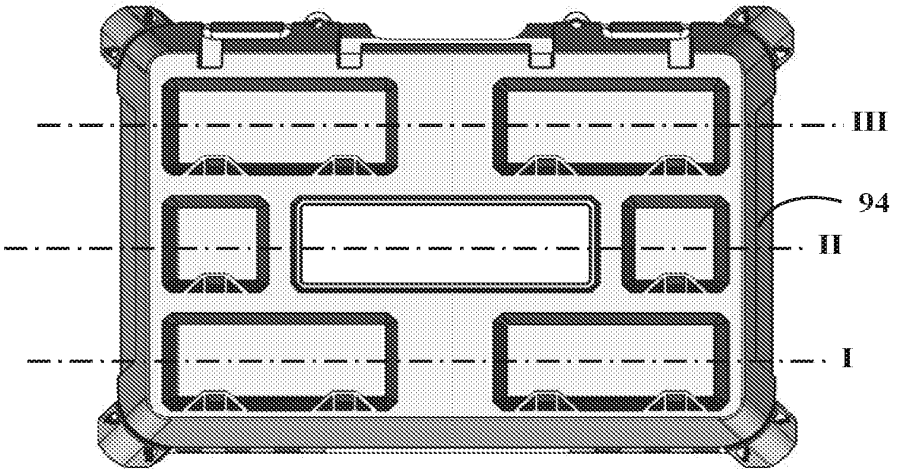


Fig. 5A

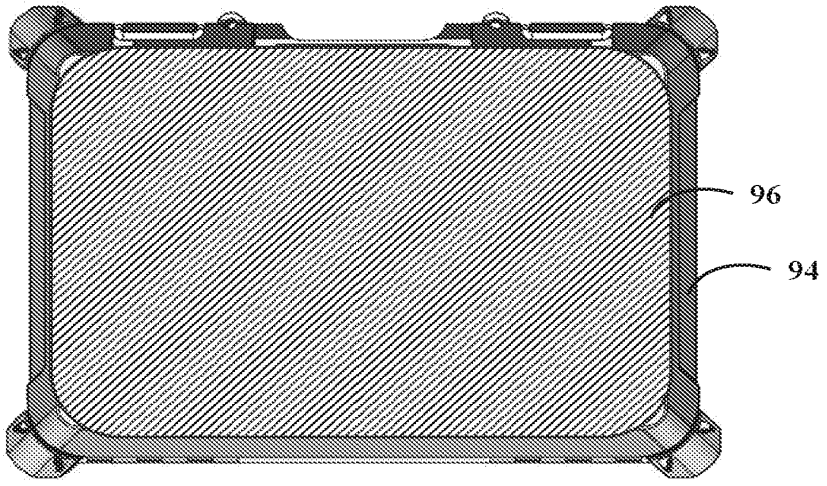


Fig. 5B

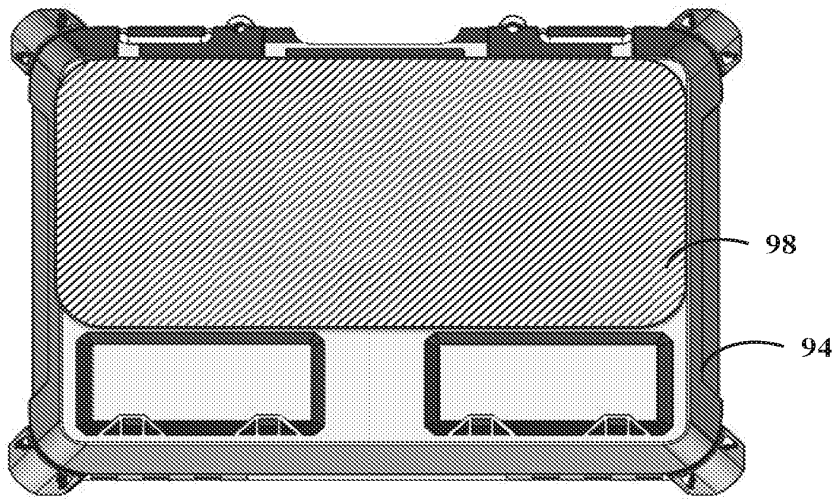


Fig. 5C

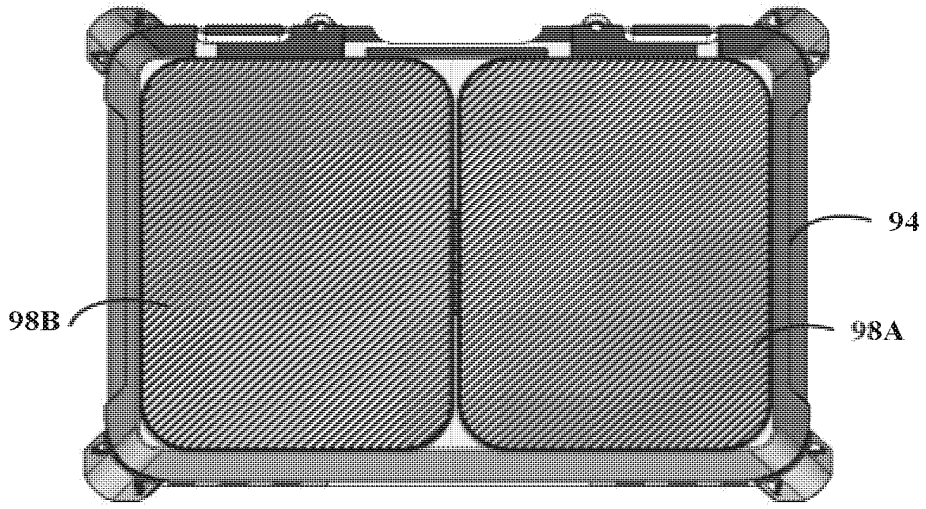


Fig. 5D

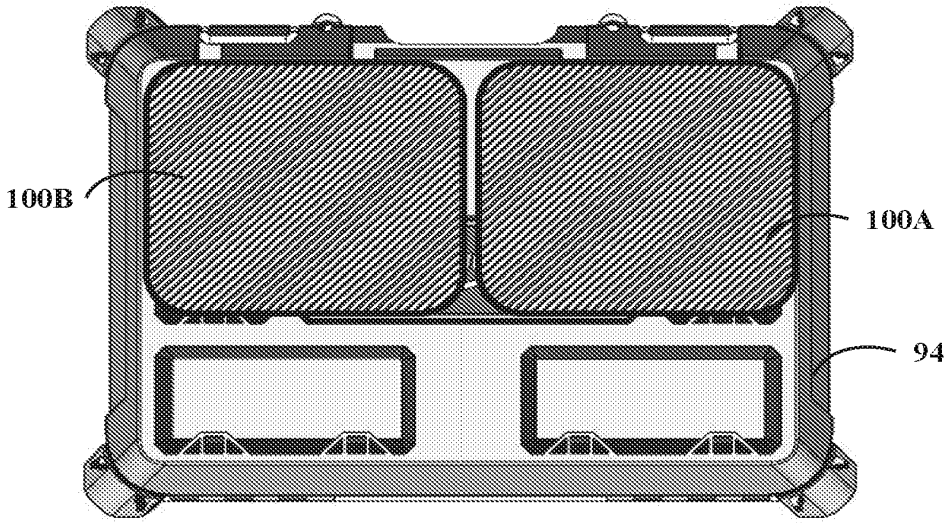


Fig. 5E

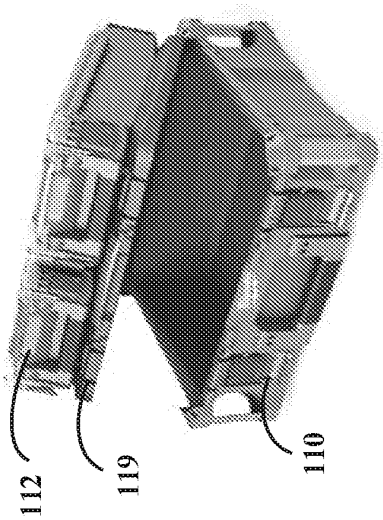


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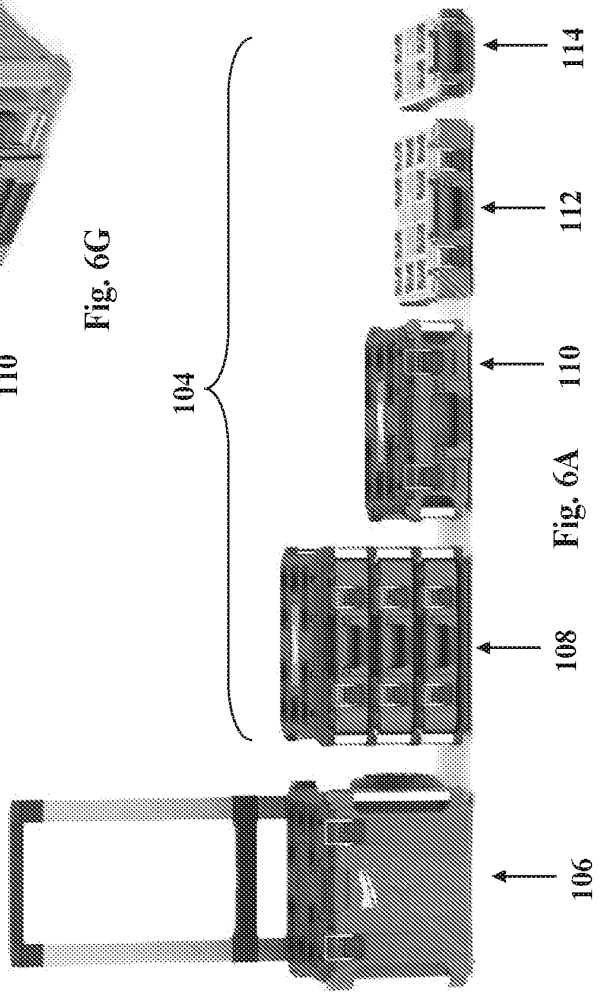
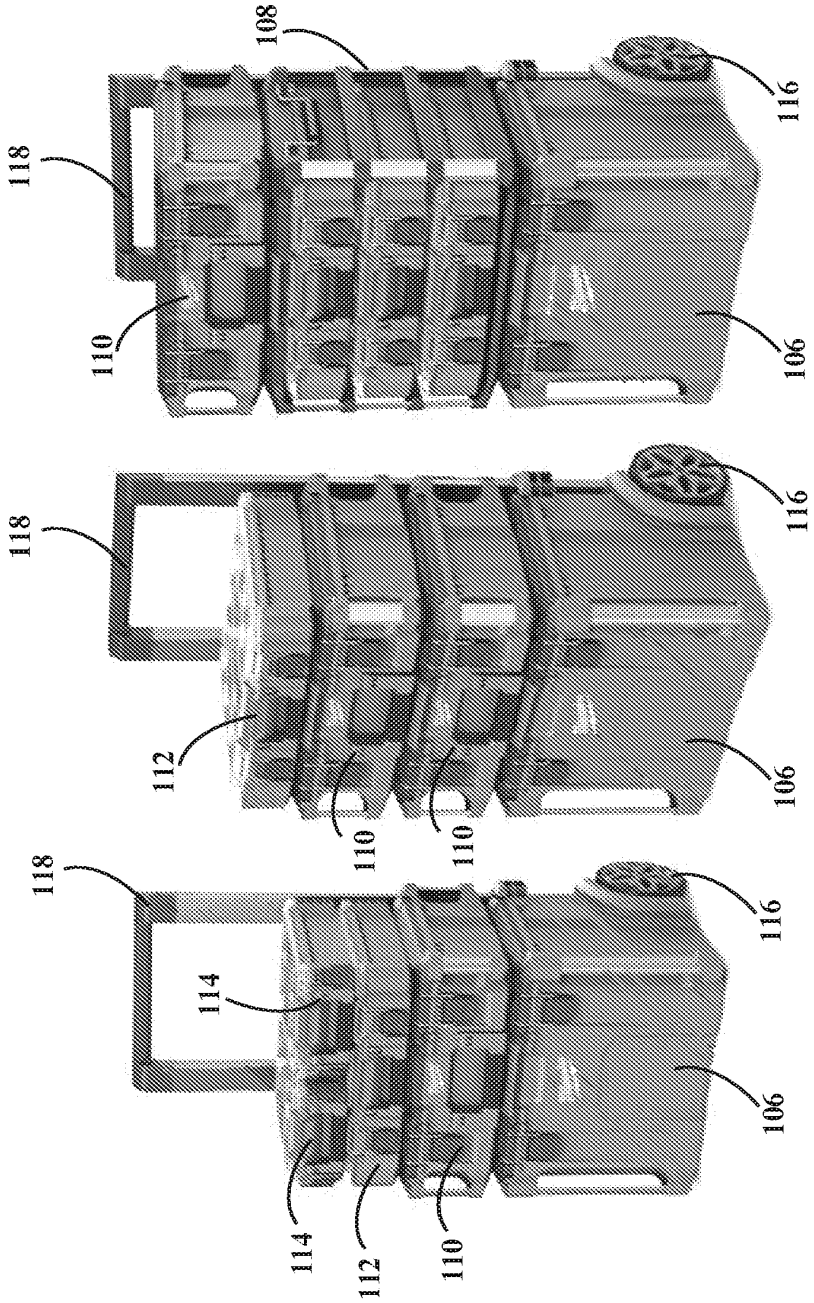


Fig. 6A


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Fig. 6D
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Fig. 6C
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Fig. 6B

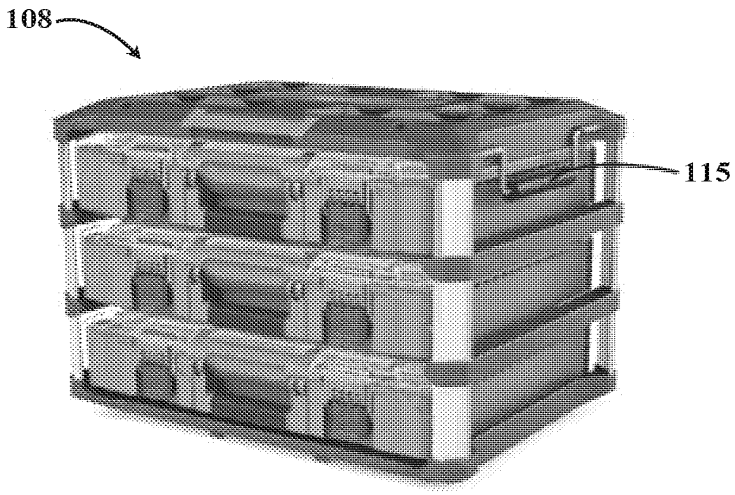


Fig. 6E

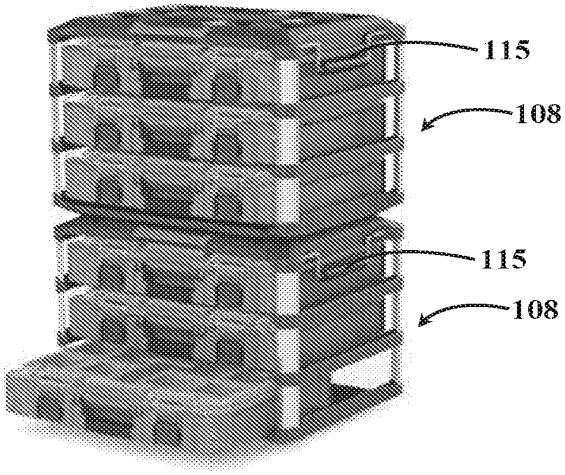


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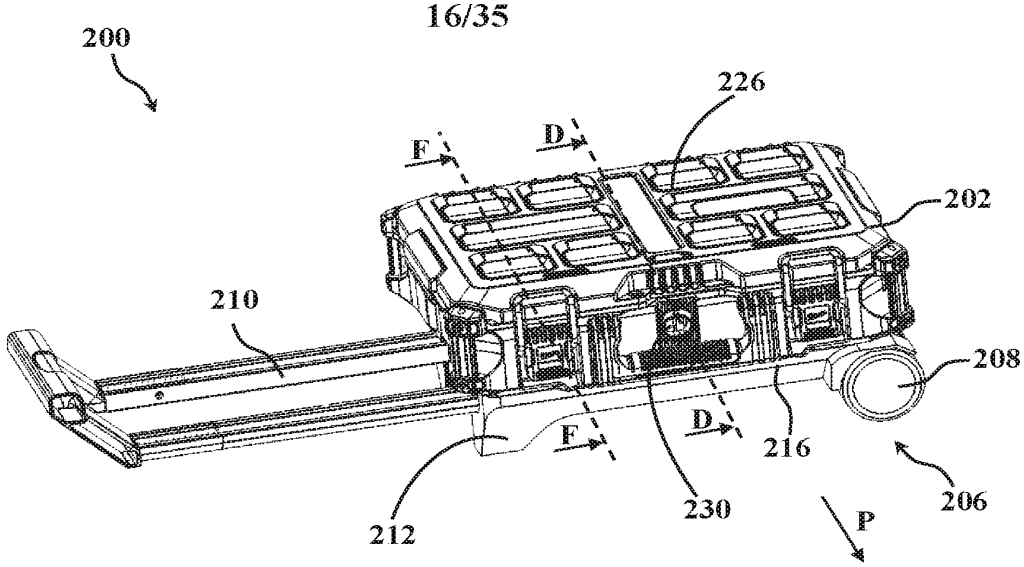

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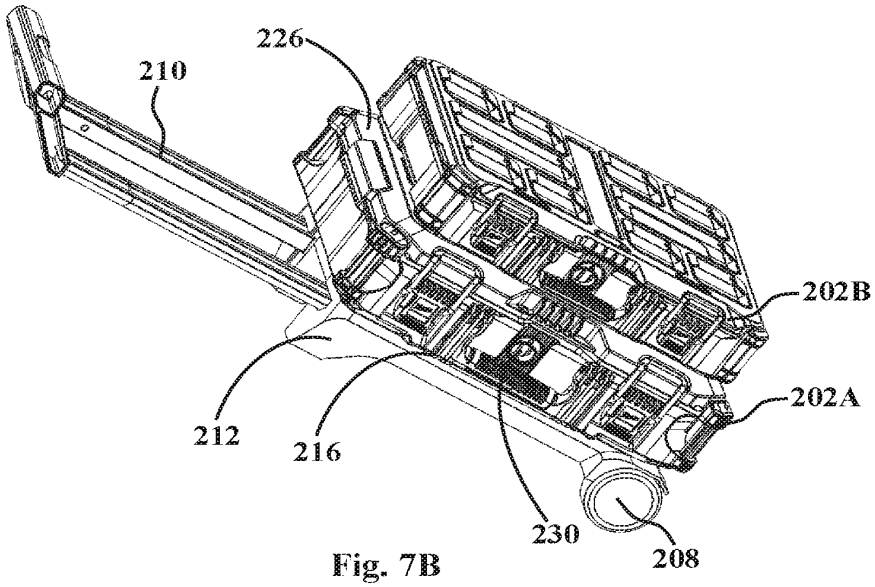

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Fig. 7B

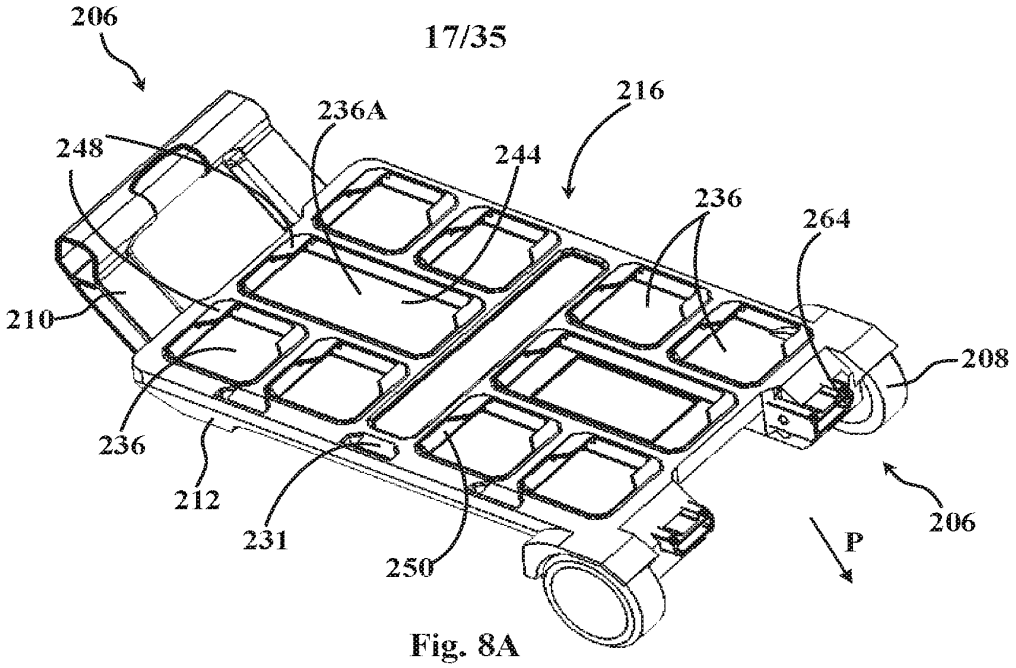

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Fig. 8A

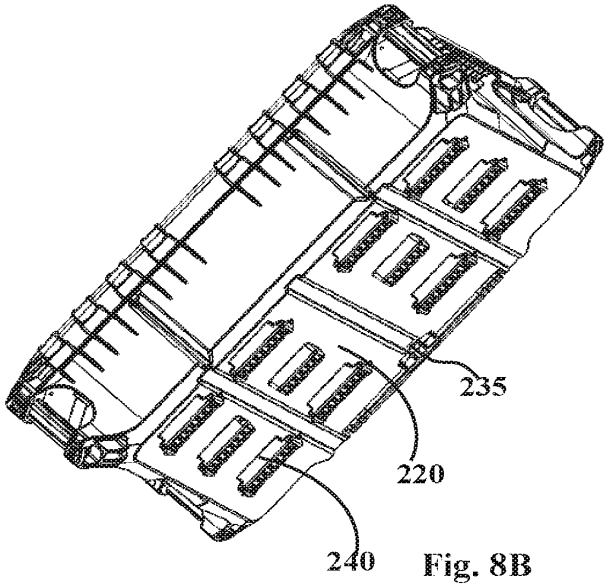

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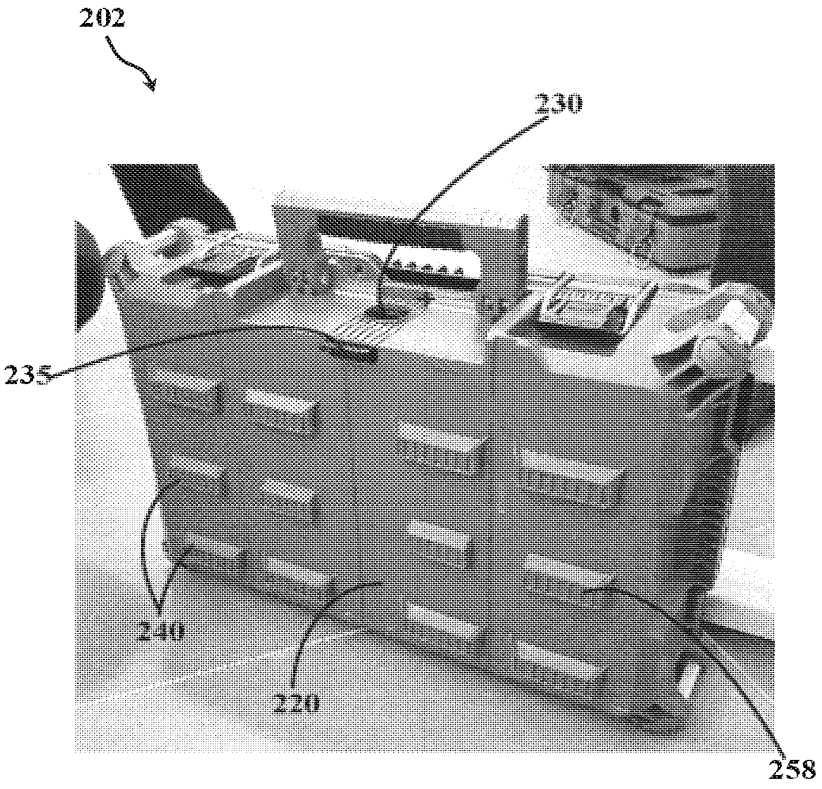


Fig. 8C

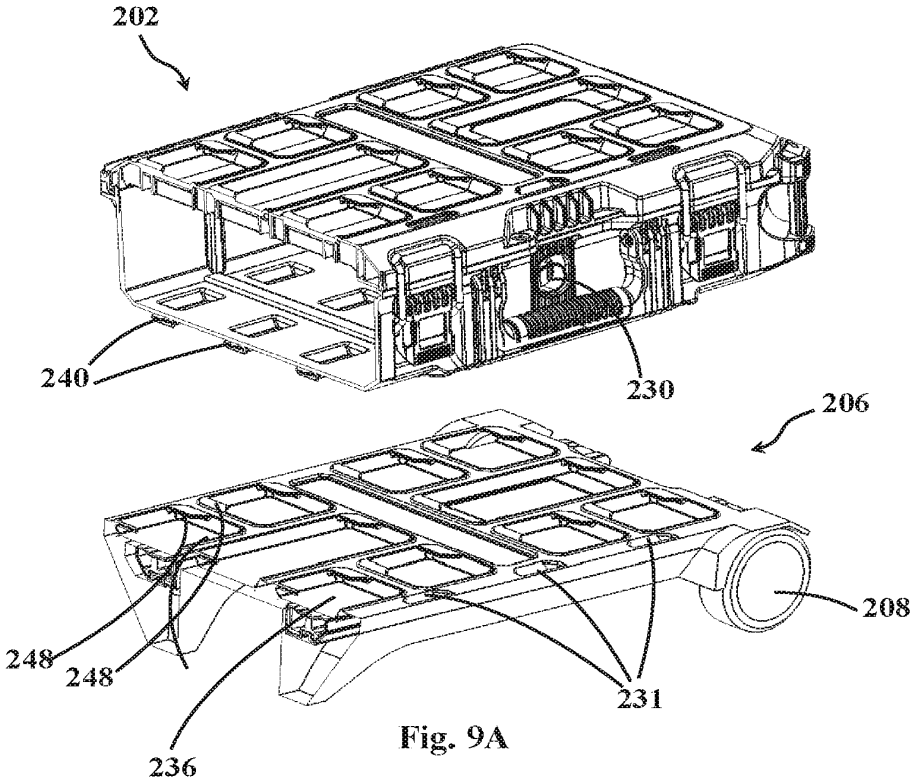


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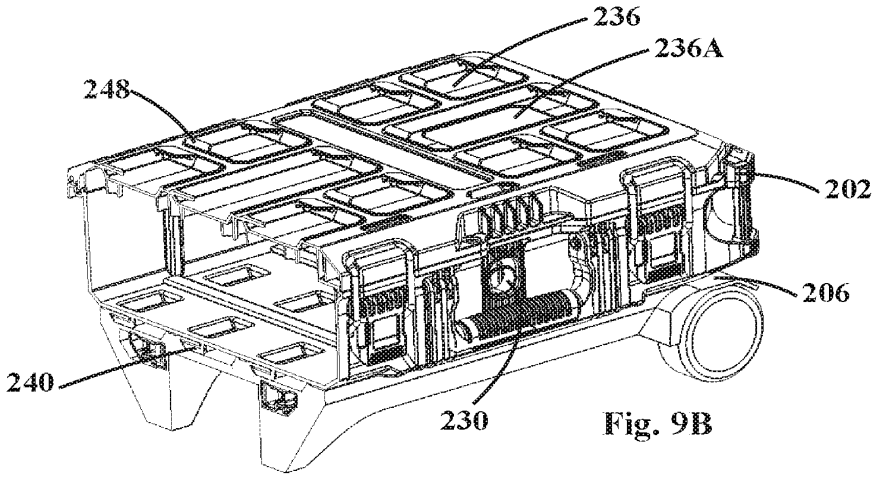


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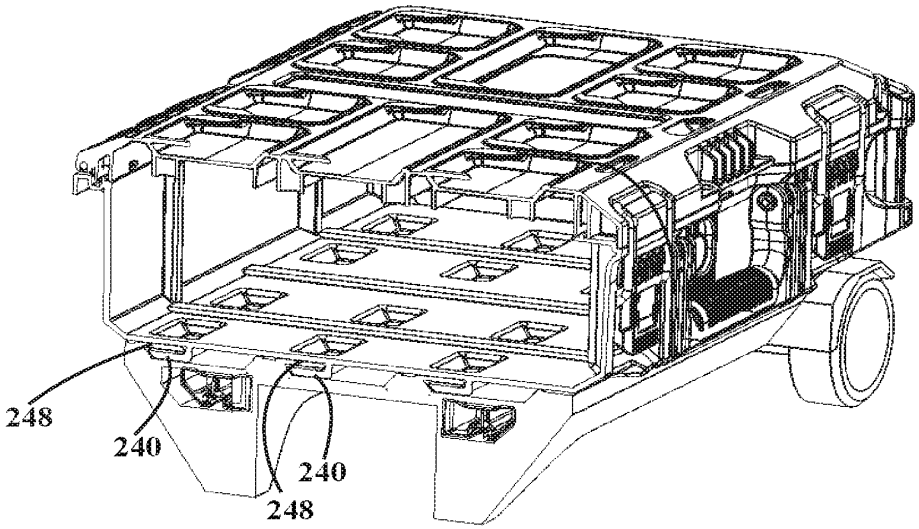


Fig. 9C

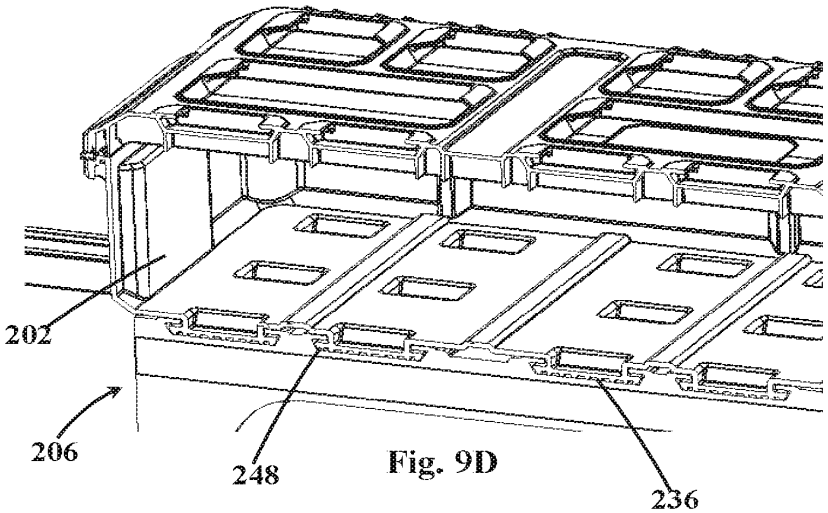


Fig. 9D

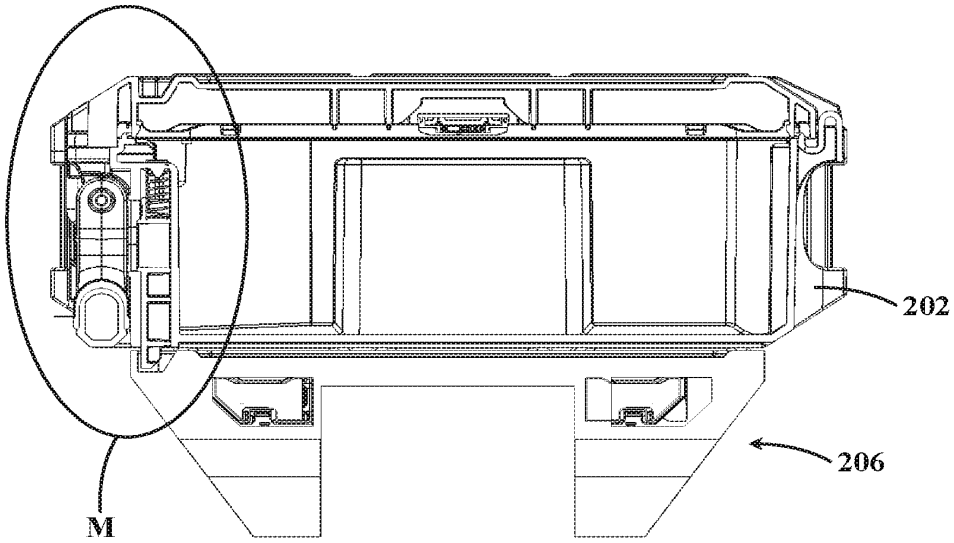


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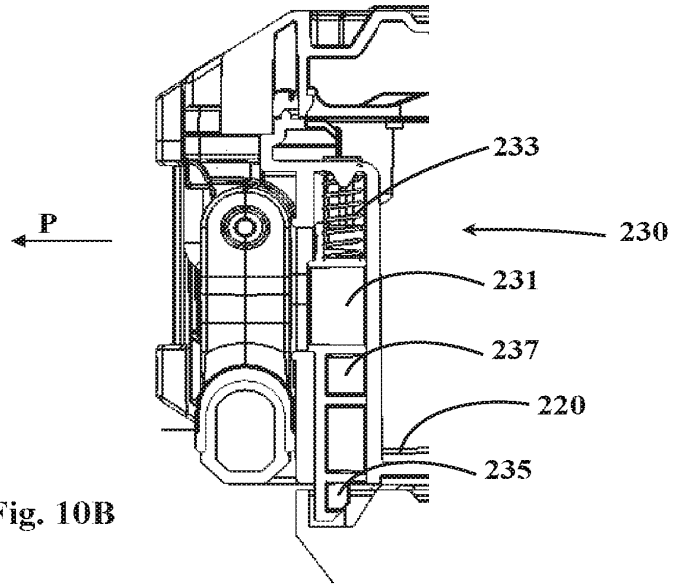


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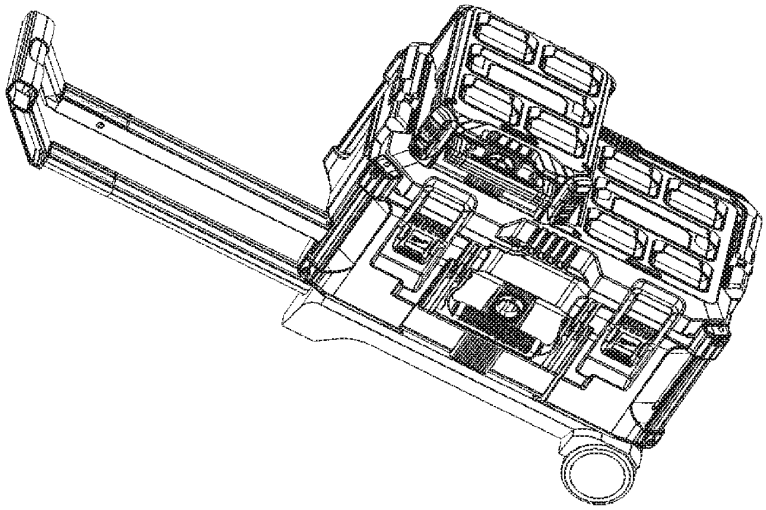


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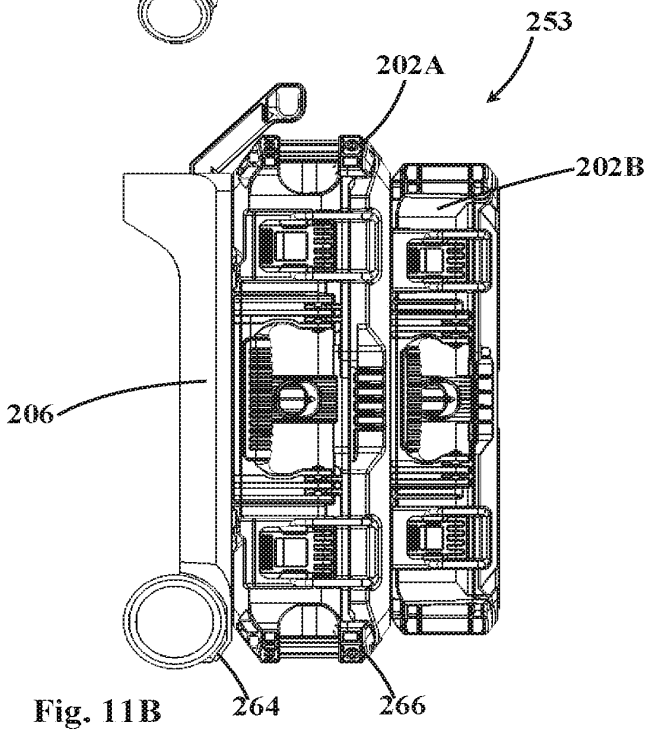


Fig. 11B

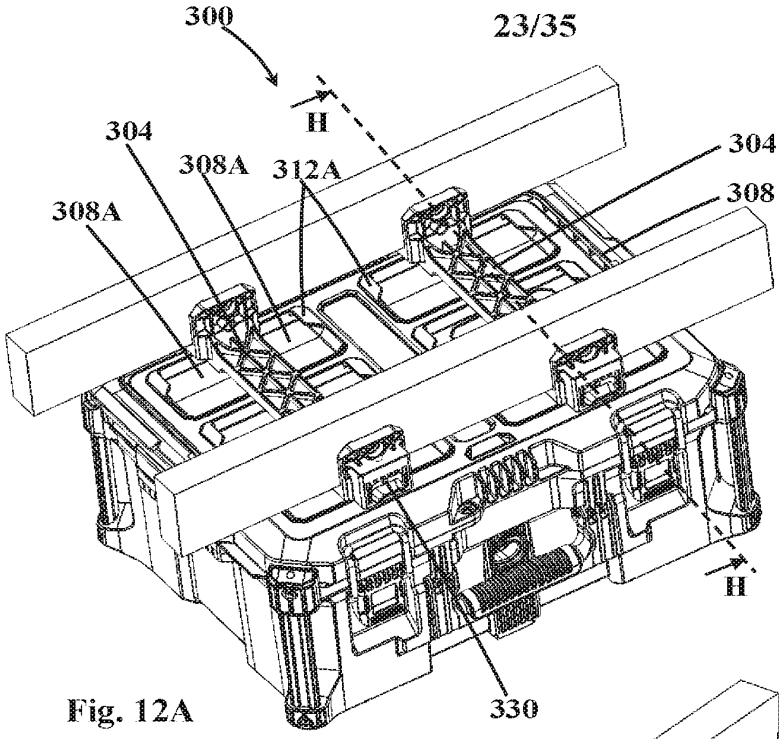


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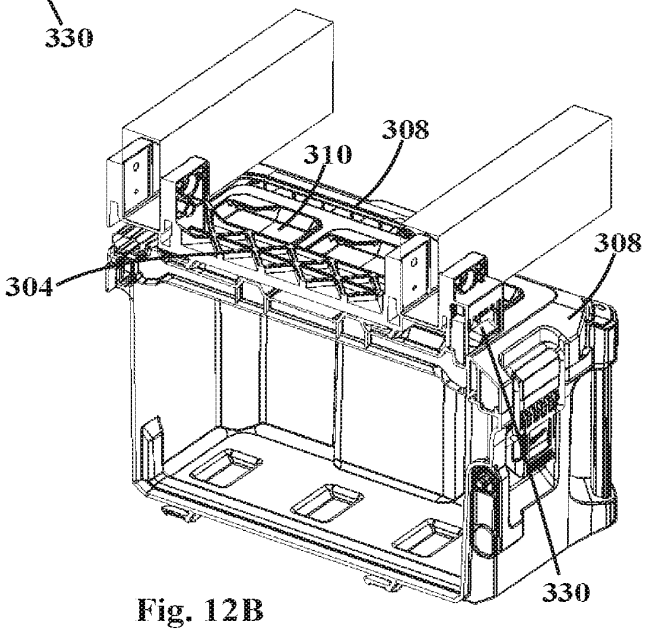


Fig. 12B

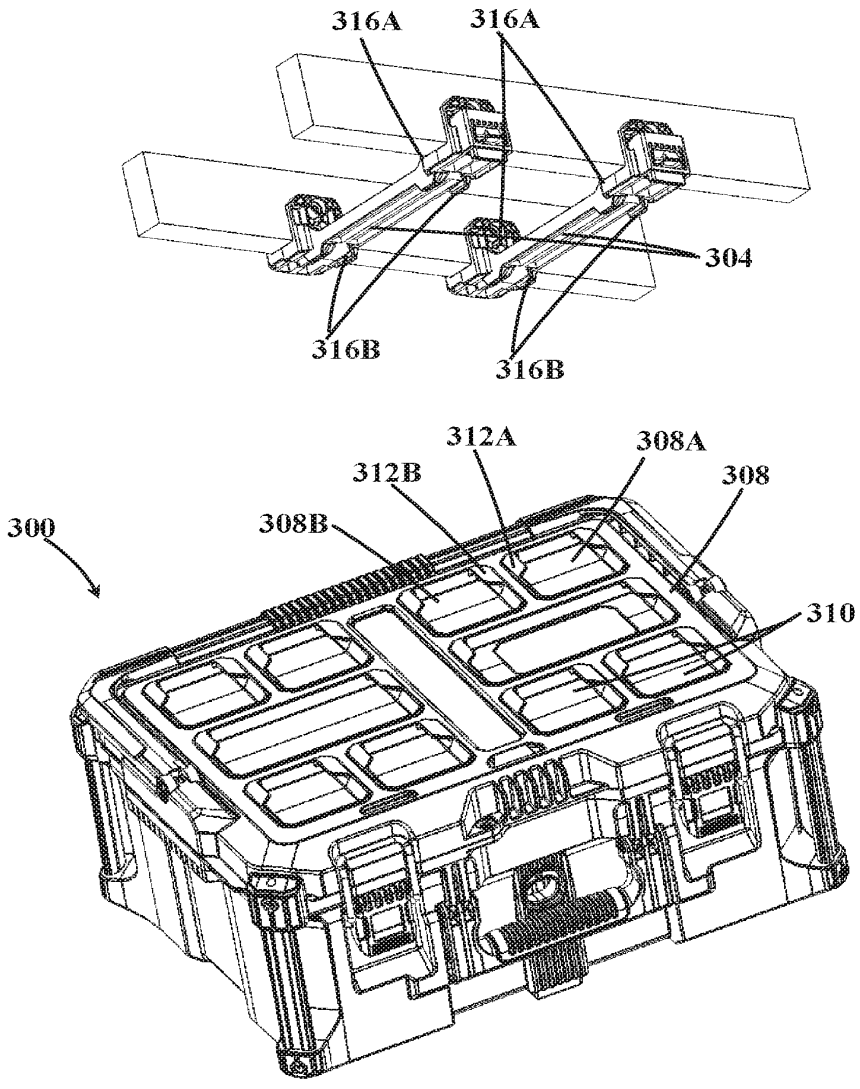


Fig. 12C

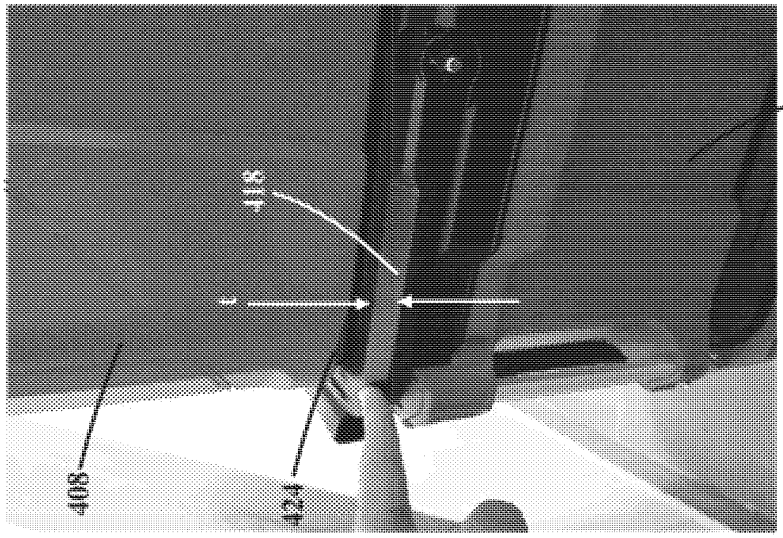


Fig. 13B

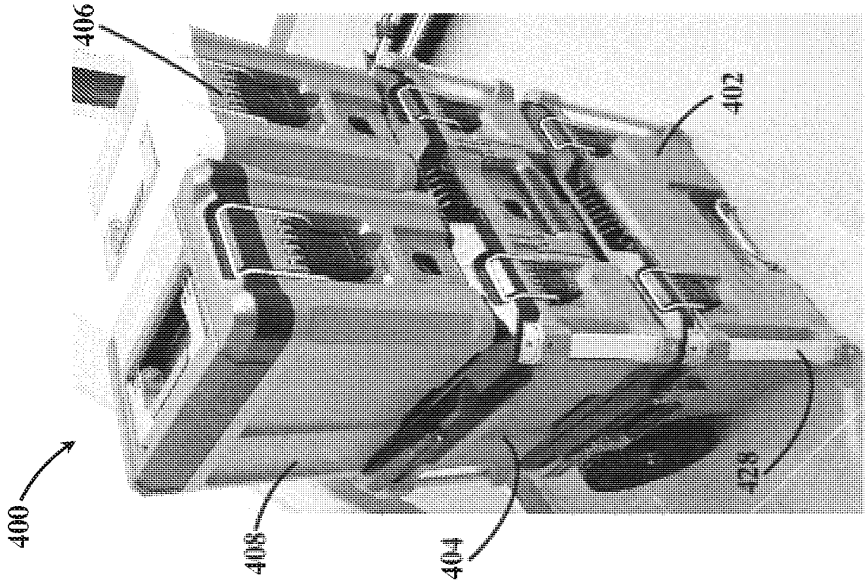


Fig. 13A

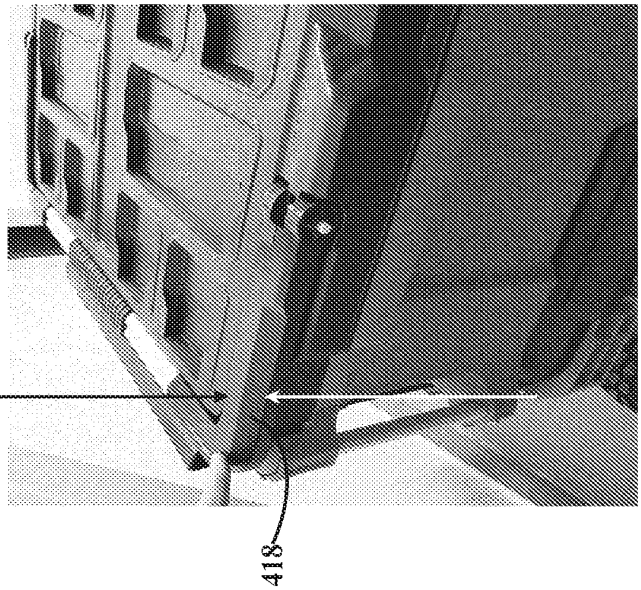


Fig. 13D

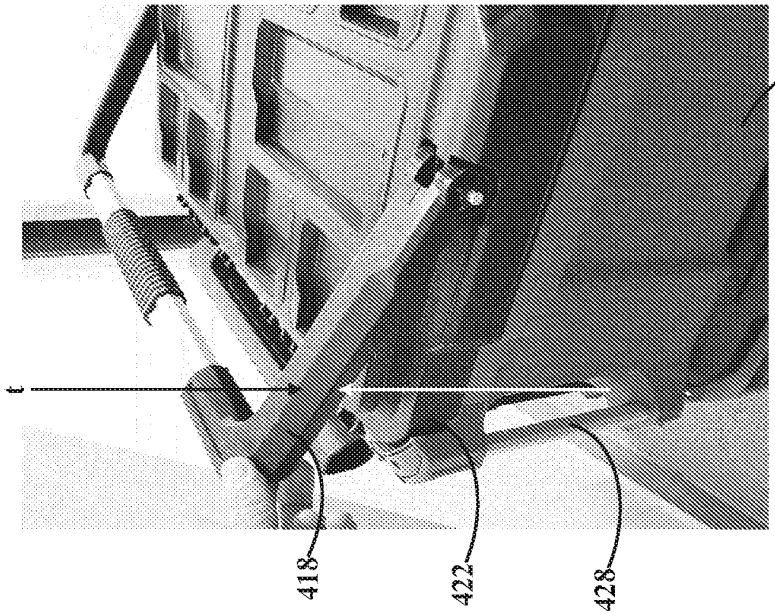


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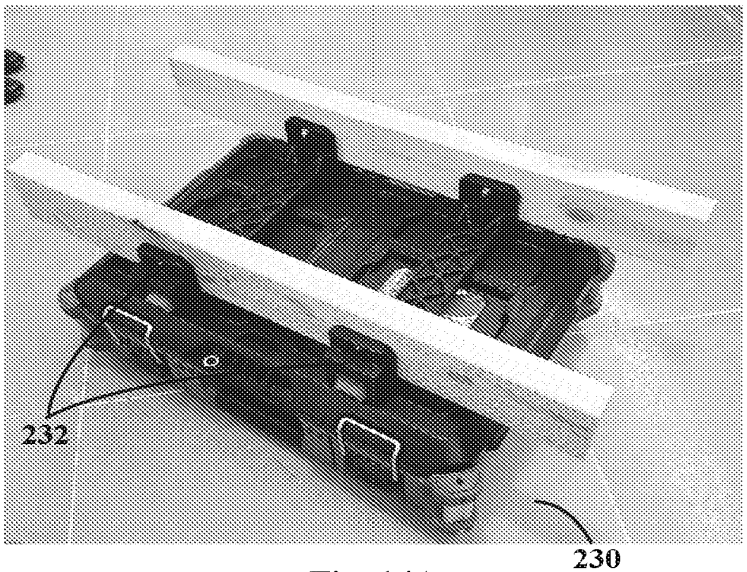


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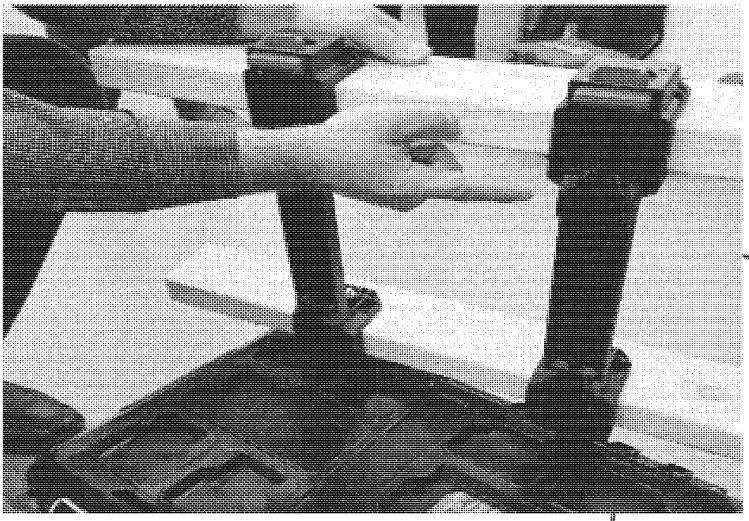


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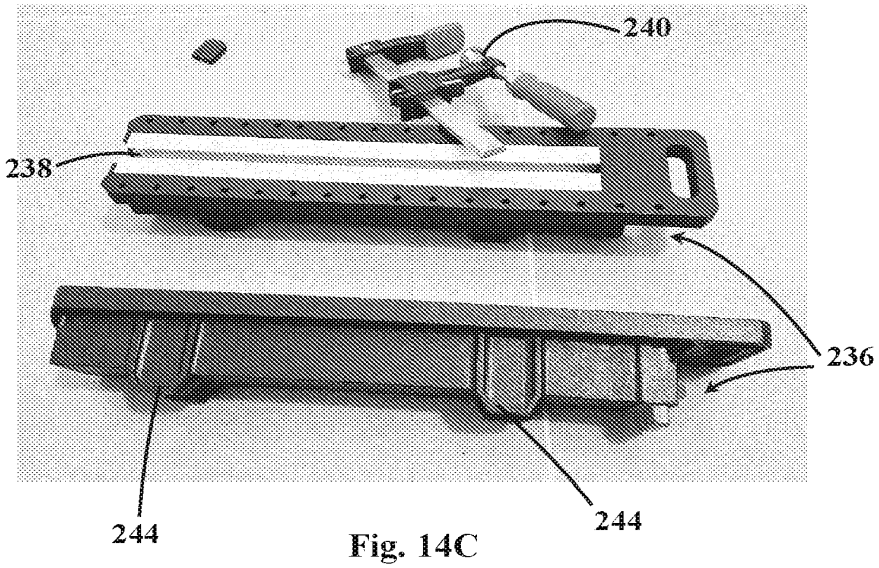


Fig. 14C

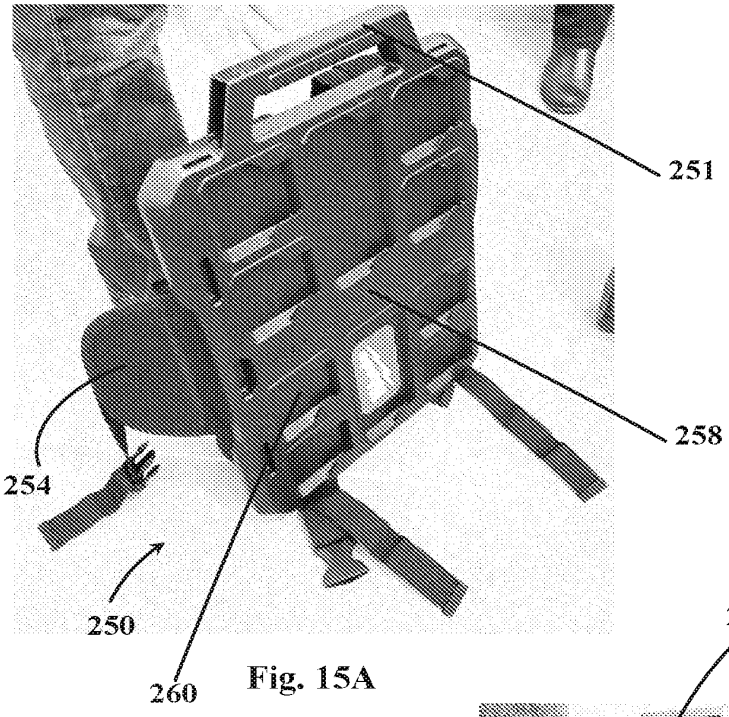


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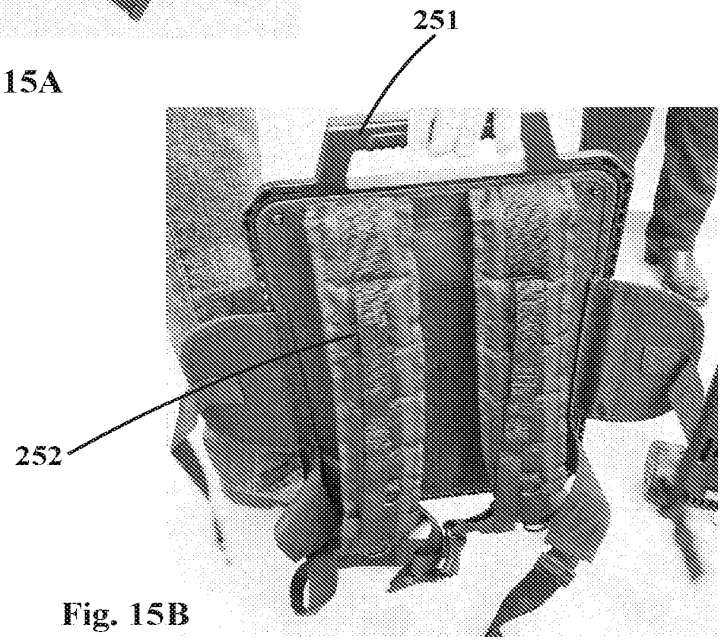


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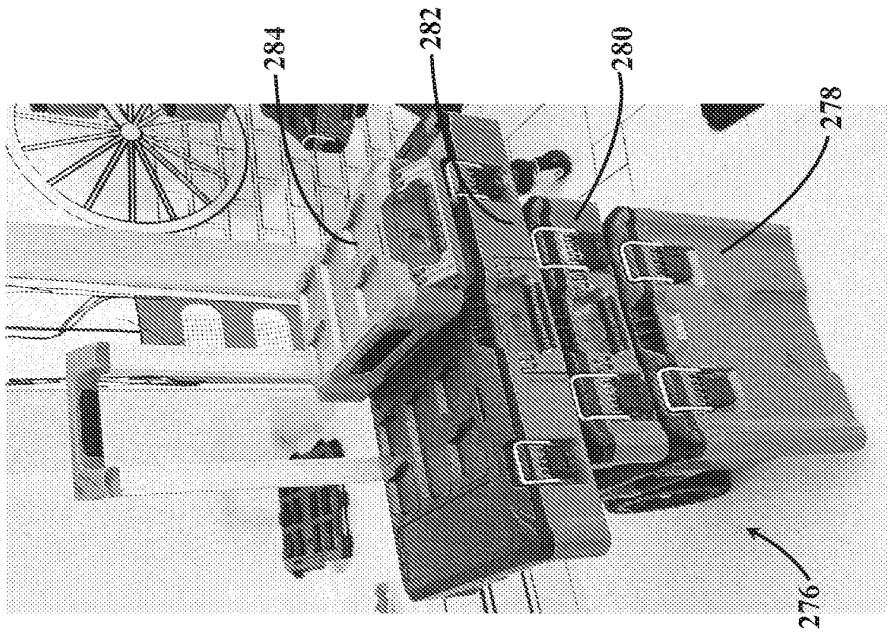


Fig. 16B

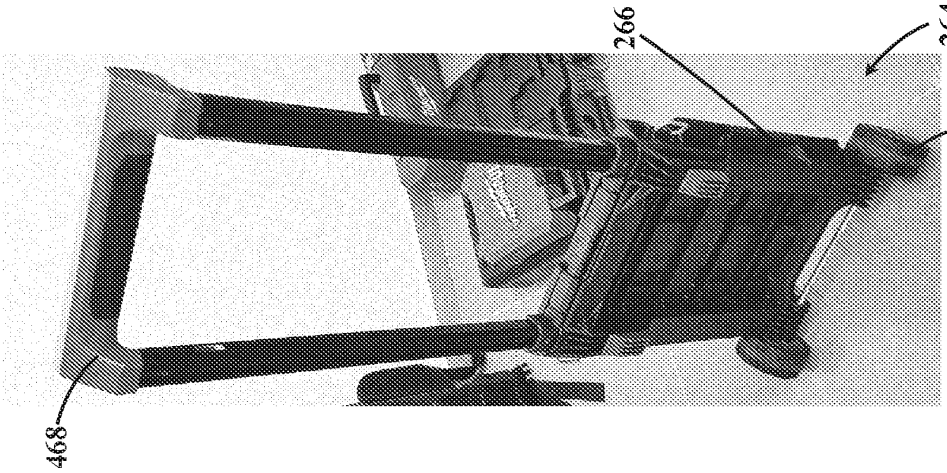


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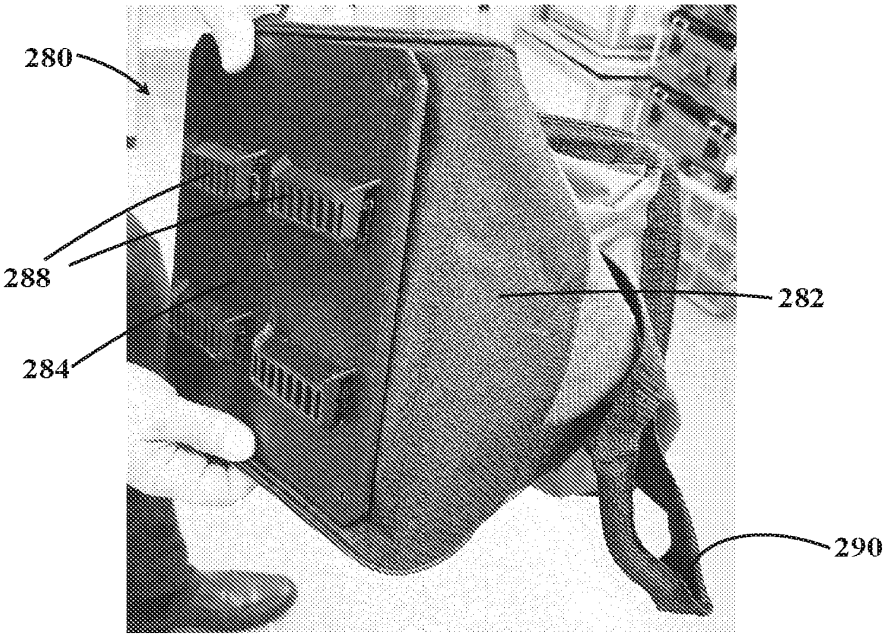


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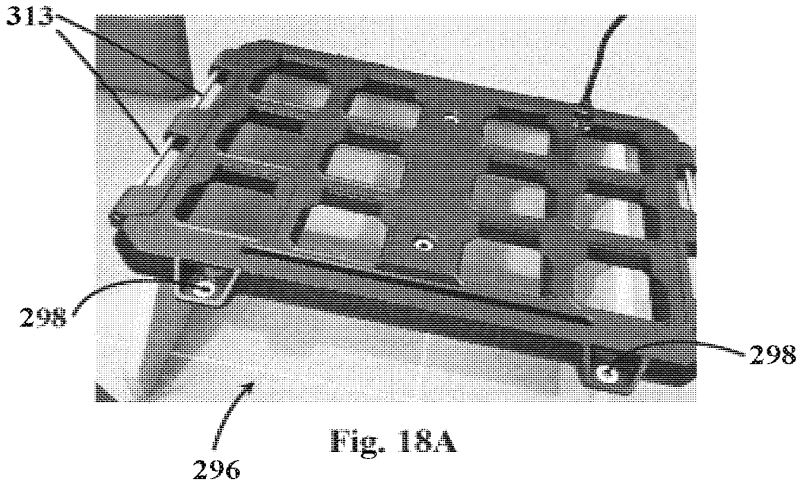


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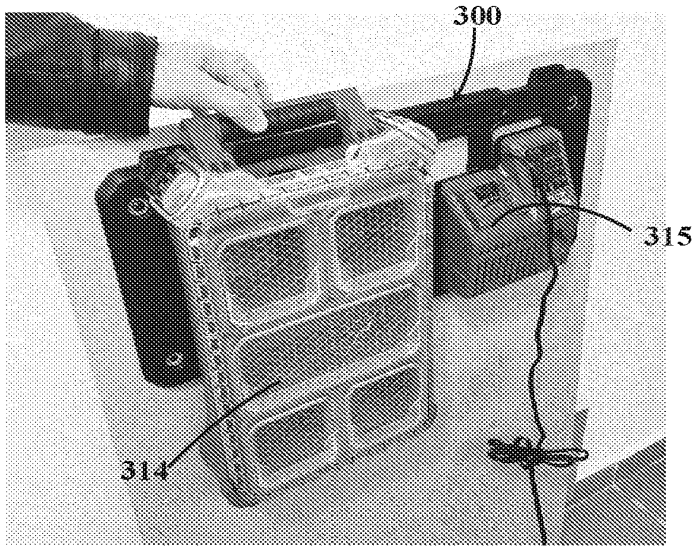


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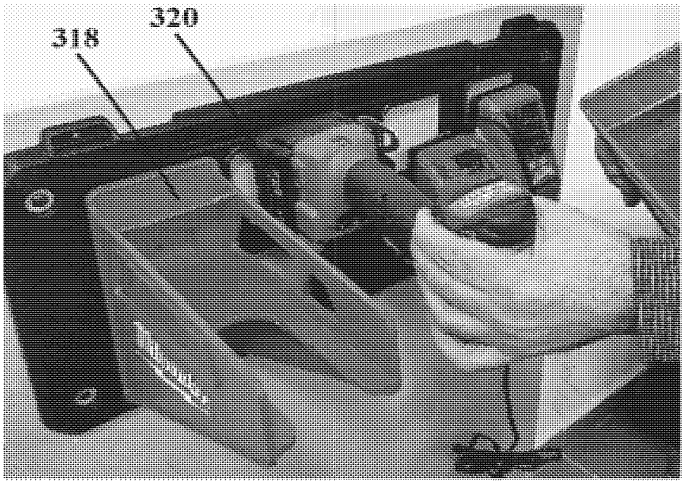


Fig. 18C

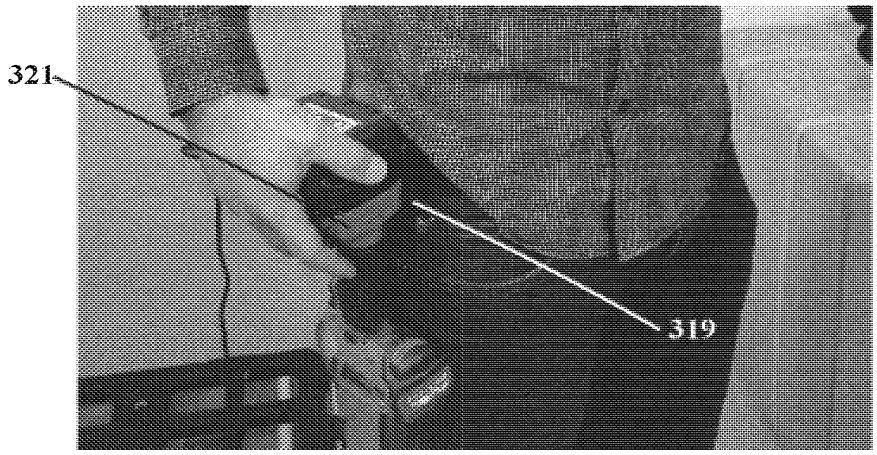


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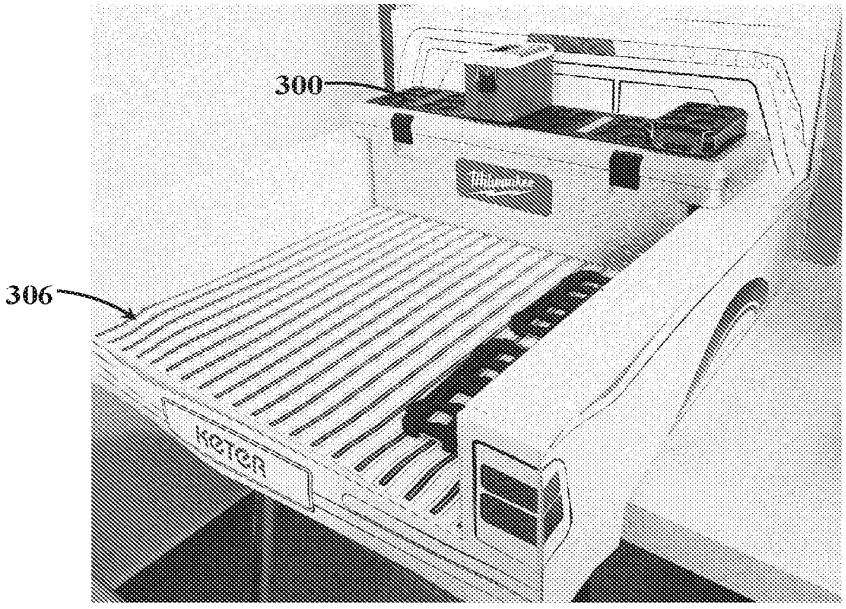


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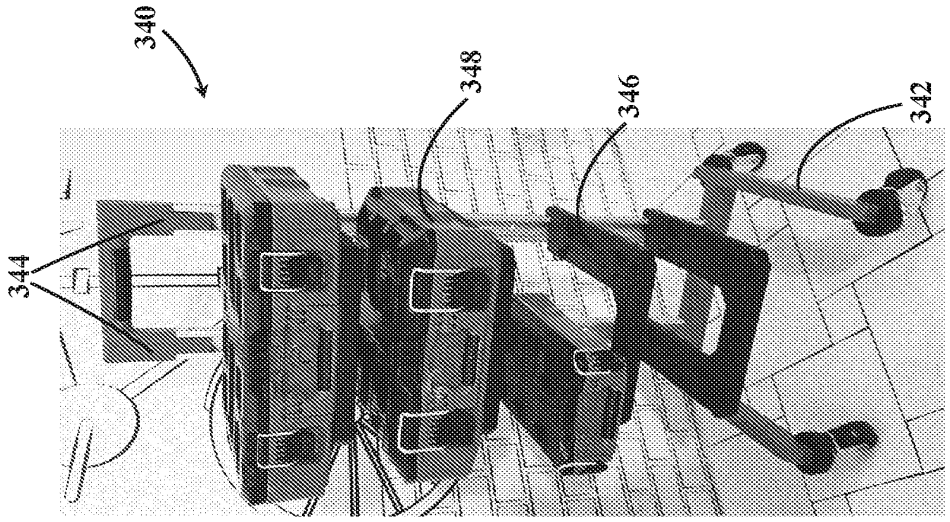


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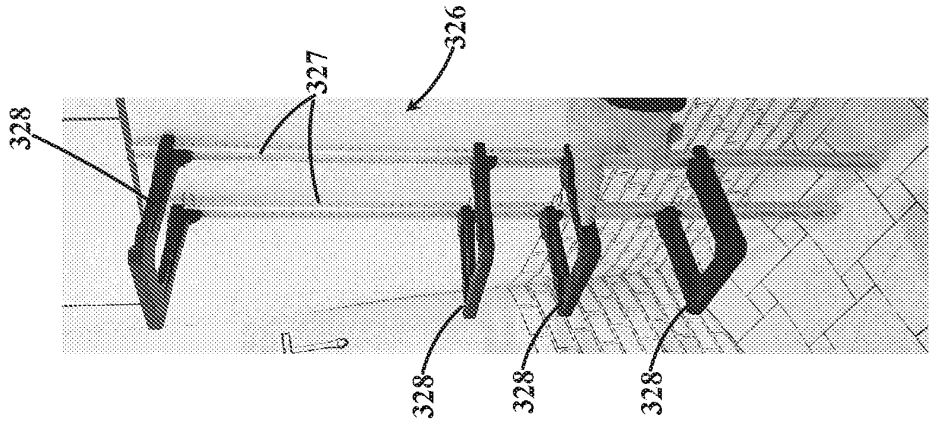


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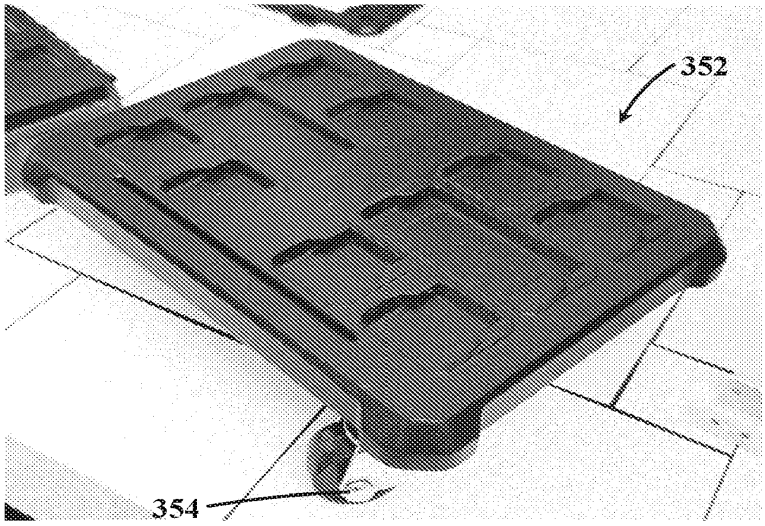


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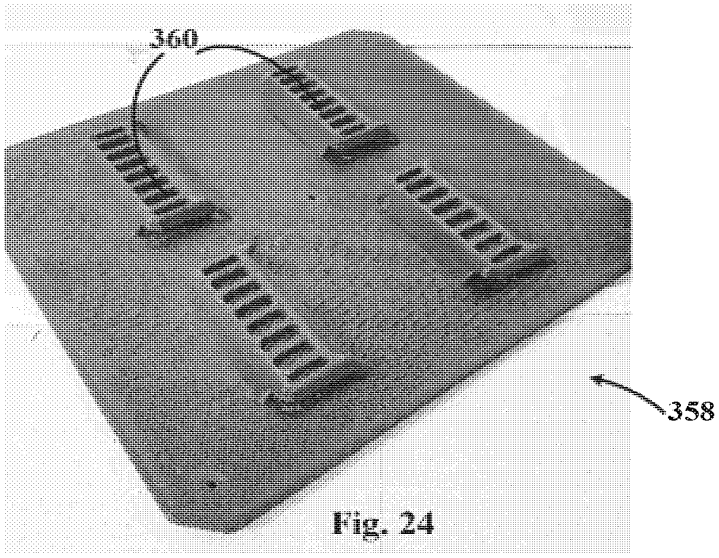


Fig. 24

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL2017/050481

A. CLASSIFICATION OF SUBJECT MATTER
IPC (2017.01) B25H 3/02, B65D 21/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC (2017.01) B25H 3/02, B65D 21/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Databases consulted: Esp@cenet, Google Patents, PatBase, Orbit

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011155613 A KOENIG 30 Jun 2011 (2011/06/30) whole	1,2,4,5
Y	whole	3,8-66
X	US 20110139665 A MADSEN 16 Jun 2011 (2011/06/16) whole	1
Y	CN 2608238 A BAO JIANGANG 31 Mar 2004 (2004/03/31) whole	3,8-66
Y	US 2004195793 A SULLIVAN 07 Oct 2004 (2004/10/07) whole	50-66

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
20 Aug 2017	20 Aug 2017
Name and mailing address of the ISA: Israel Patent Office Technology Park, Bldg.5, Malcha, Jerusalem, 9695101, Israel Facsimile No. 972-2-5651616	Authorized officer GUTKIN Solomon Telephone No. 972-2-5651763

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL2017/050481

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 20130127129 A BENSMAN 23 May 2013 (2013/05/23) whole	1-66
A	US 2002000440 A SAGOL 01 Jan 2002 (2002/01/01) whole	1-66
A	US 5240264 B WILLIAMS 31 Aug 1993 (1993/08/31) whole	50-66

Form PCT/ISA/210 (continuation of second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IL2017/050481

Patent document cited search report	Publication date	Patent family member(s)	Publication Date
US 2011155613 A	30 Jun 2011	NONE	
US 20110139665 A	16 Jun 2011	NONE	
CN 2608238 A	31 Mar 2004	NONE	
US 2004195793 A	07 Oct 2004	NONE	
US 20130127129 A	23 May 2013	NONE	
US 2002000440 A	01 Jan 2002	NONE	
US 5240264 B	31 Aug 1993	NONE	

Form PCT/ISA/210 (patent family annex) (January 2015)

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International Bureau

(43) International Publication Date
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PCT

(10) International Publication Number
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PCT/DK2007/000185

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(26) Publication Language: English

(30) Priority Data:
PA 2006 00566 22 April 2006 (22.04.2006) DK

(71) Applicant *(for all designated States except US)*: **J. O. MADSEN APS** [DK/DK]; Hyldevænget 3, DK-5400 Bogense (DK).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **MADSEN, Jens, Ole** [DK/DK]; Hyldevænget 3, DK-5400 Bogense (DK).

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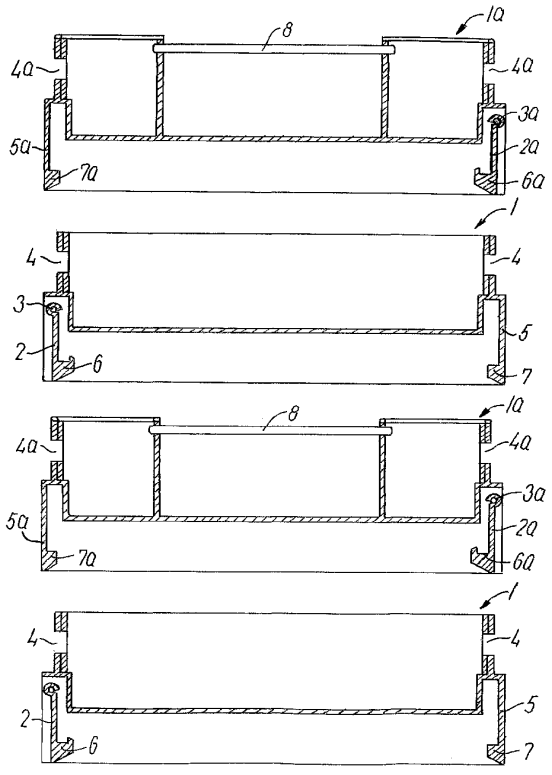
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[Continued on next page]

(54) **Title:** STACKABLE BOXES AND COVERS



(57) **Abstract:** When stackable boxes (1) are coupled together, which are optionally provided with a cover (1a), all the boxes and covers have locking means, which are formed by at least one gripper part (2, 2a) at their underside, which is preferably biased (2, 3), and which is capable of gripping an edge (4, 4a) provided at the upper side of the boxes or the covers. Hereby, boxes and covers may always be coupled together in an arbitrary order. In a first embodiment, the boxes and the covers have snap locks (2, 2a) and edges (4, 4a) in their gables, while, in a second embodiment, they are constructed with a gripper part and an edge in their one gable, while, in the other gable, they are provided with hooks or flanges which are capable of engaging fixing holes. The stackable boxes may generally be used as a storage device.

WO 2007/121745 A1

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

STACKABLE BOXES AND A STORAGE DEVICE

The invention relates to stackable boxes which may be coupled to each other by locking means, said locking means being formed by locking parts at the bottom of a box which are capable of cooperating with locking means at the top of a box, wherein a removable cover has locking means at the bottom which are of the same type as the locking means at the bottom of a box.

The invention moreover relates to a storage device.

Stackable boxes are known e.g. from DE Utility Model No. 78 28 640. These known boxes, which may have mutually different heights, may be coupled to each other and be terminated at the top by a cover.

EP 555 533 B1 also discloses stackable boxes which may be coupled together.

According to this patent, all the boxes have a cover which is confined between two boxes when the boxes are clamped together.

Thus, the boxes are clamped together analogously with the boxes in the above-mentioned utility model, but with a cover which is arranged between the boxes.

Accordingly, an object of the invention is to provide stackable boxes with or without a cover, which may be coupled together in order to achieve a more flexible stacking, where boxes and covers may be coupled together in an arbitrary order.

The object of the invention is achieved by stackable boxes of the type de-

fined in the introductory portion of claim 1, which is characterized in that the cover has locking means at the top of the cover which are of the same type as the locking means at the top of a box.

Hereby, boxes and covers may be coupled together in an arbitrary order.

For instance, three boxes without a cover may be coupled together, or two boxes without a cover may be coupled together with a box having a cover, and in an arbitrary order.

It is even possible to stack several covers on top of each other, if the teachings in claim 1 are followed.

A user-friendly way of configuring the boxes and the covers is, as stated in claim 2, that the locking means at the bottom of the boxes and the covers are formed by at least one snap lock, which is adapted to grip an edge at the top of the boxes or the covers.

Expediently, as stated in claim 3, the covers and the boxes have two snap locks and two edges, and, as stated in claim 4, at least one snap lock is biased, which results in an embodiment which makes it easy to couple-together the stackable boxes and covers and to separate them from each other.

When, as stated in claim 5, the cover is provided with a carrier grip which is recessed into the cover, and, as stated in claim 6, the covers and the boxes have a snap lock at the bottom and an edge at the top in their one gable, while they have hooks or flanges at the bottom in their opposite gable, which are capable of engaging fixing holes positioned at the top of the cover or the box, it is advantageously ensured that the snap locks of the stackable boxes are not subjected to loads, which may occur if the stack-

able boxes are very heavy, as the separation of the boxes from each other takes place in that the one snap lock is loosened from its edge on an underlying box or cover, following which the loosened box and the overlying boxes are pushed to the side, and then the carrier grip is used for lifting the boxes away from the underlying boxes.

When the boxes are coupled together, they are moved laterally inwards, whereby the hooks or the flanges extend into the fixing holes, while the snap lock automatically locks the boxes to each other.

Finally, as stated in claim 7, it is possible that the snap locks are arranged in the gables or on the sides of the boxes and the covers.

As mentioned, the invention also relates to a storage device.

This storage device is characterized in that each cover has upper and lower coupling means which are of the same type as the upper and lower coupling means of the boxes, whereby, when the boxes are stacked on top of each other, the lower coupling means of each cover cooperates with the upper coupling means of an associated box, and if this box is positioned at the bottom in the stack, its upper coupling means cooperates with the lower coupling means of the overlying box in order to couple covers and boxes together.

An expedient embodiment of the storage device is defined in claim 9.

The invention will now be explained more fully with reference to the drawing, in which

fig. 1 shows a box with a snap lock and an edge according to the invention,

fig. 2 shows two boxes with a cover which are coupled together, while

fig. 3 shows two boxes and two covers in a separated state, seen from the

side in section, but with a snap lock modified relative to fig. 2.

It is noted initially that the parts which the covers have in common with the boxes are provided with the same reference numerals as the boxes, but with a suffixed "a".

In fig. 1, the numeral 1 indicates a box which has locking means in the form of a snap lock 2 near its bottom in its one gable, said snap lock being formed by a plate which may rotate about a shaft.
The snap lock is biased by a spring 3 so that its plate will normally be flush with the vertical wall of the gable.
At its top, the box has an edge 4 which is adapted to receive a snap lock from another box or a cover, as will be explained below.
Finally, at its opposite end, the box has another snap lock, which, however, need not be biased by a spring, but may be made of a resilient material, cf. also fig. 3.
Further, the snap lock 2 and the edge 4 are configured in the same manner as described in the applicant's own EP 0 799 115.

Fig. 2 shows two boxes with covers which are coupled together.
At their lower side, the boxes have snap locks 2 which are biased by a spring 3.
At their lower side, the covers have snap locks 2a which are biased by a spring 3a.
At the upper side of the covers, which have a recessed carrier grip 8, edges 4a are arranged, which are adapted to grip snap locks 2, 2a from an overlying box, or, although it is not shown, snap locks 2a from an overlying cover.

In figure 3, the boxes and the covers have a spring-biased snap lock 2, 2a at their one end, while the snap lock 5, 5a at the opposite ends may be

made of a resilient material.

The spring-biased snap locks 2, 2a have engagement faces 6, 6a, while the snap locks of a resilient material have engagement faces 7, 7a.

When the boxes and the covers are assembled, as shown in fig. 3, a cover having a snap lock 5a without a spring is caused to engage an edge 4 on an underlying box 1 with its engagement face 7a by lateral displacement of the cover. Then, the snap lock 2a with the spring 3a will engage the edge 4 on the box, whereby the cover is coupled to the box.

The process may be repeated so that a plurality of covers and boxes may be coupled together in an arbitrary order, however, the covers may also be coupled to each other.

However, it is also possible to arrange hooks or flanges at the opposite gable, which may engage fixing holes, which, however, are not shown in the figures.

Finally, it should be mentioned that, although it is not shown in the figures, it is also possible to couple two or more covers together on top of each other.

As will be appreciated, the invention provides an extremely flexible stackable box system, where boxes and covers may be coupled together and be separated in an arbitrary order, where the stackable box system may serve as a general storage device.

PATENT CLAIMS

1. Stackable boxes (1) which may be coupled to each other by locking means, said locking means being formed by locking parts at the bottom of a box which is capable of cooperating with locking means at the top of a box, wherein a removable cover (1a) has locking means at the bottom which are of the same type as the locking means at the bottom of a box, c h a r a c – t e r i z e d in that the cover has locking means (4a) at the top of the cover which are of the same type as the locking means (4) at the top of a box.

2. Stackable boxes according to claim 1, c h a r a c t e r i z e d in that the locking means at the bottom of the boxes and the covers are formed by at least one snap lock (2, 2a), which is adapted to grip an edge (4, 4a) at the top of the boxes or the covers.

3. Stackable boxes according to claim 2, c h a r a c t e r i z e d in that the covers (1a) and the boxes (1) have two snap locks (2a, 5a, 2, 5) and two edges (4a, 4).

4. Stackable boxes according to claims 2 – 3, c h a r a c t e r i z e d in that at least one snap lock (2, 2a) is biased (3).

5. Stackable boxes according to claims 1 – 4, c h a r a c t e r i z e d in that the covers (1a) are provided with a carrier grip (8) which is recessed in the cover.

6. Stackable boxes according to claim 2, 4 or 5, c h a r a c t e r i z e d in that the covers (1a) and the boxes (1) have a snap lock (2, 2a) at the bottom and an edge (4, 4a) at the top in their one gable, while they have hooks or flanges at the bottom in their opposite gable which are capable of engaging fixing holes provided at the top of the cover or the box.

7. Stackable boxes according to claims 1 – 6, c h a r a c t e r i z e d in that the snap locks (2) are provided in the gables or on the sides of the boxes and the covers.

8. A storage device comprising two boxes which may be coupled together in a stack on top of each other, wherein the boxes have upper and lower coupling means, and wherein, when the boxes are stacked on top of each other, the lower coupling means of the upper box cooperates with the upper coupling means of the lower box in order to couple the boxes together, and wherein at least one of the boxes is provided with a cover, c h a r a c t e r – i z e d in that each cover has upper and lower coupling means which are of the same type as the upper and lower coupling means of the boxes, whereby, when the boxes are stacked on top of each other, the lower coupling means of each cover cooperates with the upper coupling means of the associated box, and if this box is positioned at the bottom in the stack, its upper coupling means cooperates with the lower coupling means of the overlying box in order to couple covers and boxes together.

9. A storage device according to claim 8, wherein the lower coupling means of each box and of each cover comprises at least one snap coupling, and wherein the upper coupling means of each box and of each cover comprises at least one edge for cooperation with respective snap couplings.

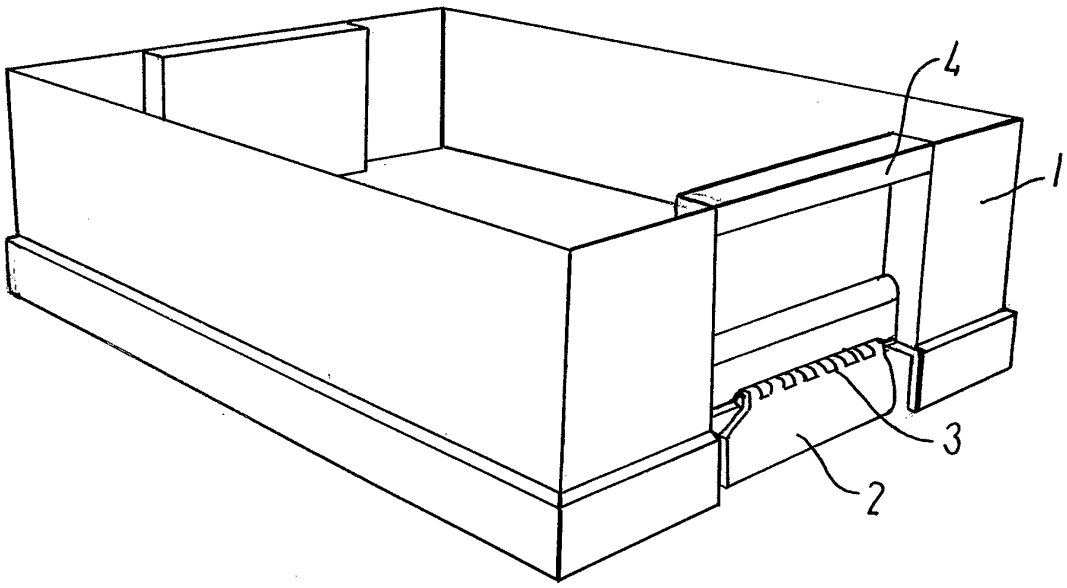


FIG. 1

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1724
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

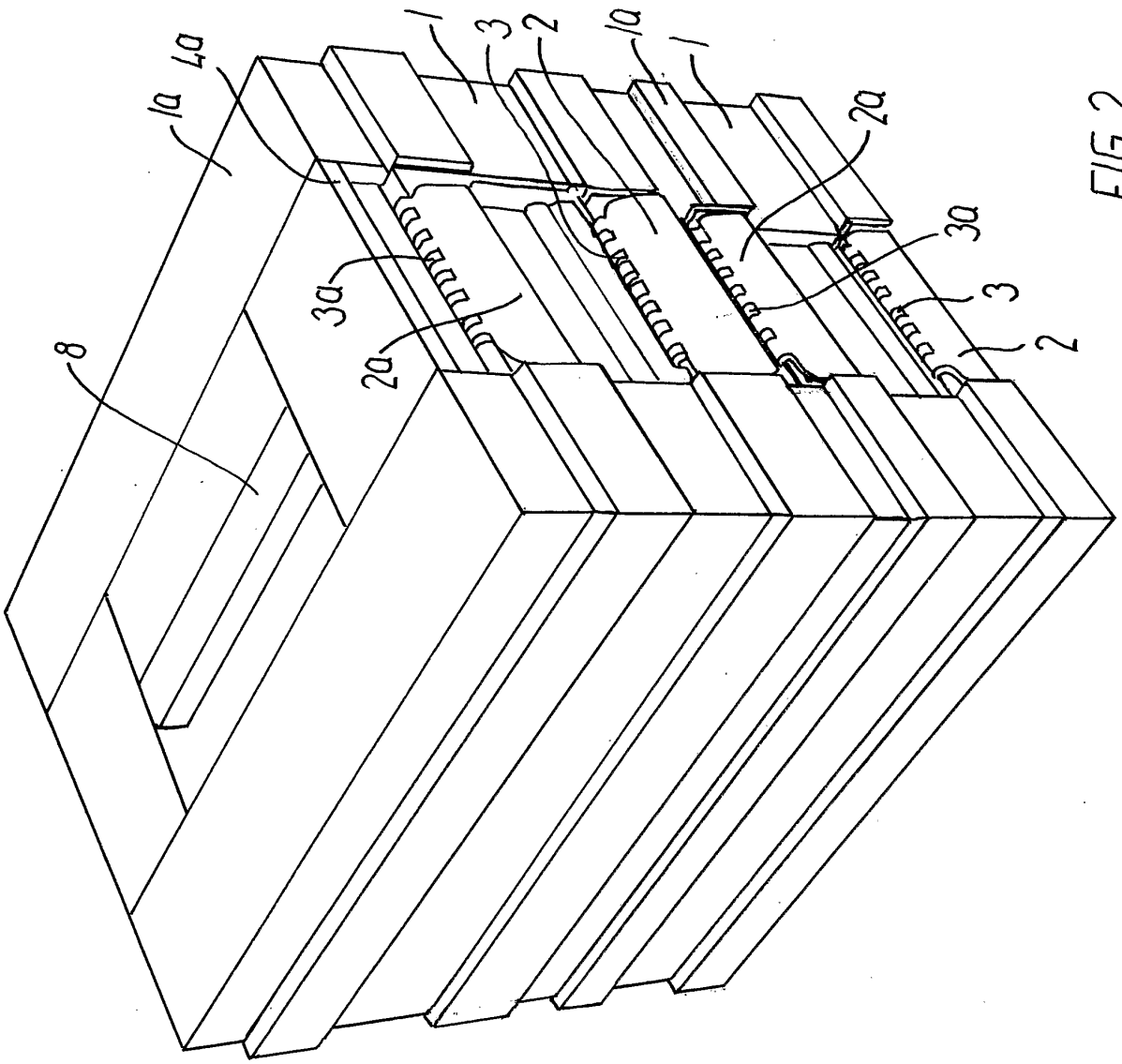
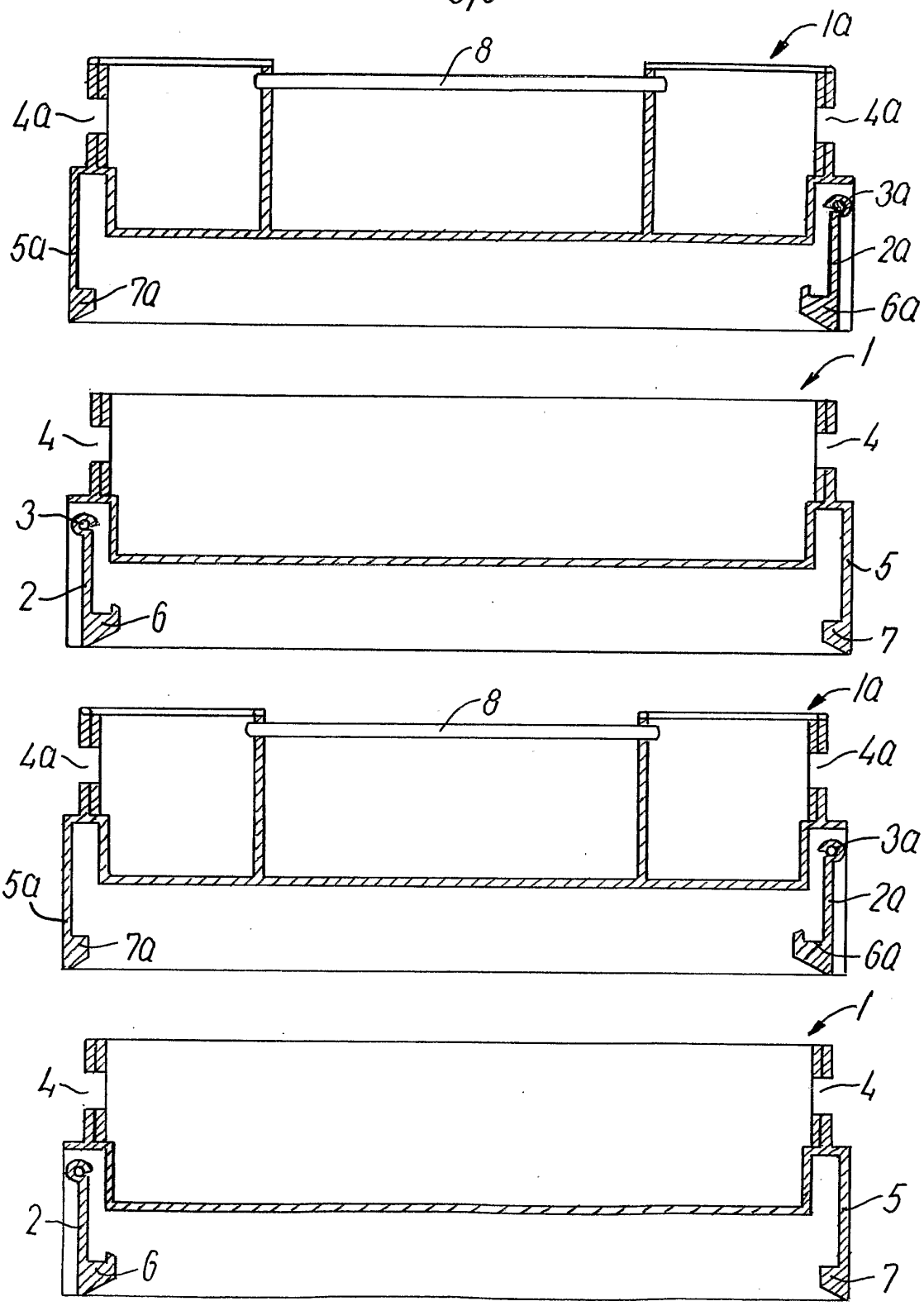


FIG. 2

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1725
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400



Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1726
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
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INTERNATIONAL SEARCH REPORT

International application No
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A45C B65D B25H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 42 01 264 A1 (FESTO KG [DE]) 22 July 1993 (1993-07-22) cited in the application column 1, line 35 - line 44	1,8
A	DE 94 06 521 U1 (JACOB FRANK [DE]) 14 July 1994 (1994-07-14) page 3, line 5 - line 14; figures 1-5	1,8
A	DE 78 28 640 U1 (ROX LEDERWARENFABRIKEN HAMANN KG, 8911 HOFSTETTEN) 4 January 1979 (1979-01-04) cited in the application figure 1	1,8

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 July 2007	30/07/2007

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Sundell, Olli

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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DE 9406521 U1	14-07-1994	NONE	
DE 7828640 U1	04-01-1979	NONE	

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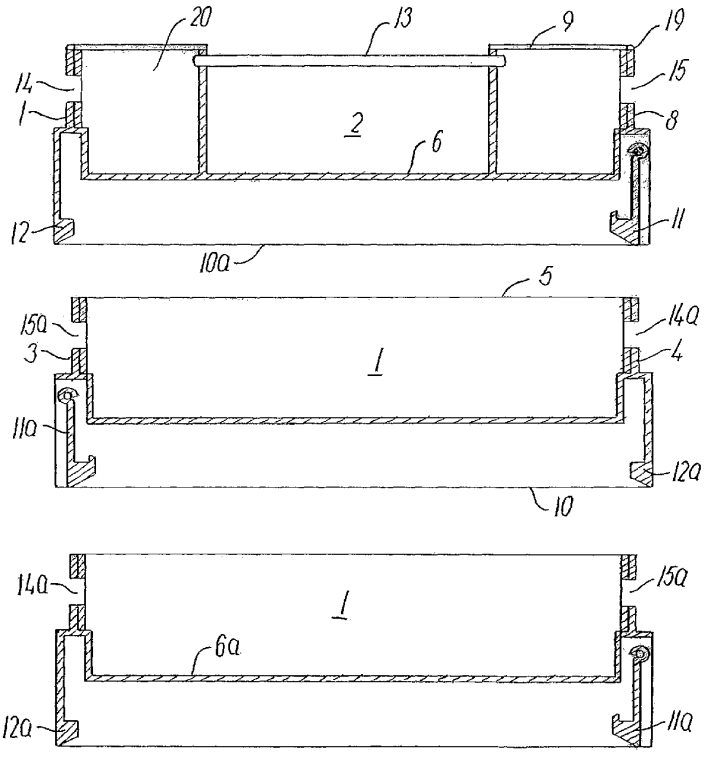
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[Continued on next page]

(54) Title: A STORAGE DEVICE COMPRISING TWO PARTS



(57) Abstract: A storage device for coupling at least one box (1) and at least one cover (2), having a carrier grip (13), together is formed by a lock or a snap lock (11, 11a), which is provided in the one gable (3, 8) or side wall of the cover or the box, while a locking pin (12, 12a) is provided in the opposite gable (4, 7) or side wall. The snap lock is adapted to engage a gripper flange (14, 14a), which is provided at the top of the gable (3, 8) or side wall of the box or the cover, while the locking pin (12, 12a) is adapted to engage a locking edge (15, 15a), which is provided in the opposite gable (4, 7) or side wall of the box or the cover. The invention provides a storage device, where a cover and a box may be coupled to and be disconnected from each other by a lateral movement of the cover or the box under the action of the carrier grip (13), so that the snap lock is not loaded by the weight of the cover in connection with the separation. In addition, assembly and separation of cover or box to/from the box or the cover may take place in a few seconds.

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PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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A storage device comprising two parts

The invention relates to a storage device comprising two parts, such as two boxes or a box and a cover, which parts may be stacked and coupled together, wherein each part has two opposed gables and a coupling means at each gable for detachably coupling the two parts together in a stacked state, wherein the coupling means at the one gable of the one part is arranged to cooperate with the coupling means at the one gable of the other part, wherein the coupling means at the other gable of the one part is arranged to cooperate with the coupling means at the other gable of the other part, and wherein the coupling means of both parts at the one gable are formed by a first coupling means having a snap lock function.
The invention moreover relates to use of the storage device.

Boxes having covers which may be coupled together are provided in several embodiments and sizes and are used in a multitude of connections. In particular for use as tool boxes, there are many types which are configured with various gadgets.

Boxes having covers are known, wherein covers and boxes may be coupled together in a mutual order by means of snap locks provided in the covers, and may thus be adapted to various needs.
The box systems thus known are extremely flexible, but may be vitiated by the drawback that the release of boxes and covers from each other is performed in that a user grips the snap locks in the gables of the boxes and/or the covers by both hands, which means that the weight of the boxes and the covers being released is transferred to the snap locks. To prevent breaking of these, they must therefore be made very sturdy.

Accordingly, an object of the invention is to provide a storage device for boxes having covers, where the weight of the cover or covers and/or the

box or boxes is not transferred to the snap lock.

The object of the invention is achieved by a storage device of the type defined in the introductory portion of claim 1, which is characterized in that the coupling means of the two parts at the other gable are formed by a second coupling device, wherein both coupling means may be coupled together with and be detached from each other by lateral displacement of the two parts relative to each other.

Hereby, the cover and the box may be detached from each other by release of the snap lock, so that the entire weight is not transferred to the snap lock, since parts of the cover are supported by the box or the cover, while the snap lock is released.

It should also be noted that assembly and disassembly of the cover on/from the box takes place in a few seconds, and consequently is very time-saving and simple and convenient for a user to handle.

Expediently, as stated in claim 2, the two coupling means in said second coupling means are formed by a pin, which is provided in the lower portion of the other gable of the part disposed at the top of the stack, as well as an edge arranged to engage the pin, said edge being provided in the upper portion of the other gable of the part disposed at the bottom of the stack.

Hereby, a simple and effective attachment of the cover to the box is achieved when the snap lock is in engagement. The same will apply if it is desired to couple two boxes or two covers together.

To completely prevent transfer of any weight from the cover to the snap lock, it is advantageous if, as stated in claim 3, the cover is provided with a recessed carrier grip at its upper side, whereby the carrier grip absorbs the entire weight of the cover and the boxes and covers coupled together below the cover, which it might be desired to have removed from the underlying

boxes and/or covers.

As stated in claim 4, it is expedient that the snap lock function is configured as a snap lock, which is configured as a moulded part in the gable or side wall of the cover or the box, which may engage the edge which is provided in the gable or the side wall of the cover or the box.

If a more sturdy, but also more expensive snap lock is desired, it is advantageous if, as stated in claim 5, the snap lock is formed by a gripper part which is spring-biased.

If, as stated in claim 6, the cover is provided with an edge at the top of both gables or side walls, and the cover is provided with a snap lock at the bottom of its one gable or sidewall and is provided with a locking pin in its other gable or side wall, and, as stated in claim 7, the box is provided with an edge at the top of both gables or side walls and with a snap lock at the bottom of the one gable and with a locking part at the bottom of the opposite gable, an arbitrary number of boxes and covers may be coupled together in a simple manner in an arbitrary order.

As mentioned, the invention also relates to use.
This use is defined in claim 8.

The advantage of this use is that the costs of packaging, pallets, sheeting, shipment and storage space may be reduced considerably relative to the costs associated with tool boxes assembled at the factory, since a compact concept is involved here.
With this packaging system, combined with the extremely quick assembly concept, the costs may thus be reduced to 30 – 40% of the corresponding costs of tool boxes assembled at the factory.

The invention will now be explained more fully with reference to the drawing, in which

fig. 1 shows a storage device according to the invention on a box having a cover, where the cover is separated from the box,

fig. 2 shows the storage device of fig. 1 during the coupling-together of the cover and the box,

fig. 3 shows the storage device of fig. 1 and fig. 2, where the cover and the box are coupled together,

fig. 4 shows a second embodiment of the invention, where two boxes are seen in perspective before they are assembled,

fig. 5 shows a third embodiment seen from the side and how the storage device is configured with a cover and two boxes,

fig. 6 shows the storage device according to the invention used in another embodiment, while

fig. 7 shows how boxes and covers with the storage device of fig. 4 may be stacked.

Figs. 1 – 3 show a box having a cover, where there is only one set of locking means which cooperate on a box and a cover, while figures 4 and 5 show boxes and covers, where cooperating locking means are provided both at the top and at the bottom of the boxes and the covers.

The figures show a box 1 which has gables 3, 4, a bottom 6a.
In the gables of the box near the open upper part of the box, the gable 3 is

provided with a coupling means in the form of a locking edge 15a, while the opposite gable 4 is provided with a coupling means in the form of a gripper flange 14a.

At the bottom of the gables of the box (only figs. 4 and 5), a coupling means in the form of a snap lock 11a is provided near the open lower part 10 of the box, while a coupling means in the form of a locking edge 12a is provided in its opposite gable.

The numeral 2 designates a cover which has gables 7, 8, a lid 9 and an open lower part 10a as well as a carrier grip 13.

A coupling means in the form of a locking pin 12 and another coupling means in the form of a snap lock 11 are provided at the bottom of the one gable of the cover, said snap lock having spring properties so that a hook on the snap lock is affected by a force directed inwardly against the gable.
A locking means in the form of a gripper flange 14 is provided at the top (only figs. 4 and 5) of the one gable of the cover, while another locking means in the form of a locking edge 15 is provided in the opposite gable.
Further, the cover may be provided with a lid 9, below which an insert part intended to store small tools, screws, nails and the like may be placed.

The mode of operation of the locking system will now be explained more fully with reference to figures 1 – 3.
From the position shown in fig. 1 where a user (not shown) has gripped the carrier grip 13, the gable 7 is moved down, so that the locking pin 12 engages the locking edge 15a.
Then, the cover 2 is pressed down in the direction of the arrow 16, following which the snap lock 11 engages the locking edge 14a, so that the cover 2 is secured to the box 1 by the locking system, which is formed by the snap lock 11, the locking pin 12, the gripper flange 14a and the locking edge 15a.

When, subsequently, the cover 2 is to be detached from the box, a user grips the carrier grip 13 by the one hand and releases the snap lock 11 from the gripper flange 14a by the other hand, following which the cover is lifted and displaced to the right, whereby the cover may be detached from the box.

When the cover is coupled together with and separated from the box, the cover remains in almost the same horizontal plane, as lateral displacements take place during the operations.

In addition, the snap lock 11 will never have to absorb the weight of the cover, which may optionally contain tools and the like.

The storage device according to the invention may be used in connection with the coupling-together of several boxes and covers of the type which is described in the applicant's above-mentioned DK Patent Application No. PA 2004 01454, as will be explained now in connection with figures 6 and 7.

Fig. 6 shows a box system which consists of a box 1 with a mounted cover 2, and a tray 18 having a carrier grip 17 is arranged inside the box 1, where the tray may e.g. contain small tool parts, nails, screws and the like.

The box has obliquely inwardly extending walls, which means that they may be stacked as shown at the bottom of fig. 7.

Moreover, the tray 18 may be moved into the cover 2 and be stacked as shown in fig. 7.

Hereby, an extremely compact system is provided, which occupies minimum space during transport and during storage at wholesalers and at retailers.

Thus, just an assembled box with cover and tray, as shown in fig. 6, need be displayed in a sales room, and when a consumer wants to buy a box with cover, he just takes a box from a first stack and then a cover with tray from a second stack, which may subsequently be coupled together in a few seconds by the locking system according to the invention.

PATENT CLAIMS

1. A storage device comprising two parts, such as two boxes or a box and a cover, which parts may be stacked and coupled together, wherein each part has two opposed gables and a coupling means at each gable for detachably coupling the two parts together in a stacked state, wherein the coupling means at the one gable of the one part is arranged to cooperate with the coupling means at the one gable of the other part, wherein the coupling means at the other gable of the one part is arranged to cooperate with the coupling means at the other gable of the other part, and wherein the coupling means of both parts at the one gable are formed by a first coupling means having a snap lock function, c h a r a c t e r i z e d in that the coupling means of the two parts at the other gable are formed by a second coupling device, wherein both coupling means may be coupled together with and be detached from each other by lateral displacement of the two parts relative to each other.

2. A storage device according to claim 1, c h a r a c t e r i z e d in that the two coupling means in said second coupling means are formed by a pin, which is provided in the lower portion of the second gable of the part disposed at the top of the stack, as well as an edge arranged to engage the pin, said edge being provided in the upper portion of the other gable of the part disposed at the bottom of the stack.

3. A storage device according to claim 1 or 2, c h a r a c t e r i z e d in that the cover is provided with a recessed carrier grip at its upper side.

4. A storage device according to claims 1 – 3, c h a r a c t e r i z e d in that the snap lock function is configured as a snap lock, which is configured as a moulded part in the gable or side wall of the cover or the box, which may engage the edge which is provided in the gable or side wall of the cover or

the box.

5. A storage device according to claims 1 – 3, c h a r a c t e r i z e d in that the snap lock is formed by a gripper part which is spring-biased.

6. A storage device according to claims 1 – 5, c h a r a c t e r i z e d in that the cover is provided with an edge at the top of both gables or side walls, and that the cover is provided with a snap lock at the bottom of its one gable or side wall and is provided with a pin at its other gable or side wall.

7. A storage device according to claims 1 – 6, c h a r a c t e r i z e d in that the box is provided with an edge at the top of both gables or side walls and is provided with a snap lock at the bottom of the one gable and is provided with a pin at the bottom of the opposite gable.

8. Use of a storage device according to claims 1 – 7 in connection with boxes and covers which are shaped conically.

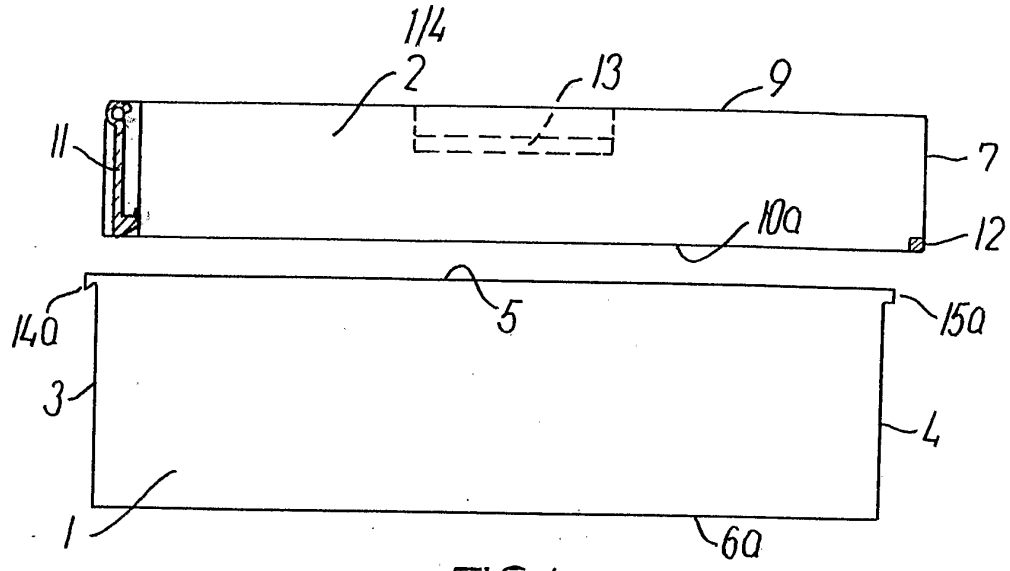


FIG.1

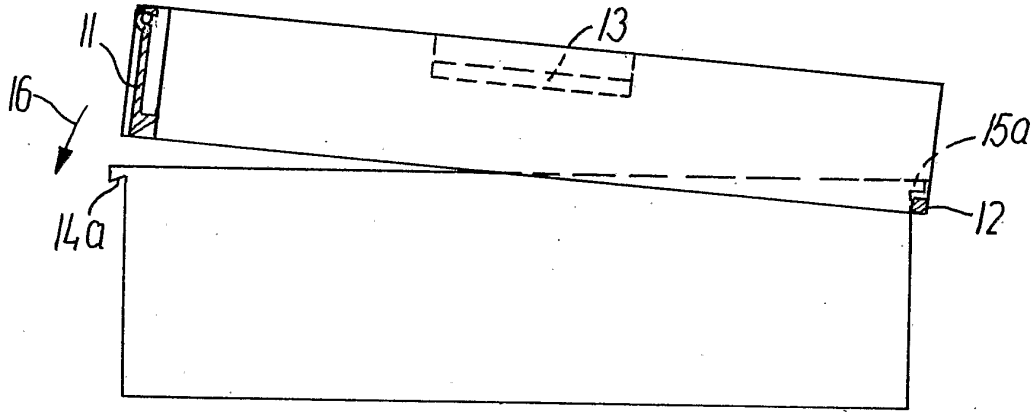


FIG.2

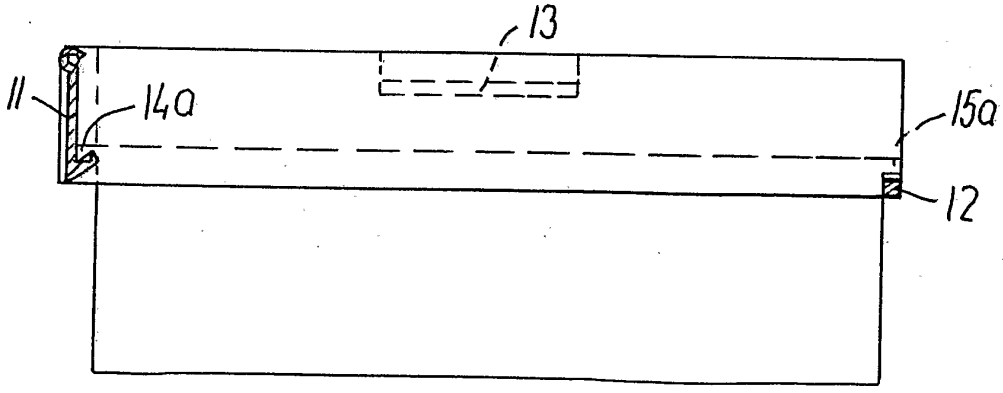


FIG.3

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Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

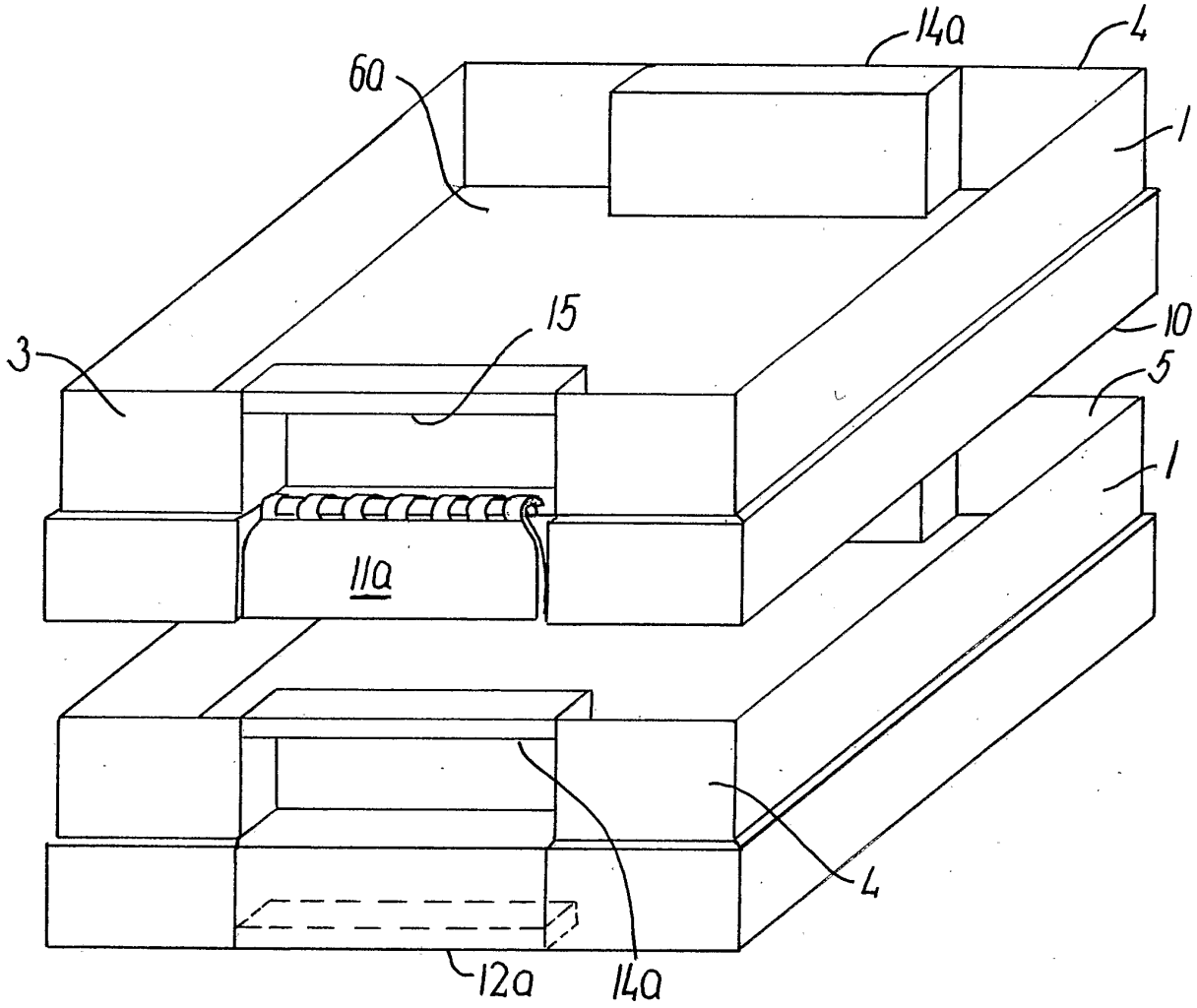


FIG. 4

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1740
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

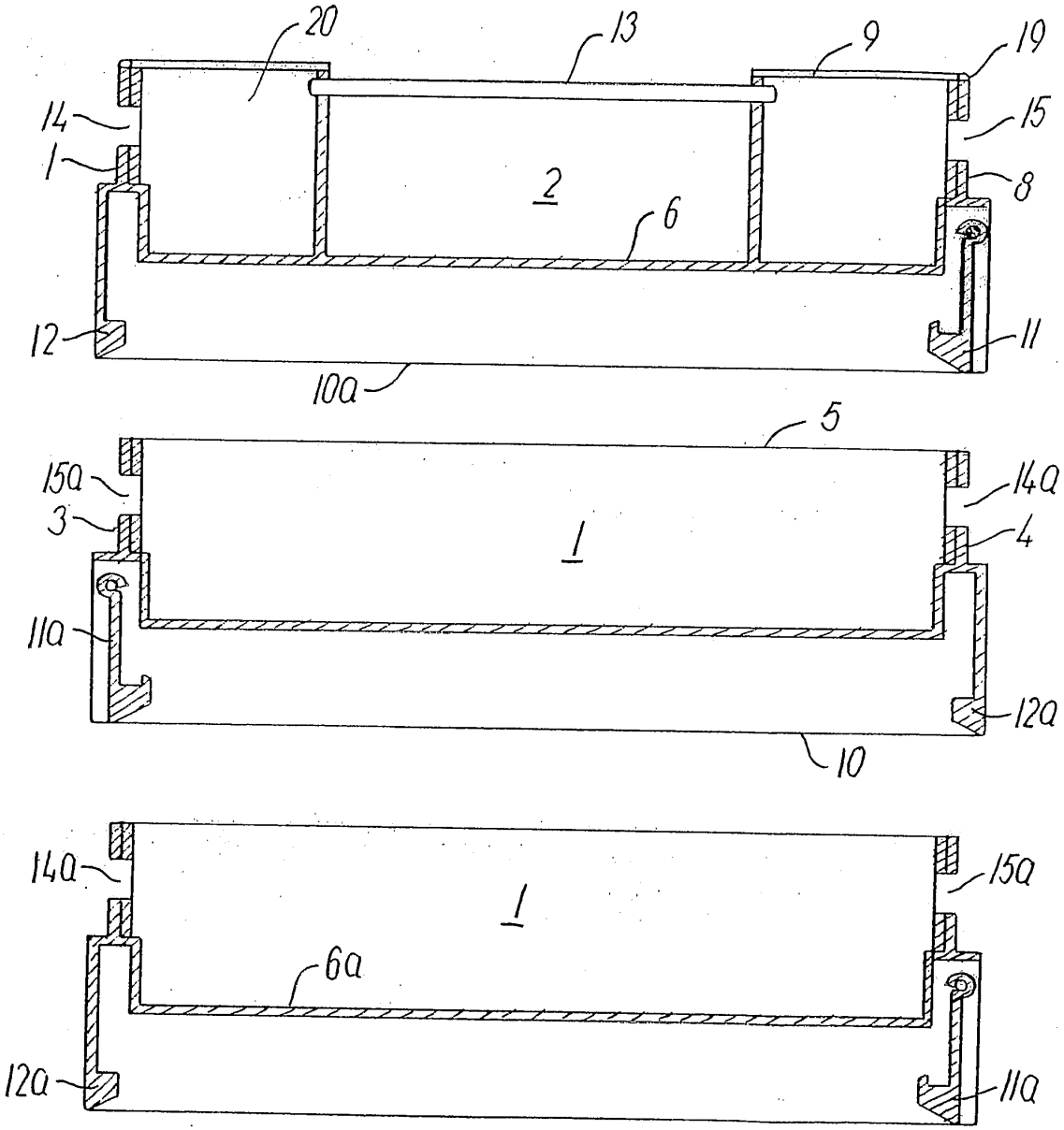


FIG.5

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1741
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

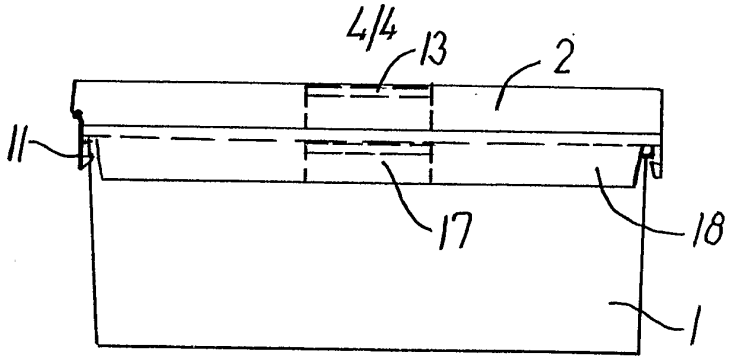


FIG. 6

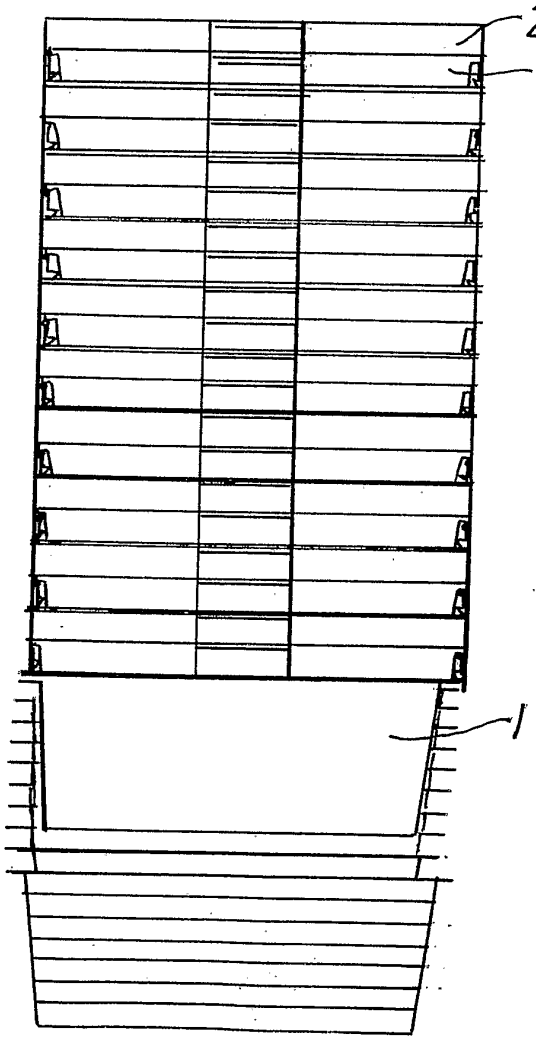


FIG. 7

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Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
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(54) **Title**: STORAGE ARRANGEMENT CONSISTING OF TWO PARTS SUCH AS TWO CASES OR ONE CASE AND ONE LID

Fig. 2

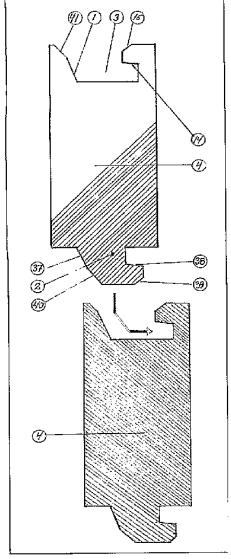
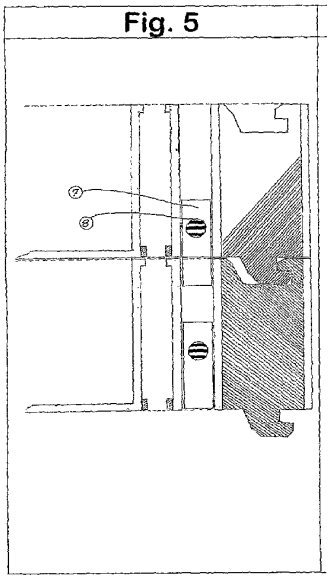


Fig. 5



(57) **Abstract**: u / The storage facility for coupling of at least one box and at least one lid is comprised of coupling units as shown in Fig. 2, bottom bridge 2 on the top box and top bridge 3 on the lower box. These must be tightly engaged via the conic flanges 14 + 38 and subsequently locked in the gear via transport lock 7. The primary objective of the invention is to provide a new and functional storage system for tools, equipment and minor parts, which makes it easy to locate what you are looking for and where the objects are easy and fast accessible. Furthermore, it is possible to produce the invention in an inexpensive way and still make it robust and easy to assemble as well as disassemble in only a few seconds.

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Storage arrangement consisting of two parts such as two cases or one case and one lid.

The invention concerns a storage arrangement that includes two parts such as two cases or one case and one lid, which parts can be stacked and connected to each other and where each part has two opposite gables and by a coupling unit in each of the two gable corners for separable connection of the two parts in stacked condition, caused by the four coupling units having one in each corner, is arranged to cooperate with the coupling units of an underlying case or lid, which also are placed in the four corners.

The bottom part of each case is in each of the four corners provided with a bottom bridge and in the four corners of the top part with a top bridge. When the bottom bridges of the top case are placed above the opposite top bridges of the lower case they will easily get in gear and with a slight sidewards push be brought into a tight and compact condition. A transport lock placed in tight connection to one of the connecting bridges (bottom- and top bridges), can be activated outside the case with a little downwards push and provide a blocking for separation of the four sets of connecting bridges and as such also for separation of the two cases or case and lid.
As such cases can be connected unlimited. A craftsman f. inst. can have a set of cases (tower) existing of six – eight cases on top of each other. The value of tools and technical equipment in f. inst. six – eight cases can be extremely high and it can be desirable to lock the whole system (tower). A lock against theft can be integrated in the system with a blocking lock only operational inside the cases. A spring loaded security lock in full height of all cases can be activated with a downwards push and then be locked with a little twist. If f. inst. six cases are stacked on top of each other it will be possible with a push on the security lock on the top case to activate all the security locks of all underlying cases. On the top case a lid with a handgrip can be placed and on the lid can be placed a lock, f. inst. a digital code lock. During this, the whole case system (tower) is locked.

Cases with lids that can be connected are available in various designs and sizes and are being used in many connections. Many tool cases are available with various features.

Normally tool cases and stackable cases are designed with a hinged lid. There are stackable cases with hinged lid that in principle can be stacked and connected unlimited.

The coupling for these case systems normally takes place with snaplocks and/or locking clips. Snaplocks can be springloaded and provide automatic locking. Locking clips normally have to be operated by hand for both locking and unlocking. The disadvantages by these locking clips are that they by low temperature can be tight and difficult to operate (broken nails). They can also be worn, break into pieces and because it is a separate component it can fall off and disappear, where after the system does not work anymore. With a well known case system the coupling is made via four locking clips per case. By coupling of f. inst. six cases it means five cases with each four locking clips = in total twenty locking clips to be pressed in locking position. By separating the case system the process has to be repeated with twenty times finger releases. Furthermore it is a well known disadvantage by existing coupling systems that the coupling is not tight and compact and leaves a space in between the cases from 1,5 to 3,0 mm when lifting in the top case or top lid (accordion effect).

Coupling with snaplocks can be automatic in the locking process and as such very quick. Very often these snaplocks are separate components that can be worn, come to pieces or fall off. In addition these locks will not establish a tight and compact coupling and therefore not provide the desired breaking strength and wearing quality.

The purpose with the invention is to provide a connecting bridge for stackable cases and lids that can raise the desired and needed demand for strength and to avoid breakage in connection with daily use, wear and tear and in addition a simple and quick operational system. Other points and

functions are also a part of the invention and are described following.

The purpose with the invention is considered by a storage arrangement as described in the introduction to claim 1 that is characteristic by that in each of the four corners of the storage arrangement (case) a connecting bridge is moulded together from top to bottom of the case. The connecting bridge is constructed with a top bridge on top and in bottom a bottom bridge.

By coupling of two cases the bottom bridges of the top case will meet the top bridges of the lower case and they will easily fall in gear because of the conical catch flanges on both top- and bottom bridges. The final coupling is made by a slight sideward push on the top case. To secure this coupling, are by at least one of the four connecting bridges moulded together two vertical houses for locking (columns). In one of these is placed a vertical lock (transport lock) that can be operated from outside the case and with a slight downwards push bring the transport lock in a blocking position and secure that all four top bridges and bottom bridges are in gear.

The other vertical column for locking can be used as a security lock as described following.

Because of the special design of the conical top- and bottom bridges the coupling can happen very quick and a push on the locking knob placed outside the case will bring the transport lock in blocking position tight to the connecting bridge.

The four connecting bridges are placed in the outer corners of the cases and as such providing optimal strength and stability in the coupling. The connecting bridges including top- and bottom bridges are moulded together with the gable, sidewall and bottom of the cases and as such providing optimal strength and stability.

The connecting bridges are moulded together with the case and as such there are no loose components that can be worn, go apart, fall off and disappear.

Because of the construction where all the basic elements of the case are moulded together a very advantageous and inexpensive cost price can be obtained.

Alternatively to four connecting bridges per case it could be considered for lighter and private use only to use two connecting bridges, f. inst. one in each gable of the case. Because of the construction with the conical locking frames on top- and bottom bridges and combined with the accuracy available by plastic moulded subjects it will be possible to avoid accordion effect because the coupling will be tight and without wobble.

This also provides a robust impression in connection with the security lock and use of the system (tower) as a sack trolley.

The transport lock keeping the top- and bottom bridges in tight gear can be activated by a locking knob placed outside the cases. The process of locking and unlocking will only take one second.

The locking column for the security lock is moulded together with the case and the connecting bridge for optimal strength and stiffness. The security lock is in same height as the outer dimension of the case and is equipped with a push spring that at all time will try to position the security lock within the height of the case.

The security lock is being activated by a downward push from above and will after four to six mm's movement provide a total blocking and as such secure the coupling. The security lock has a locking arm that can be twisted, get in gear and fix the locking.

If f. inst. six cases are stacked on top of each other the six security locks will in principle be in contact with each other meaning that when the security lock of the top case is activated downwards the security locks of all underlying cases will be brought in blocking position and the final locking with the small locking arm is only needed inside the top case. The security lock can only be operated inside the cases. When the small locking arm in the vertical house for locking is turned back again the push spring will bring all six locks back to the starting point. Upon the top case will be placed a lid with an integrated lock f. inst. a digital padlock and the whole system is locked up.

As such the security lock is extremely quick to operate for unlocking the

system (tower) f. inst. consisting of six cases. Some users could choose to use the security lock as transport lock because only one action (one second) is needed for locking or unlocking the whole tower.
Both transport- and security locks are very robust and strong caused by the construction in which they are placed in the vertical houses moulded together with the gables, sidewalls and bottom of the cases.

The four bottom bridges can be provided with small rubber shoes and then be used as feet, which will protect against dust and scratches on the cases as well and on tables, shelves and floors on which the cases might be placed.

By a selection of extension walls (cases without bottom) existing height of the cases can be enlarged and the volume of the cases will also be enlarged. The extension walls also have a connecting bridge in each of the four corners and can as such be coupled and locked random with the other cases. If f. inst a case is 100 mm high and two extension frames of each 100 mm are placed on top the height of the case will be 300 mm.

With a case system, as here mentioned, with extreme tight and compact connection it is obvious to provide a rolling transport of the set (tower). A bottom box has two wheels that only will obtain contact to the foundation by a 15° backwards inclination. Because the whole set (tower) is very compact and stiff it will in principle be possible to transport it as an ordinary sack trolley.

A transparent lid (possibly disposable) means that a supplier of machines, hand tools, accessories, screws, bolts, etc. can prepare and pack "a set", place the transparent lid on top of the case and seal it. With this the end user (final customer) is secured, that "the set" is complete in the buying situation and when sealing is broken.

A small opening locked with a transparent plate in the walls of the cases provides a visual view to the contents of the cases. The transparent plate is placed in an insert frame and can easily be replaced by a not transparent plate on which can be indicated contents etc. Without any indications this plate will simply just block for view into the case.

The invention also concerns the practical use.

With the previous mentioned basic ideas and features the modern craftsmen can look forward to a more organised and structured separation, handling and transport of tools, equipment, etc.

With the quick disassembly and assembly of the cases, combined with the visual overview of the contents the craftsmen can choose and couple together exact the cases needed for today's work. The transport of the set is wheeled (sack trolley concept).

Following the invention will be described with reference to the enclosed drawings and photos.

Fig. 1 showing two connecting bridges assembled and disassembled.

Fig. 2 showing two connecting bridges disassembled and with more details inclusive conical locks and catch flanges.

Fig. 3 showing two cases in which the connecting bridges in the corner unit are moulded together with the houses for transport- and security lock.

Fig. 4 showing the same as Fig. 3 but now with the transport lock in both cases.

Fig. 5 showing the same as Fig. 4 but with the transport lock of the top case in blocking position.

Fig. 6 showing the two cases with both transport- an security lock in neutral position.

Fig. 7 showing the same as Fig. 6 but with the security lock in blocking position on both top- and bottom case.

Fig. 8 showing transport- and security lock in the four possible positions in respectively 8A – 8B – 8C – 8D. The gable of the case is marked on 8A.

Fig. 9 showing a set of stacked cases (tower) where one of the two integrated transport wheels can be seen lowest at right.

Fig. 10 showing a set of cases (tower) with lid, code lock and carrying-grip.

Fig. 11 showing an extension frame without bottom but with the four connecting bridges.

Fig. 12 showing a 100 mm high standard case.

Fig. 13 showing a 100 mm high standard case with a 100 mm high extension frame placed and the transport lock is locked.

Fig. 14 showing a standard case with two extension frames on top.

Fig. 15 showing a case with a drill and a cable reel as a packed set. Closing of the case can be done with a transparent lid that can be sealed. It means that both the retailer and the end user can be sure that the set is complete.

Fig. 16 showing a case with an inside insert frame with a transparent window for view into the contents of the case.

Fig. 17 showing a case like in Fig. 16 on which the transparent window is replaced be a plate for indication of the contents.

Following the invention will be described with reference to the enclosed drawings/photos and the reference numbers used.

On Fig. 1 is shown the basic drawing of the connecting bridge (4) on which the bottom bridge (2) is framed like a downwards positive L-profile (male) which falls in gear with the top bridge (3) of the underlying case which is framed like a negative L-profile (female).

On Fig. 2 is shown the top bridge (3) with a direct frame (1) which will meet the catch flange (40) on the bottom bridge (2). To simplify and make an easy and safe placing of the top case on the lower case are both top bridge (3) and bottom bridge (2) provided with conical catch flanges (15 + 41) and (39 + 40). To secure a right and compact coupling both top bridge (3) and bottom bridge (2) are constructed with conical locking frames (14 + 38). When top case (10) is placed on top of the lower case (11) the direct frame (1) and the conical catch flange (40) will automatically bring the coupling parts in gear. A slight sideward push will bring the connecting bridges (4) in tight gear and as shown on Fig. 5 the transport lock (7) will block for disassembly and keep the connecting bridges in tight and compact coupling. The transport lock (7) can be activated outside the case by locking knob (8). As it appears on Fin. 5 the transport lock (7) is placed very close to the connecting bridges (4) and thus the coupling is free from wobbles and slack and at the same time robust and almost impossible to break open.

On Fig. 6 is shown the security lock (9) placed in mutual connection with connecting bridge (4) and transport lock (7). Security lock (9) is assembled with a push spring (18) and the set is placed in house for security lock (12) and fixed with a press bushing (17) which at the same time controls and supports the locking tap (19).

As it appears on Fig. 6 and Fig. 7 the two security locks (9) are in contact with each other. When the security lock (9) of the top case is pushed downwards it will automatically move the security lock (9) in the lower case downwards. At the same time the locking tap (19) of the top case is positioned in blocking position with the house for security lock (12) on the lower case.

It means that the security lock (9) of all upon each other placed cases can be activated by just activating the security lock (9) of the top case. Following the final locking can be made by a little twist with locking arm (13). A fine point could be to use the security lock as transport lock. All stacked cases locked via one activation of the security lock (9) of the top

case. Spend of time: 1 second.

All shown examples only show open cases stacked and with a lid on top. If one want a case cases with lids stacked, meaning a case + a lid + a case + a lid etc., it is possible because both the transport lock (7) and security lock (9) can be integrated in the separate lid which then can be stacked and locked with the same system as in the cases, although with a hole in the lid for activating the security lock (9).

On Fig. 9 and Fig. 10 is shown a stacked set (tower 36) with the special bottom case (24) in which the two transport wheels (20) are integrated. The tower (36) is finally on top closed with a lid (21) with carrying grip (23) and a code lock (22).

Fig. 11 shows an extension frame (27) without bottom. The corner unit (5) can also be seen here.

Fig. 12 shows a standard case (28) with bottom and connecting bridge (4) and top bridge (3).

Fig. 13 shows a standard case (28) and an extension frame (27) coupled together.

Fig. 14 shows the same example but with two extension walls (27). As it can be seen it gives a great flexibility to adjust cases in different heights.

Fig. 15 shows a standard case (28) in which a drill and a cable reel is placed. This kind of "combination-pack" is often used by manufacturers as promotional idea for machines, accessories, screws, bolts, nails, plugs etc. It is highly essential for as well manufacturer, retailer and the final end user to be sure that "the set" is complete.
The innovation is here that a transparent lid (29) is placed in a

countersinked frame (32). A sealing can be made by a warm-up/melting into the frame or alternatively via one or two hot melted straps. A carrying grip (30) as well as a hole (31) for the security lock (9) is a possibility, when the transparent lid is wanted for future and continuous use. The transport lock (7) can be operated from outside with the locking knob (8).

Fig. 16 shows the case with a transparent window (33) that inside the case is pushed down in an insert frame (34). The same insert frame (34) is used on Fig. 17 but with the transparent window replaced by a plate (35) for indication of contents.

Patent Claim

1. Storage facility comprising two or more boxes or a box and a lid, all parts that can be stacked and interconnected and where the boxes or lids have opposite facing gables and where the connecting bridge (4) is placed in the four corners or with one connecting bridge (4) on each of the opposite facing gables, whereby the bottom bridge (2) of the upper box or lid interconnects with the top bridge (3) of the below box or lid characterized by the bottom bridge (2) of the top box or lid being shaped as a downward pointing L profile (male part), which interconnects with the top bridge (3) of the below box, which is shaped as an L profile (female part).

2. Storage facility according to requirement 1 characterized by having the four connecting parts in the four outer corners of the boxes or lids.

3. Storage facility according to requirements 1-2 characterized by the connecting parts being cast together with the bottom and side walls of the boxes and the top and side walls of the lids.

4. Storage facility according to requirements 1-3 characterized by the connecting parts being cast together with boxes or lids and connecting via the four cast-in connecting parts.

5. Storage facility according to requirements 1-4 characterized by a construction that allows injection moulding of box and connecting parts or lid and connecting parts in one process.

6. Storage facility according to requirements 1-5 characterized by one or more of the connecting parts being cast together with a locking column.

7. Storage facility according to requirements 1-6 characterized by a construction that creates very close contact between connected boxes and lids.

8. Storage facility according to requirements 1-7 characterized by one or more of the connecting bridge being cast together with a cavity in which a security lock is placed.

9. Storage facility according to requirements 1-8 characterized by having a plexiglass in front of the catch on the locking device.

10. Storage facility according to requirements 1-9 characterized by the security locks' proximity to the connecting bridges and the fact that the security locks will interact with the below security locks, when the boxes or lids are placed on top of each other.

11. Storage facility according to requirements 1-10 characterized by having small soft rubber buttons underneath the four bottom bridges.

12. Storage facility according to requirements 1-11 characterized by wall systems, which are boxes without bottoms and with the same connecting system as boxes and lids.

13. Storage facility according to requirements 1-12 characterized by having transparent glass or plexiglass in the box gables or sides.

14. Storage facility according to requirements 1-13 characterized by having one bottom box with two transport wheels.

Fig. 1

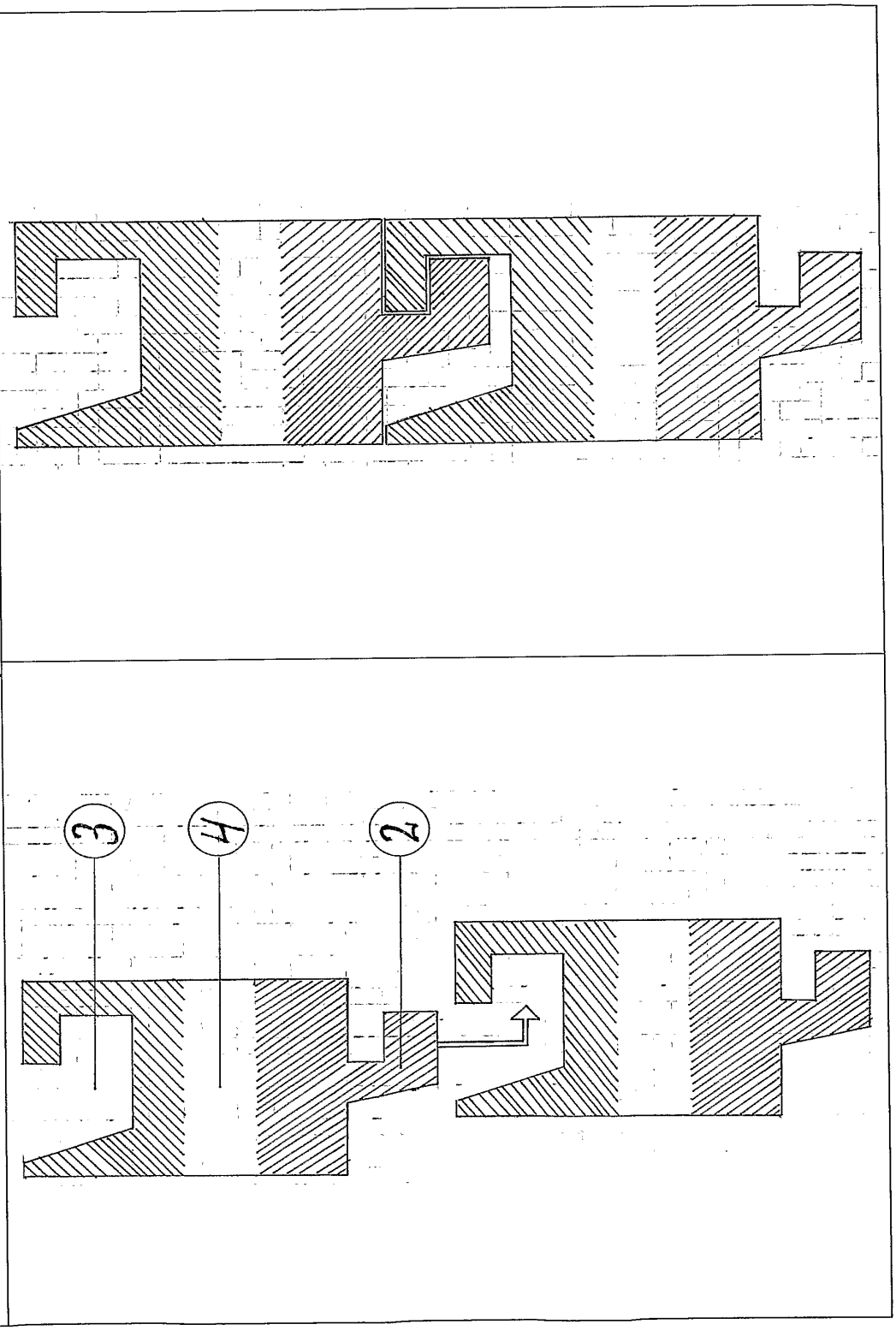


Fig. 4

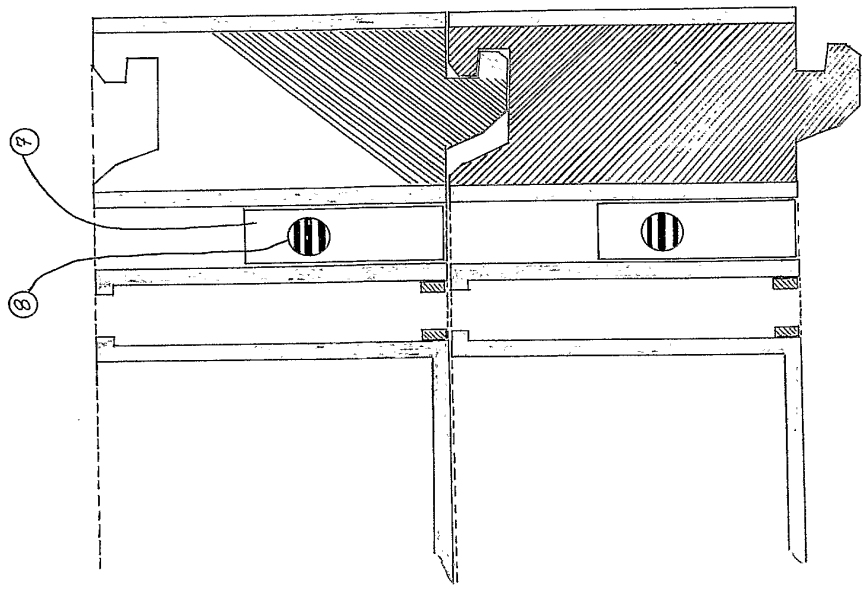


Fig. 3

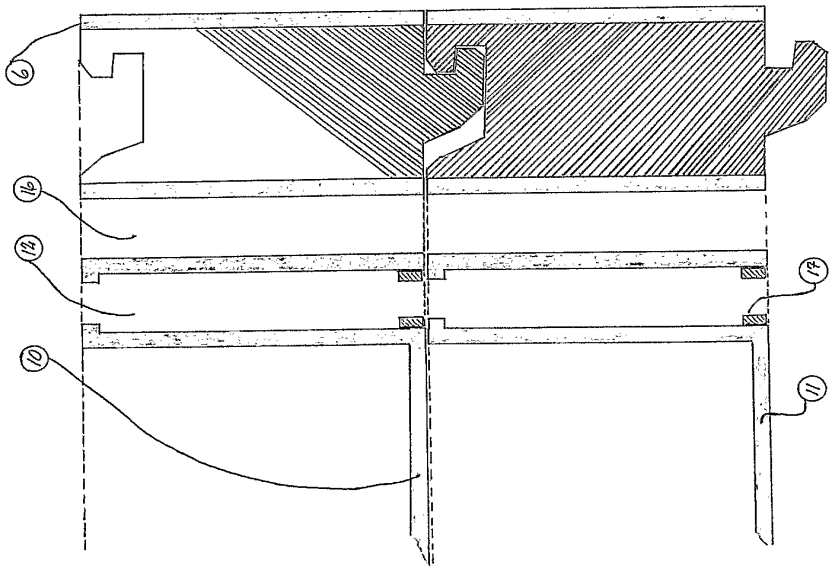


Fig. 2

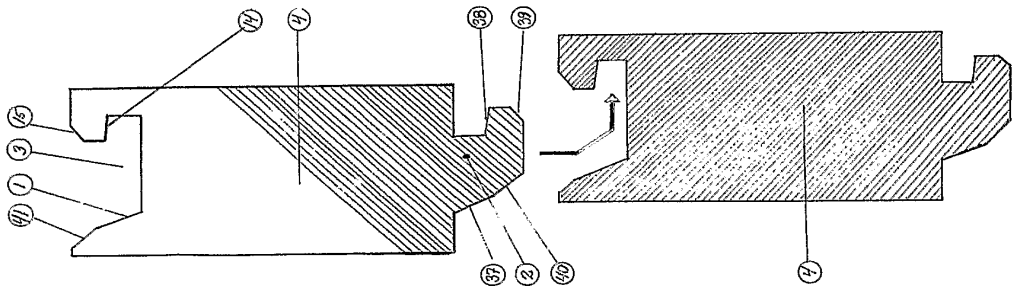


Fig. 7

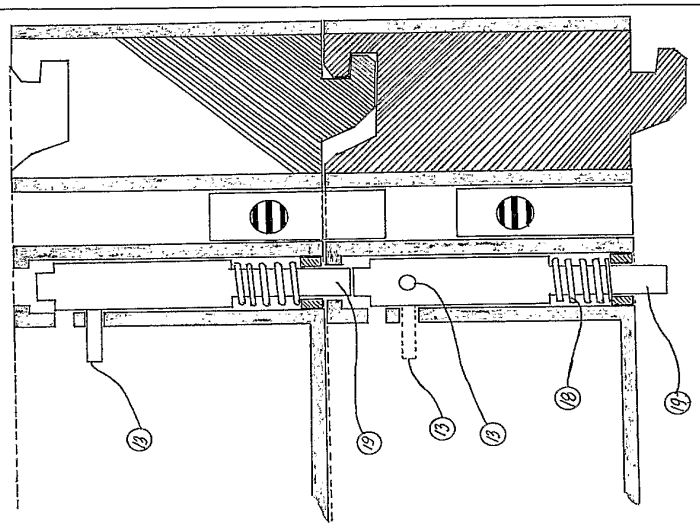


Fig. 6

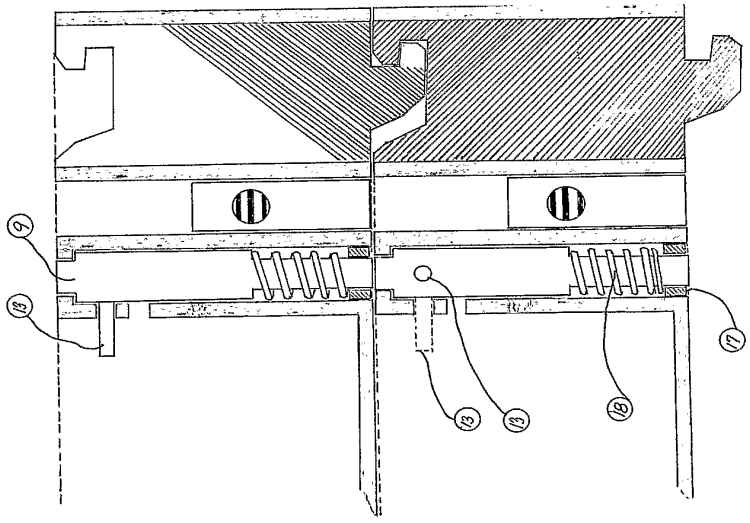
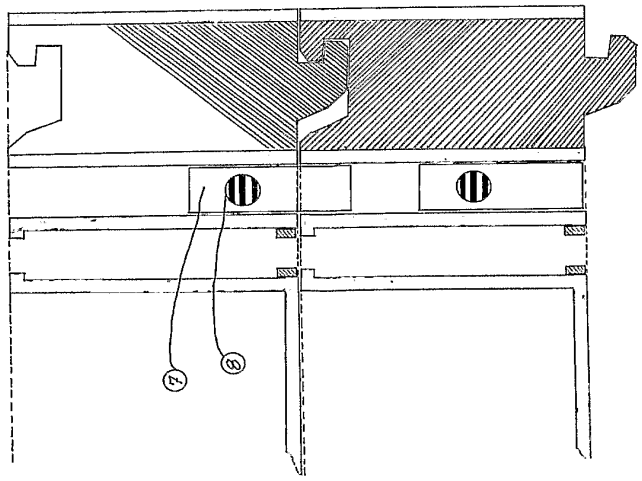


Fig. 5



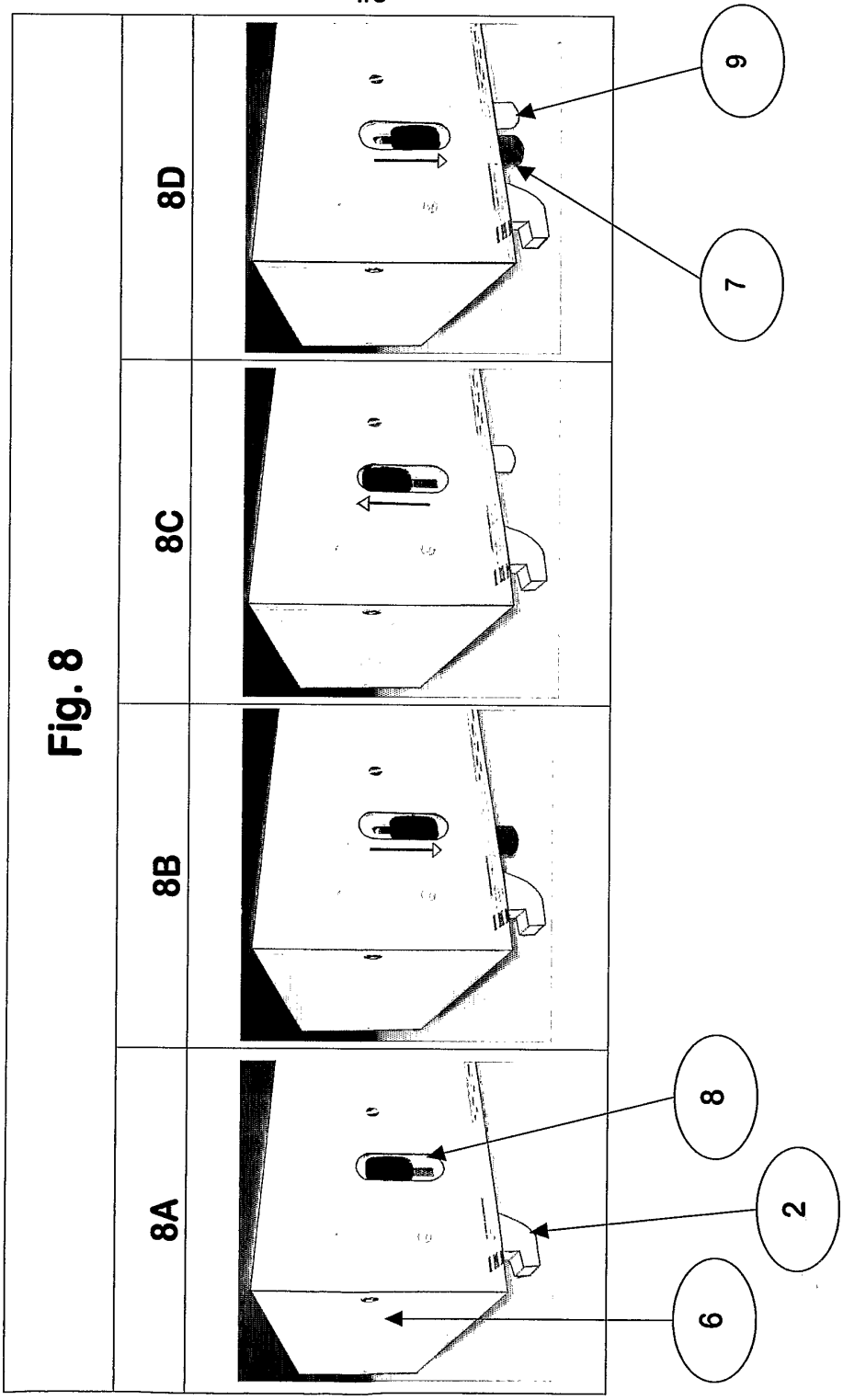


Fig. 8

Fig. 9

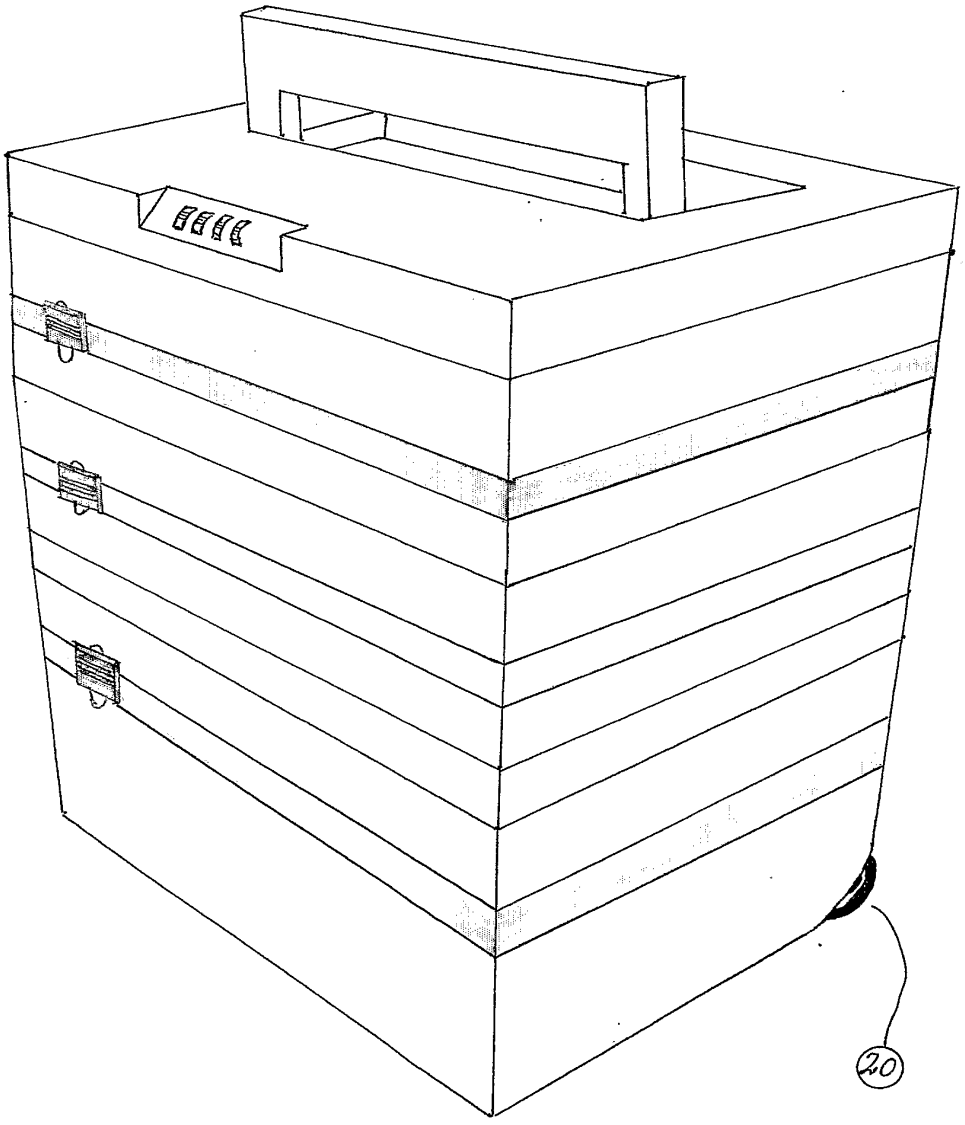


Fig. 10

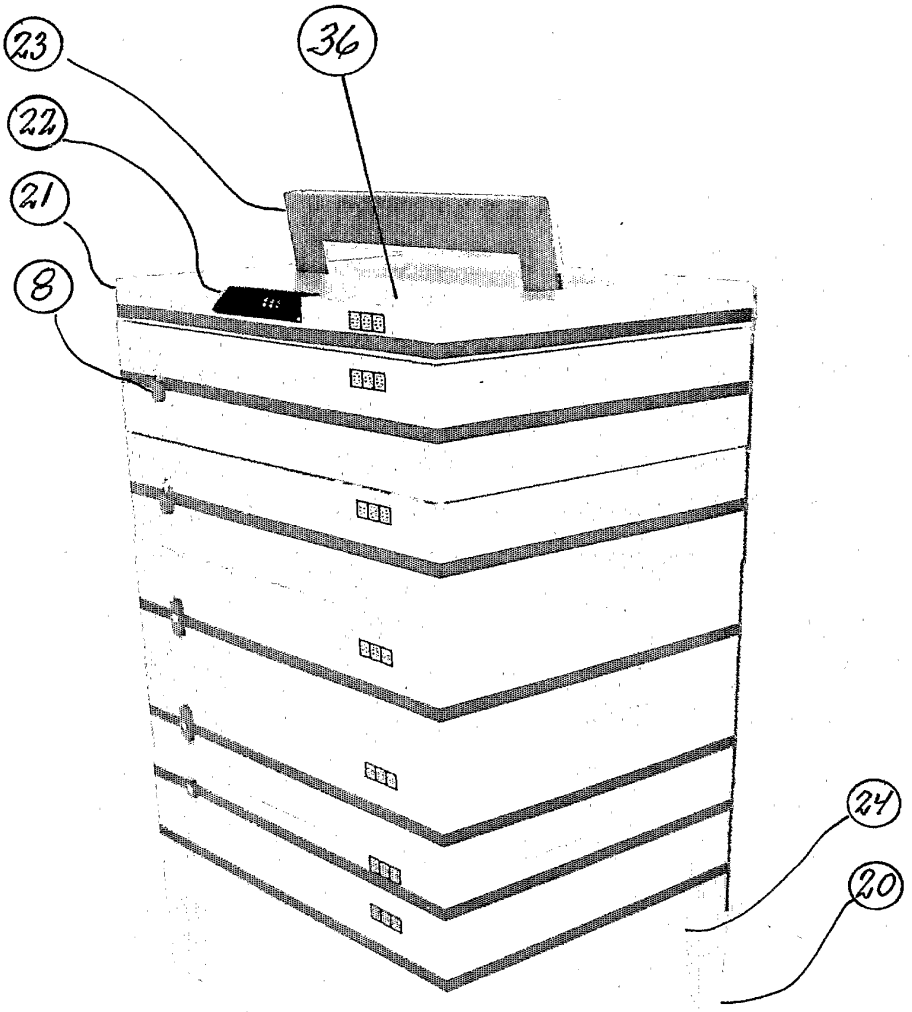


Fig. 11

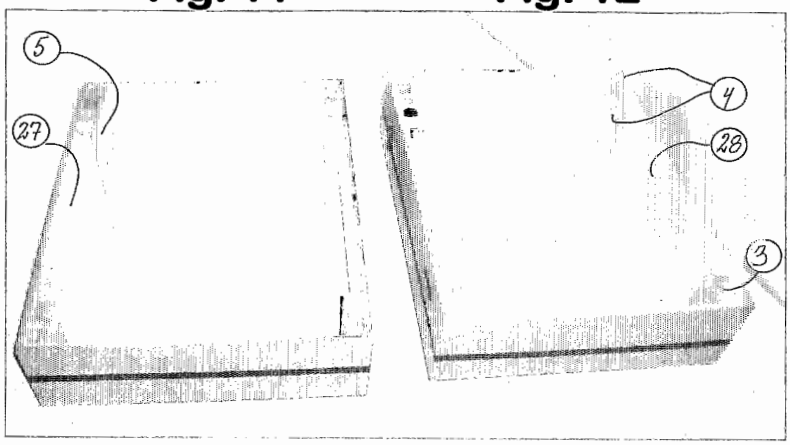


Fig. 12

Fig. 13

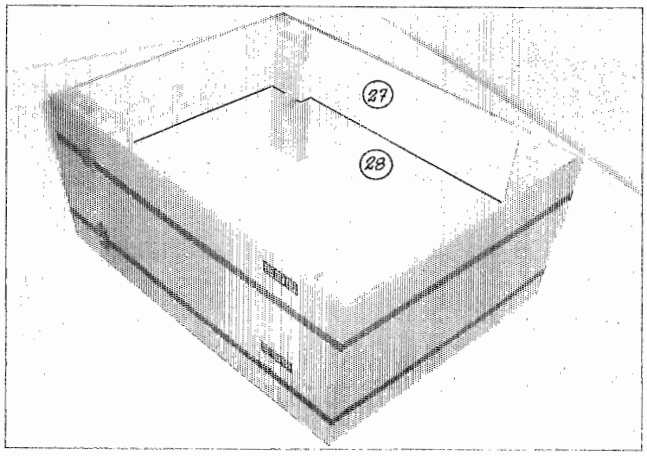


Fig. 14

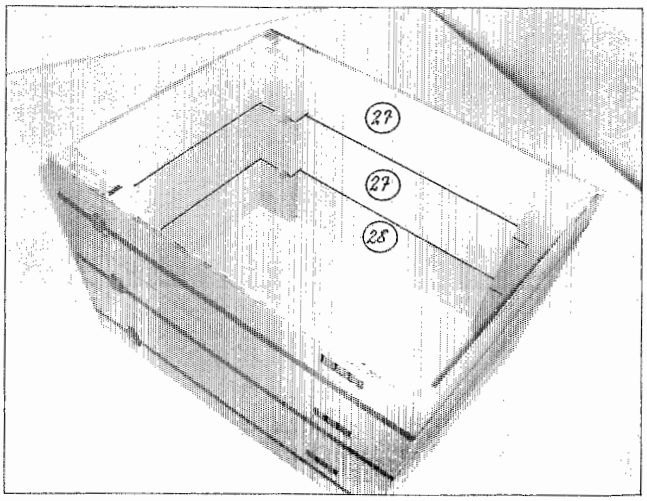


Fig. 15

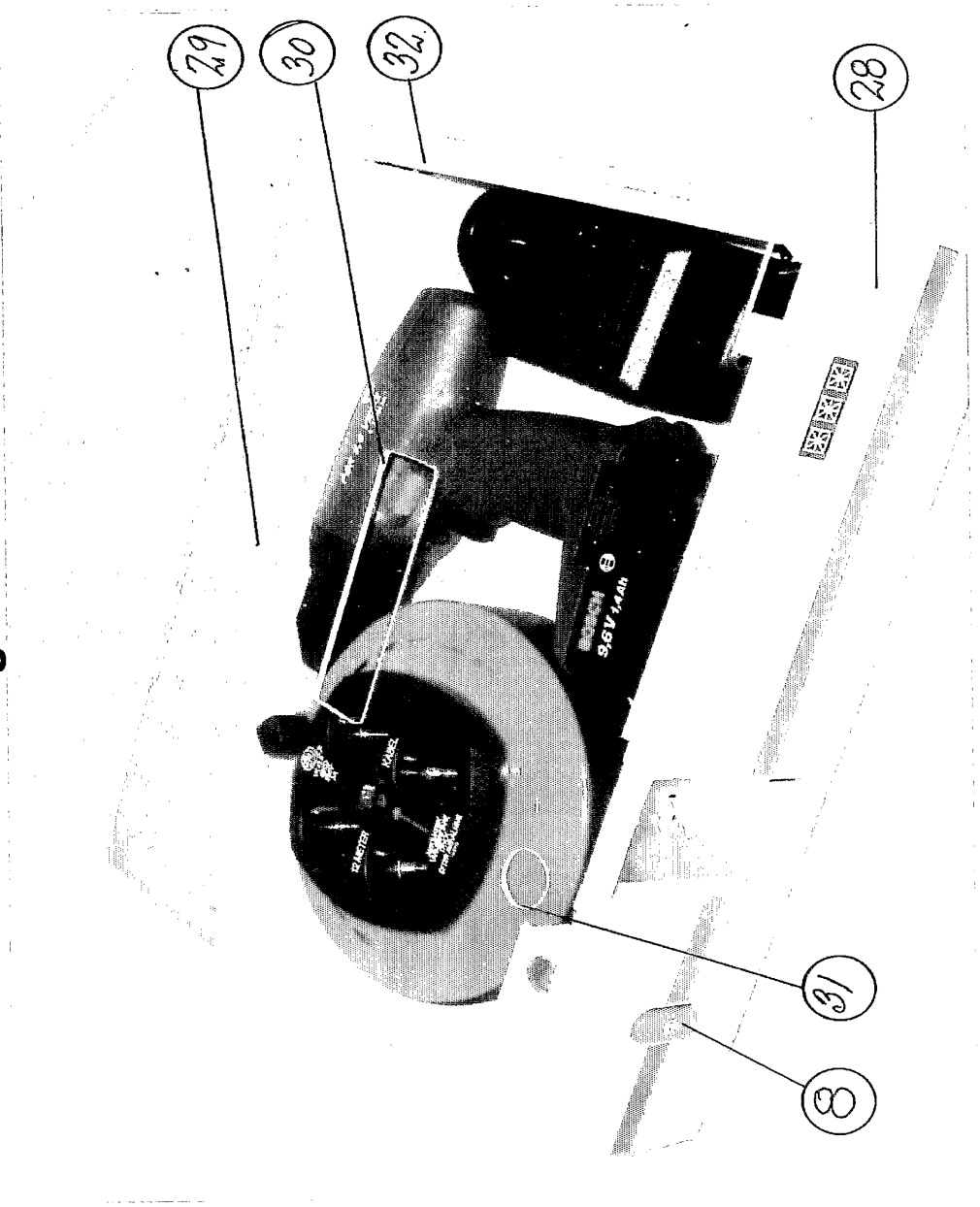


Fig. 16

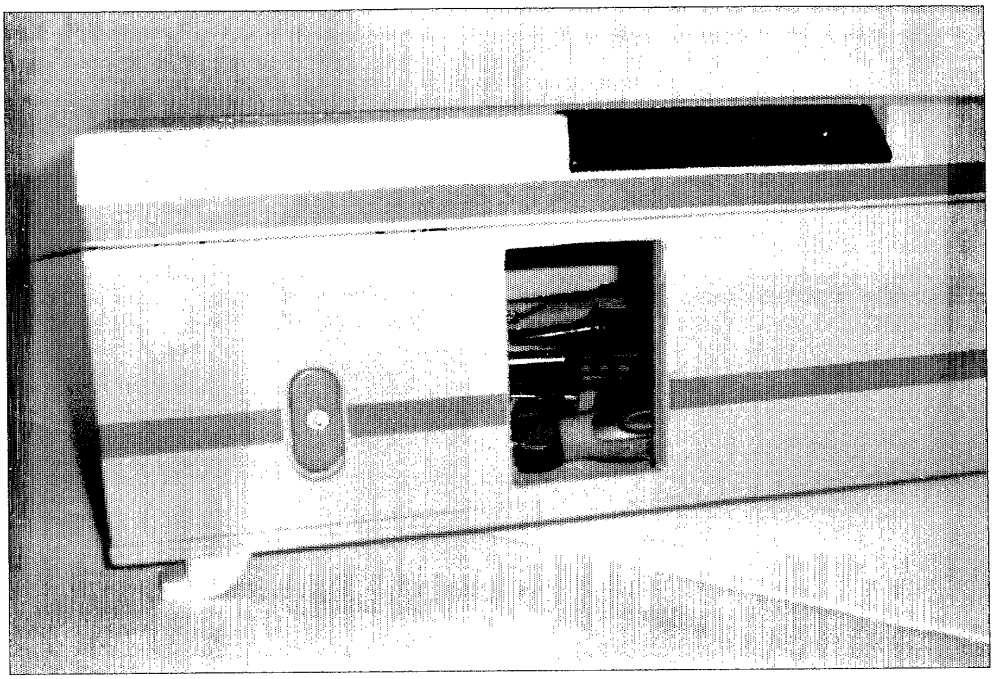
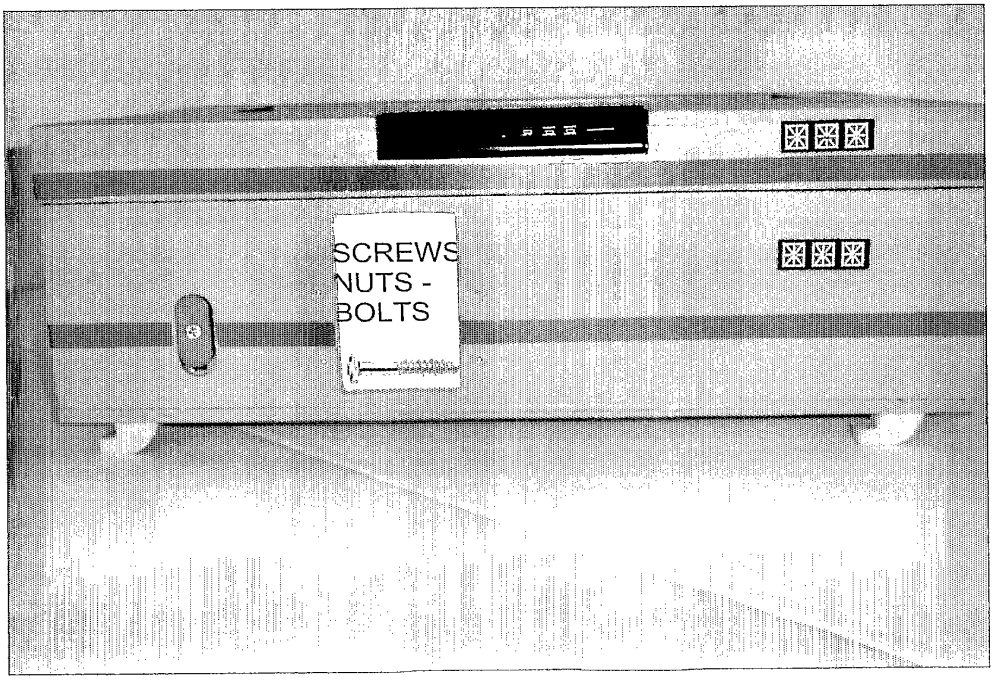


Fig. 17



INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK2009/000107

A. CLASSIFICATION OF SUBJECT MATTER

B65D 21/032 (2006.01), B25H 3/02 (2006.01)
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D, B25H, E05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2005/021221 A1 (CARBONE) 10/March/2005	1-14
A	US 4293072 A (HILL et al.) 6/October/1981	1-14

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
06 August 2009	18 August 2009
Name and mailing address of the ISA/ Nordic Patent Institute Helgeshøj Allé 81, 2630 Taastrup, Denmark Facsimile No.	Authorized officer Lisbet Hansen Telephone No. +45 4350 8115

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/DK2009/000107

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(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

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(75) Erfinder/Anmelder *(nur für US)*: **RICKLEFSEN, Dirk** [DE/DE]; Poststrasse 23, 73773 Aichwald/Aichelberg (DE). **HESS, Stefan** [DE/DE]; Schwalbenweg 37, 71397 Leutenbach (DE). **HENSEL, Maic** [DE/DE]; Glemsweg 6, 71522 Backnang (DE).

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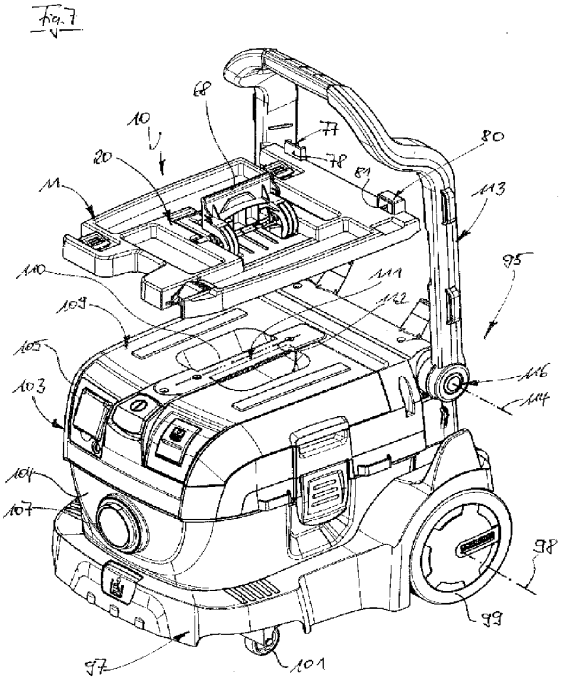
(81) Bestimmungsstaaten *(soweit nicht anders angegeben, für jede verfügbare nationale Schutzrechtsart)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Bestimmungsstaaten *(soweit nicht anders angegeben, für jede verfügbare regionale Schutzrechtsart)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), eurasisches (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europäisches (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI,

[Fortsetzung auf der nächsten Seite]

(54) Title: ADAPTER DEVICE FOR A PORTABLE CLEANING APPLIANCE AND CLEANING DEVICE HAVING AN ADAPTER DEVICE AND A CLEANING APPLIANCE

(54) Bezeichnung : ADAPTERVORRICHTUNG FÜR EIN TRAGBARES REINIGUNGSGERÄT SOWIE REINIGUNGSEINRICHTUNG MIT EINER ADAPTERVORRICHTUNG UND EINEM REINIGUNGSGERÄT



(57) Abstract: The invention relates to an adapter device (10) for the arrangement of a container (120) on the housing (105) of a portable cleaning appliance (95). The adapter device (10) comprises an adapter plate (11), which can be placed on the top surface (109) of the housing (105) and which has a storage surface (20) on the top side for placing the container (120), and a locking device (60) for detachably locking the adapter plate (11) to the housing (105) of the cleaning appliance (95) without tools. The invention further relates to a cleaning device comprising a cleaning appliance (95) and such an adapter device (10).

(57) Zusammenfassung: Adaptervorrichtung (10) für die Anordnung eines Behälters (120) am Gehäuse (105) eines tragbaren Reinigungsgerätes (95). Die Adaptervorrichtung (10) umfasst eine Adapterplatte (11), die auf die Deckfläche (109) des Gehäuses (105) aufsetzbar ist und oberseitig eine Stellfläche (20) aufweist zum Abstellen des Behälters (120), sowie eine Verriegelungseinrichtung (60) zum werkzeuglosen lösbaren Verriegeln der Adapterplatte (11) mit dem Gehäuse (105) des Reinigungsgerätes (95). Reinigungseinrichtung mit einem Reinigungsgerät (95) und einer derartigen Adaptervorrichtung (10).

WO 2011/009480 A1

SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Veröffentlicht:

— *mit internationalem Recherchenbericht (Artikel 21 Absatz 3)*

Adaptervorrichtung für ein tragbares Reinigungsgerät sowie Reinigungseinrichtung mit einer Adaptervorrichtung und einem Reinigungsgerät

Die Erfindung betrifft eine Adaptervorrichtung für die Anordnung eines Behälters am Gehäuse eines tragbaren Reinigungsgerätes.

Außerdem betrifft die Erfindung eine Reinigungseinrichtung mit einem tragbaren Reinigungsgerät, das ein Gehäuse aufweist, und mit einer Adaptervorrichtung der voranstehenden Art.

Tragbare Reinigungsgeräte kommen beispielsweise in Form tragbarer Staubsauger oder tragbarer Hochdruckreinigungsgeräte zum Einsatz. Sie werden zum Beispiel auf Baustellen aber auch an sonstigen Einsatzorten benutzt. Die Reinigungsgeräte können vom Benutzer getragen werden. Häufig sind die Reinigungsgeräte auch verfahrbar und weisen hierzu geeignete Laufräder auf.

Die Reinigungsgeräte werden zum Transport zu einem Einsatzort in vielen Fällen in einem Transportfahrzeug positioniert, und da in den meisten Fällen der Stauraum des Transportfahrzeuges beschränkt ist, werden auf den Reinigungsgeräten während des Transportes Behälter abgestellt, beispielsweise Werkzeugkoffer oder sonstige Behälter, die Utensilien aufnehmen. Erreicht das Transportfahrzeug sein Ziel, so werden die Behälter ebenso wie das Reinigungsgerät dem Transportfahrzeug entnommen und anschließend zum eigentlichen Einsatzort getragen.

Aus der EP 0 916 302 B1 ist ein Reinigungsgerät in Form eines Staubsaugers bekannt, dessen Gehäuse oberseitig eine Deckfläche ausbildet mit einer Vertiefung, in die ein Behälter eingesetzt werden kann. Der Behälter ist dadurch auf der Deckfläche des Gehäuses gegen Verrutschen gesichert. Zusätzlich kann der Behälter mit Hilfe von Arretierungselementen in der Vertiefung der Deckfläche arretiert werden. Dies hat den Vorteil, dass der Staubsauger zusammen mit dem Behälter vom Benutzer in Form einer einzigen Transporteinheit bewegt werden kann. Allerdings ist es erforderlich, dass der Behälter exakt die Ausmaße der Vertiefung an der Deckfläche des Staubsaugers aufweist. Behälter und Staubsauger müssen also in ihren Ausmaßen exakt aneinander angepasst sein.

Aufgabe der vorliegenden Erfindung ist es, eine Vorrichtung bereitzustellen, mit deren Hilfe ein Behälter am Gehäuse eines tragbaren Reinigungsgerätes angeordnet werden kann zum gemeinsamen Transport des Reinigungsgerätes zusammen mit dem Behälter.

Diese Aufgabe wird erfindungsgemäß durch eine Adaptervorrichtung mit den Merkmalen von Patentanspruch 1 gelöst. Die erfindungsgemäße Adaptervorrichtung umfasst eine Adapterplatte, die auf das Gehäuse des Reinigungsgerätes aufsetzbar ist. Außerdem umfasst die Adaptervorrichtung eine Verriegelungseinrichtung, mit deren Hilfe die Adapterplatte werkzeuglos mit dem Gehäuse des Reinigungsgerätes lösbar verriegelt werden kann. Die Adapterplatte weist oberseitig eine Stellfläche auf zum Abstellen des Behälters.

In die Erfindung fließt der Gedanke mit ein, dass durch die Bereitstellung einer Adapterplatte, die einerseits, nämlich auf ihrer Unterseite, an das Gehäuse eines tragbaren Reinigungsgerätes angepasst ist, und die andererseits, nämlich auf ihrer Oberseite, eine ebene Stellfläche für einen zusammen mit dem

Reinigungsgerät zu transportierenden Behälter aufweist, auf einfache Weise eine kompakte Transporteinheit bestehend aus dem Behälter, der Adapterplatte und dem Reinigungsgerät gebildet werden kann zum gemeinsamen Transport. Die Adapterplatte ist auf das Gehäuse des Reinigungsgerätes aufsetzbar und kann anschließend mittels der Verriegelungseinrichtung mit dem Gehäuse des Reinigungsgerätes werkzeuglos verriegelt werden. Die Verriegelungseinrichtung wirkt mit dem Gehäuse des Reinigungsgerätes zusammen. Oberseitig kann auf die Adapterplatte der Behälter, beispielsweise ein Werkzeug- oder Zubehörkoffer, aufgesetzt werden. Der Behälter kann bei Bedarf von der Adapterplatte abgenommen werden, zusätzlich kann auch die Adapterplatte vom Reinigungsgerät gelöst werden. Das Verriegeln und Entriegeln der Adapterplatte mit dem Gehäuse des Reinigungsgerätes erfolgt ohne Einsatz eines speziellen Werkzeuges, insbesondere ist es nicht erforderlich, die Adapterplatte mit dem Reinigungsgerät beispielsweise zu verschrauben.

Die Adaptervorrichtung erweitert somit die Einsatzmöglichkeiten des Reinigungsgerätes dahingehend, dass ein Behälter, vorzugsweise ein Werkzeug- oder Zubehörkoffer, auf dem Reinigungsgerät abgestellt und gemeinsam mit diesem transportiert werden kann.

Vorzugsweise ist die Adapterplatte mittels der Verriegelungseinrichtung mit einem hintergreifbaren Gehäuseteil des Gehäuses des Reinigungsgerätes werkzeuglos lösbar verriegelbar. Als hintergreifbares Gehäuseteil kann beispielsweise eine Gehäuselasche, ein hintergreifbarer Gehäusevorsprung oder dergleichen zum Einsatz kommen. Zusätzliche Verriegelungselemente am Reinigungsgerät können dadurch entfallen.

Von besonderem Vorteil ist es, wenn die Adapterplatte mittels der Verriegelungseinrichtung mit einem Tragegriff des Reinigungsgerätes werkzeuglos lös-

bar verriegelbar ist. Der Tragegriff ist bevorzugt an einer Oberseite des Gehäuses des Reinigungsgerätes angeordnet. Der Tragegriff ist üblicherweise sehr stabil ausgestaltet und an das Gewicht des Reinigungsgerätes angepasst, so dass die Verriegelung der Adapterplatte mit dem Tragegriff mechanisch sehr belastbar ausgestaltet werden kann.

Günstigerweise umfasst die Verriegelungseinrichtung mindestens ein Verriegelungsglied, das zwischen einer Verriegelungsstellung und einer Freigabestellung hin und her bewegbar an der Adapterplatte gehalten ist. In der Verriegelungsstellung des mindestens einen Verriegelungsgliedes ist die Adapterplatte unbeweglich am Gehäuse des Reinigungsgerätes festgelegt. Hierzu kann das mindestens eine Verriegelungsglied beispielsweise ein an der Oberseite des Reinigungsgerätes angeordnetes hintergreifbares Gehäuseteil, insbesondere einen Tragegriff hintergreifen oder umgreifen. Soll die Adapterplatte vom Reinigungsgerät gelöst werden, so kann hierzu das mindestens eine Verriegelungsglied ohne Einsatz eines Werkzeuges in seine Freigabestellung überführt werden, in der es das Gehäuse freigibt.

Besonders vorteilhaft ist es, wenn die Verriegelungseinrichtung eine vom Benutzer ergreifbare Verriegelungshandhabe aufweist, die mit dem mindestens einen Verriegelungsglied verbunden ist. Mittels der Verriegelungshandhabe kann der Benutzer das mindestens eine Verriegelungsglied auf einfache Weise ohne Einsatz eines zusätzlichen Werkzeuges zwischen seiner Verriegelungsstellung und seiner Freigabestellung hin und her bewegen.

Bei einer vorteilhaften Ausführungsform steht die Verriegelungshandhabe in der Freigabestellung des mindestens einen Verriegelungsgliedes aus der Stellfläche der Adapterplatte hervor und in der Verriegelungsstellung des mindestens einen Verriegelungsgliedes steht die Verriegelungshandhabe aus der

Stellfläche der Adapterplatte nicht hervor. Die Stellfläche wird bei einer derartigen Ausgestaltung von der Verriegelungshandhabe allenfalls dann beeinträchtigt, wenn die Verriegelungshandhabung eine Position einnimmt, in der das mindestens eine Verriegelungsglied seine Freigabestellung einnimmt. In dieser Stellung kann die Adapterplatte vom Reinigungsgerät abgenommen werden. Befindet sich jedoch das mindestens eine Verriegelungsglied in seiner Verriegelungsstellung, so ist die Verriegelungshandhabe derart angeordnet, dass sie aus der Stellfläche nicht hervorsteht und daher das Abstellen eines Behälters auf der Stellfläche nicht beeinträchtigt.

Es kann beispielsweise vorgesehen sein, dass die Verriegelungshandhabe plattenförmig ausgestaltet ist, wobei sie in der Verriegelungsstellung des mindestens eines Verriegelungsgliedes in der Ebene der Stellfläche oder unterhalb der Ebene der Stellfläche verläuft.

Damit der Benutzer die Verriegelungshandhabe auf einfache Weise ergreifen kann, ist es von Vorteil, wenn die Verriegelungshandhabe hintergreifbar ist.

Das mindestens eine Verriegelungsglied ist bei einer vorteilhaften Ausführungsform der Erfindung um eine Schwenkachse verschwenkbar. Es kann somit zwischen seiner Verriegelungsstellung und seiner Freigabestellung hin und her geschwenkt werden. Die Schwenkachse ist bevorzugt parallel zu einer Längsachse eines oberseitig am Gehäuse des Reinigungsgerätes angeordneten Tragegriffs ausrichtbar.

Günstigerweise umfasst die Verriegelungseinrichtung zwei starr miteinander verbundene und im Abstand zueinander angeordnete Verriegelungsglieder. Dies erhöht die mechanische Belastbarkeit der Verriegelungseinrichtung und der mit dem Tragegriff verriegelten Adapterplatte.

Bevorzugt verbindet die Verriegelungshandhabe die beiden Verriegelungsglieder starr miteinander.

Das mindestens eine Verriegelungsglied ist vorteilhafterweise haken- oder bügelartig ausgestaltet und untergreift in der Verriegelungsstellung ein Gehäuseteil des Reinigungsgerätes, beispielsweise einen Tragegriff.

Bei einer bevorzugten Ausführungsform weist die Adapterplatte oberseitig eine erste Vertiefung auf, die die Verriegelungshandhabe aufnimmt. In der Verriegelungsstellung des mindestens einen Verriegelungsgliedes kann die Verriegelungshandhabe vollständig in die erste Vertiefung der Adapterplatte eintauchen, so dass die Stellfläche der Adapterplatte durch die Verriegelungshandhabe nicht beeinträchtigt ist.

Besonders vorteilhaft ist es, wenn die Verriegelungshandhabe in der Verriegelungsstellung des mindestens einen Verriegelungsgliedes die erste Vertiefung zumindest teilweise abdeckt und die Stellfläche der Adapterplatte erweitert.

Wie bereits erläutert, ist die Adaptervorrichtung für tragbare Reinigungsgeräte vorgesehen. Damit das Reinigungsgerät auch dann getragen werden kann, wenn die Adapterplatte mit dem Gehäuse des Reinigungsgerätes verriegelt ist, ist bei einer vorteilhaften Ausführungsform der Erfindung vorgesehen, dass die Adaptervorrichtung eine Trageeinrichtung aufweist mit mindestens einem Tragegriff, der vom Benutzer umgreifbar ist. Ist die Adapterplatte mit dem Gehäuse des Reinigungsgerätes verriegelt, so kann mit Hilfe des Tragegriffes der Adaptervorrichtung die komplette Reinigungseinrichtung bestehend aus dem Reinigungsgerät und der Adaptervorrichtung getragen werden.

Günstigerweise ist der Tragegriff der Adaptervorrichtung zwischen einer Tragestellung, in der er aus der Stellfläche der Adapterplatte hervorsteht, und einer Ruhestellung, in der er aus der Stellfläche der Adapterplatte nicht hervorsteht, hin und her bewegbar. Der Tragegriff ist somit zum Tragen der Adaptervorrichtung mitsamt dem Reinigungsgerät für den Benutzer auf einfache Weise im Bereich der Stellfläche zugänglich, aus der er in seiner Tragestellung hervorsteht. Soll jedoch ein Behälter auf die Stellfläche abgestellt werden, so kann der Tragegriff der Adaptervorrichtung in eine Ruhestellung überführt werden, in der er aus der Stellfläche nicht hervorsteht und damit die Größe der Stellfläche auch nicht beeinträchtigt.

Bevorzugt ist der Tragegriff der Adaptervorrichtung um eine Schwenkachse verschwenkbar. Dies erleichtert das Überführen des Tragegriffes der Adaptervorrichtung aus seiner Ruhestellung in seine Tragestellung und zurück in die Ruhestellung. In jeder Stellung ist der Tragegriff der Adaptervorrichtung für den Benutzer auf einfache Weise zugänglich. Die Schwenkachse ist bevorzugt parallel zu einer Längsachse eines oberseitig am Gehäuse des Reinigungsgerätes angeordneten Tragegriffs ausrichtbar.

Es kann vorgesehen sein, dass die Adapterplatte oberseitig eine zweite Vertiefung aufweist, die den Tragegriff aufnimmt. In seiner Ruhestellung kann der Tragegriff der Adaptervorrichtung vollständig in die zweite Vertiefung der Adapterplatte eintauchen. Bei Bedarf kann der Benutzer den Tragegriff der Adaptervorrichtung aus der zweiten Vertiefung der Adapterplatte entnehmen und in seine Tragestellung überführen, in der er aus der Stellfläche hervorsteht.

Von Vorteil ist es, wenn der Tragegriff der Adaptervorrichtung in seiner Ruhestellung die zweite Vertiefung zumindest bereichsweise ausfüllt und die Stellfläche der Adapterplatte erweitert.

Günstigerweise ist die Trageeinrichtung der Adaptervorrichtung an der Adapterplatte verschwenkbar gelagert.

Von Vorteil ist es, wenn die Verriegelungseinrichtung an der Trageeinrichtung der Adaptervorrichtung gehalten ist. Dies vereinfacht die Handhabung der Adaptervorrichtung sowohl beim Verriegeln mit dem Gehäuse des Reinigungsgerätes als auch beim Tragen zusammen mit dem Reinigungsgerät. Außerdem ermöglicht es die Halterung der Verriegelungseinrichtung an der Trageinrichtung, in einem ersten Montageschritt die Verriegelungseinrichtung an der Trageinrichtung zu montieren, und in einem zweiten Montageschritt kann dann die aus der Verriegelungseinrichtung und der Trageinrichtung bestehende Baueinheit an der Adapterplatte montiert werden. Dadurch können die Montagekosten gering gehalten werden.

Es kann vorgesehen sein, dass die Verriegelungseinrichtung und die Trageinrichtung starr miteinander verbunden und beweglich an der Adapterplatte gehalten sind. Hierbei kann vorgesehen sein, dass die aus der Verriegelungseinrichtung und der Trageeinrichtung bestehende Baueinheit zwischen einer ersten Stellung, in der das mindestens eine Verriegelungsglied ein Gehäuseteil des Reinigungsgerätes hintergreift und der Tragegriff der Adaptervorrichtung seine Ruhestellung einnimmt, über eine zweite Stellung, in der das mindestens eine Verriegelungsglied ebenfalls das Gehäuseteil des Reinigungsgerätes hintergreift, der Tragegriff der Adaptervorrichtung aber seine Tragestellung einnimmt, und einer dritten Stellung, in der das mindestens eine Verriegelungsglied das Gehäuseteil des Reinigungsgerätes freigibt und der Tragegriff der

Adaptervorrichtung eine Außerbetriebstellung einnimmt, hin und her bewegt werden kann. Je nach Stellung der aus der Verriegelungseinrichtung und der Trageeinrichtung bestehenden Baueinheit kann die Adapterplatte mit dem Gehäuseteil des Reinigungsgerätes verriegelt oder entriegelt sein und es kann der Tragegriff der Adaptervorrichtung seine Ruhestellung oder auch seine Tragestellung einnehmen.

Bei einer bevorzugten Ausgestaltung der Erfindung ist die Verriegelungseinrichtung an der Trageeinrichtung beweglich gelagert ist. Dies gibt die Möglichkeit, die Verriegelungseinrichtung relativ zur Trageeinrichtung zu bewegen. Insbesondere kann bei einer derartigen Ausführungsform das mindestens eine Verriegelungsglied zwischen seiner Verriegelungsstellung und seiner Freigabestellung hin und her bewegt werden, ohne dass dabei die Trageeinrichtung ihre Lage relativ zur Adaptervorrichtung verändern muss. Umgekehrt kann der Tragegriff seine Position relativ zur Adaptervorrichtung verändern, ohne dass die Stellung der Verriegelungseinrichtung verändert werden muss. Es kann dadurch der Tragegriff zwischen seiner Ruhestellung und seiner Tragestellung hin und her bewegt werden, ohne dass dies die Verriegelung der Adapterplatte mit dem Gehäuse des Reinigungsgerätes beeinflusst.

Bei einer vorteilhaften Ausführungsform ist vorgesehen, dass die Verriegelungseinrichtung an der Trageeinrichtung verschwenkbar gelagert ist.

Günstigerweise sind die Verriegelungseinrichtung und die Trageeinrichtung an der Adapterplatte gehalten, wobei sie unabhängig voneinander jeweils um mindestens 90° um eine gemeinsame Schwenkachse verschwenkbar sind. Hierbei kann die gemeinsame Schwenkachse parallel zu einer Längsachse eines oberseitig am Gehäuse des Reinigungsgerätes angeordneten Tragegriffs ausrichtbar sein.

Die Montage der Adaptervorrichtung wird bei einer vorteilhaften Ausführungsform dadurch vereinfacht, dass die Verriegelungseinrichtung mit der Trageeinrichtung verrastbar ist.

Wie bereits erläutert, kann auf die Stellfläche der Adapterplatte ein Behälter, beispielsweise ein Werkzeug- oder Zubehörkoffer abgestellt werden. Hierbei ist es von Vorteil, wenn die Adapterplatte mindestens ein aus der Stellfläche hervorstehendes Anschlagelement aufweist, an das der Behälter anlegbar ist. Das Anschlagelement erleichtert die Positionierung des Behälters auf der Stellfläche der Adapterplatte.

Günstigerweise weist mindestens ein Anschlagelement eine Ausnehmung auf zur Aufnahme eines Vorsprunges des Behälters. Der Behälter kann beispielsweise zapfenförmige Vorsprünge aufweisen, die von einer Ausnehmung eines Anschlagelementes der Adaptervorrichtung aufgenommen werden.

Besonders vorteilhaft ist es, wenn die Adaptervorrichtung mindestens ein Arretierungselement aufweist zum Arretieren des Behälters an der Stellfläche der Adapterplatte. Ein unbeabsichtigtes Lösen des Behälters von der Stellfläche kann dadurch zuverlässig verhindert werden.

Bevorzugt ist mindestens ein Arretierungselement in einer oberseitigen Vertiefung der Adapterplatte beweglich, insbesondere verschwenkbar gelagert. Es kann zum Arretieren des Behälters aus der zugeordneten Vertiefung der Adapterplatte herausbewegt, insbesondere herausgeschwenkt werden, um dann mit einem komplementären Arretierungselement des Behälters zusammenzuwirken.

Wie eingangs erwähnt, betrifft die Erfindung nicht nur eine Adaptervorrichtung der voranstehend genannten Art sondern auch eine Reinigungseinrichtung mit einer derartigen Adaptervorrichtung und mit einem tragbaren Reinigungsgerät.

Bevorzugt umfasst das Reinigungsgerät ein hintergreifbares Gehäuseteil, beispielsweise eine Gehäuselasche oder einen Gehäusevorsprung oder dergleichen, und die Verriegelungseinrichtung der Adaptervorrichtung wirkt mit dem hintergreifbaren Gehäuseteil zusammen zum werkzeuglosen lösbaren Verriegeln der Adapterplatte mit dem Gehäuse. Zusätzliche Verriegelungselemente am Reinigungsgerät sind folglich zum Verriegeln der Adapterplatte nicht erforderlich.

Von ganz besonderem Vorteil ist es, wenn das Reinigungsgerät einen Tragegriff aufweist und die Adapterplatte der Adaptervorrichtung mittels der Verriegelungseinrichtung mit dem Tragegriff werkzeuglos lösbar verriegelbar ist.

Der Tragegriff ist bei einer vorteilhaften Ausgestaltung der Erfindung an der Oberseite des Gehäuses des Reinigungsgerätes angeordnet. Insbesondere kann vorgesehen sein, dass der Tragegriff in eine oberseitige Deckfläche des Gehäuses integriert ist, auf die die Adapterplatte aufsetzbar ist.

Das Reinigungsgerät ist bevorzugt als Staubsauger ausgestaltet. Es kann allerdings auch vorgesehen sein, dass das Reinigungsgerät in Form eines Hochdruckreinigers ausgebildet ist.

Bei einer besonders bevorzugten Ausführungsform der erfindungsgemäßen Reinigungseinrichtung weist das Reinigungsgerät einen verfahrbaren Sockel auf, an dem Laufräder drehbar gelagert sind, sowie ein auf dem Sockel angeordnetes Reinigungsaggregat mit einem Griffbügel, wobei das Reinigungsag-

gregat das Gehäuse aufweist, mit dem die Adapterplatte verriegelbar ist, und wobei der Griffbügel in einer aufgerichteten Stellung im Wesentlichen senkrecht zur Stellfläche der am Gehäuse arretierten Adapterplatte ausgerichtet ist. Bei einer derartigen Ausführungsform ist das Reinigungsgerät mittels des Sockels verfahrbar, und nach Verriegeln der Adapterplatte mit dem Gehäuse des Reinigungsgerätes kann ein Behälter auf die Stellfläche der Adapterplatte aufgestellt werden, der sich dann auch am aufgerichteten Griffbügel abstützen kann. Der Griffbügel ist in seiner aufgerichteten Stellung im Wesentlichen senkrecht zur Stellfläche der Adapterplatte ausgerichtet. Der Behälter kann daher über die Adapterplatte hinausragen und sich in seinem hinausragenden Bereich am Griffbügel abstützen.

Von besonderem Vorteil ist es, wenn das Reinigungsgerät zusammen mit mindestens einem auf der Stellfläche der Adapterplatte angeordneten Behälter um eine gemeinsame Drehachse von zwei Laufrädern verschwenkbar ist. Das Reinigungsgerät kann dann zusammen mit der am Reinigungsgerät arretierten Adaptervorrichtung und dem mindestens einen Behälter nach Art einer Sackkarre verfahren werden. Der Behälter ist mittels der Adaptervorrichtung zuverlässig auf dem Reinigungsgerät positionierbar, bevorzugt ist er an der Adapterplatte arretierbar. Hierbei ist es von besonderem Vorteil, wenn der Behälter oberseitig einen Tragegriff aufweist, so dass der Benutzer den Behälter zusammen mit der Adaptervorrichtung und dem Reinigungsgerät tragen kann, nachdem zuvor in einem ersten Schritt die Adapterplatte am Gehäuse des Reinigungsgerätes arretiert wurde und danach der Behälter an der Adapterplatte arretiert wurde. Der Benutzer kann dann wählen, ob er die komplette Reinigungseinrichtung mitsamt dem oberseitig angeordneten Behälter um die gemeinsame Drehachse zweier Laufräder des Reinigungsgerätes verschwenkt und das Reinigungsgerät mit dem Behälter nach Art einer Sackkarre verfährt, oder ob er, beispielsweise zur Überwindung einer Stufe, den Behälter mitsamt

dem Reinigungsgerät und der dazwischen angeordneten Adaptervorrichtung am Tragegriff des Behälters anhebt.

Die nachfolgende Beschreibung einer bevorzugten Ausführungsform der Erfindung dient im Zusammenhang mit der Zeichnung der näheren Erläuterung. Es zeigen:

Figur 1: eine perspektivische Darstellung einer erfindungsgemäßen Adaptervorrichtung;

Figur 2: eine Draufsicht auf die Adaptervorrichtung aus Figur 1;

Figur 3: eine Schnittansicht der Adaptervorrichtung längs der Linie 3-3 in Figur 2;

Figur 4: eine Darstellung der Adaptervorrichtung nach Art einer Explosionszeichnung;

Figur 5: eine perspektivische Darstellung der Adaptervorrichtung, wobei ein Tragegriff seine Tragestellung und eine Verriegelungseinrichtung ihre Verriegelungsstellung einnehmen;

Figur 6: eine perspektivische Darstellung der Adaptervorrichtung, wobei der Tragegriff seine Ruhestellung und die Verriegelungseinrichtung ihre Freigabestellung einnehmen;

Figur 7: eine perspektivische Darstellung einer erfindungsgemäßen Reinigungseinrichtung nach Art einer Explosionszeichnung mit einem Reinigungsgerät und einer Adaptervorrichtung, wobei eine Verrie-

gelungseinrichtung der Adaptervorrichtung ihre Freigabestellung einnimmt;

Figur 8: eine perspektivische Darstellung der Reinigungseinrichtung, wobei die Adaptervorrichtung mit dem Reinigungsgerät verriegelt ist;

Figur 9: eine perspektivische Darstellung der Reinigungseinrichtung, wobei die Adaptervorrichtung mit dem Reinigungsgerät verriegelt ist und ein Tragegriff der Adaptervorrichtung seine Tragestellung einnimmt, und

Figur 10: eine perspektivische Darstellung der Reinigungseinrichtung mit zwei darauf angeordneten Behältern.

In den Figuren 1 bis 6 ist eine erfindungsgemäße Adaptervorrichtung 10 dargestellt, die auf die Deckfläche eines Gehäuses eines in den Figuren 7 bis 10 dargestellten Reinigungsgerätes aufgesetzt werden kann und ihrerseits eine Stellfläche bildet für einen Behälter, wie er beispielsweise in Figur 10 dargestellt ist.

Die Adaptervorrichtung 10 weist eine Adapterplatte 11 auf, die in der Draufsicht im Wesentlichen rechteckförmig ausgestaltet ist, wobei sie an einem vorderen Rand 12 eine zentrale Einbuchtung 13 aufweist. Ein hinterer Rand 15 der Adapterplatte 11 ist geradlinig ausgebildet, und ein erster Längsrand 16 weist ebenso wie ein zweiter Längsrand 17 eine geringfügig konvex nach außen gekrümmte Gestalt auf. Die beiden Längsränder 16 und 17 sind einander abgewandt und verbinden jeweils den hinteren Rand 15 mit dem vorderen Rand 12.

Die Oberseite 19 der Adapterplatte 11 weist eine ebene Stellfläche 20 auf sowie eine mittige, im Wesentlichen U-förmige erste Vertiefung 22 und eine sich daran anschließende, rechteckförmige zweite Vertiefung 24, an die sich, dem zweiten Längsrand 17 benachbart, eine dritte rechteckförmige Vertiefung 26 anschließt. Dem ersten Längsrand 16 benachbart weist die Adapterplatte 11 auf ihrer Oberseite 19 eine vierte rechteckförmige Vertiefung 28 auf, und der zentralen Einbuchtung 13 benachbart ist zwischen der dritten und der vierten Vertiefung 26, 28 eine fünfte rechteckförmige Vertiefung 30 angeordnet.

Im Übergangsbereich zwischen der ersten und der zweiten Vertiefung 22, 24 sind in die Oberseite 19 fluchtend zueinander eine erste Rastausnehmung 34 und eine zweite Rastausnehmung 36 eingeformt. In die beiden Rastausnehmungen 34 und 36 ist eine Trageeinrichtung 38 eingerastet. Die Trageeinrichtung 38 umfasst einen U-förmigen Tragbügel 40 mit einem ersten Tragschenkel 41 und einem zweiten Tragschenkel 42, die über einen stegartigen Tragegriff 43 einstückig miteinander verbunden sind. Auf ihren einander abgewandten Außenseiten 45 bzw. 46 tragen die beiden Tragschenkel 41 und 42 an ihrem freien Ende einen ersten Gelenkstift 48 bzw. einen zweiten Gelenkstift 49. Die beiden Gelenkstifte sind fluchtend zueinander ausgerichtet und können mit der ersten Rastausnehmung 34 bzw. mit der zweiten Rastausnehmung 36 verrastet werden. Die beiden Gelenkstifte 48 und 49 definieren eine Schwenkachse 51, die senkrecht zum hinteren Rand 15 verläuft und um die die Trageeinrichtung 38 verschwenkt werden kann, nachdem die Gelenkstifte 48 und 49 mit den Rastausnehmungen 34 und 36 verrastet wurden. Dies gibt die Möglichkeit, den Tragbügel 40 und damit auch den Tragegriff 43 zwischen einer Ruhestellung, in der er vollständig in die U-förmige erste Vertiefung 22 eintaucht, und einer Tragestellung, in der der Tragbügel 40 senkrecht zur Stellfläche 20 ausgerichtet ist und der Tragegriff 43 vom Benutzer umgriffen werden kann, hin und her zu schwenken. Der Tragbügel 40 und damit auch

der Tragegriff 43 steht in der Tragestellung, wie sie beispielsweise in Figur 5 dargestellt ist, aus der Stellfläche 20 hervor. In der Ruhestellung hingegen füllt der Tragbügel 40 die erste Vertiefung 22 vollständig aus und erweitert somit die ebene Stellfläche 20. Dies wird insbesondere aus Figur 1 deutlich.

An ihren einander zugewandten Innenseiten 54 bzw. 55 tragen die beiden Tragschenkel 41 und 42 fluchtend zu den Gelenkstiften 48 und 49 einen dritten Gelenkstift 57 bzw. einen vierten Gelenkstift 58. Mit diesen Gelenkstiften ist eine Verriegelungseinrichtung 60 der Adaptervorrichtung 10 verrastet. Die Verriegelungseinrichtung 60 weist hierzu zwei Rastklemmen 62, 63 auf, die mit dem dritten bzw. vierten Gelenkstift 57, 58 verrastet werden können, wobei die Verriegelungseinrichtung 60 um die Schwenkachse 51 relativ zur Trageeinrichtung 38 zwischen einer in Figur 5 dargestellten Verriegelungsstellung und einer in Figur 6 dargestellten Freigabestellung hin und her geschwenkt werden kann.

Die Verriegelungseinrichtung 60 umfasst ein erstes Verriegelungsglied in Form eines ersten Verriegelungsbügels 65 und ein zweites Verriegelungsglied in Form eines zweiten Verriegelungsbügels 66, die identisch ausgestaltet sind und über eine starre, plattenförmig ausgebildete Verriegelungshandhabe 68 miteinander verbunden sind. Den beiden Verriegelungsbügeln 65 und 66 ist im Boden 70 der zweiten Vertiefung 24 jeweils eine Durchbrechung 71 bzw. 72 zugeordnet, die in der Verriegelungsstellung der Verriegelungseinrichtung 60 von den Verriegelungsbügeln 65 bzw. 66 durchgriffen werden kann. In der Verriegelungsstellung stehen daher die Verriegelungsbügel 65 und 66 mit ihren freien Endabschnitten 74 bzw. 75 unterseitig aus der Adapterplatte 11 hervor. Dies wird insbesondere aus Figur 3 deutlich.

Die plattenförmige Verriegelungshandhabe 68 überdeckt in der Verriegelungsstellung der Verriegelungseinrichtung 60 zumindest einen Teilbereich der zweiten Vertiefung 24 und erweitert daher in der Verriegelungsstellung die Stellfläche 20. Vom Benutzer kann die Verriegelungshandhabe 68 in der Verriegelungsstellung der Verriegelungseinrichtung 60 hintergriffen werden. Der Benutzer kann hierzu im Übergangsbereich zwischen der zweiten Vertiefung 24 und der dritten Vertiefung 26 hinter die Verriegelungshandhabe 68 greifen. Anschließend kann er die Verriegelungshandhabe 68 zusammen mit den Verriegelungsbügeln 65 und 66 um die Schwenkachse 51 nach außen verschwenken in die in Figur 6 dargestellte Freigabestellung. In dieser Stellung erreichen die freien Endabschnitte 74 und 75 der Verriegelungsbügel 65 und 66 die Höhe des Bodens 70 der zweiten Vertiefung 24, sie stehen aber nicht mehr unterseitig aus der Adapterplatte 11 hervor.

Im Bereich des hinteren Randes 15 trägt die Adapterplatte 11 an ihrer Oberseite 19 einen aus der Stellfläche 20 herausragenden ersten Anschlag 77 mit einer im Wesentlichen senkrecht zur Stellfläche 20 ausgerichteten ersten Anschlagfläche 78. Und im Abstand zum ersten Anschlag 77 steht im Bereich des hinteren Randes 15 ein zweiter Anschlag 80 aus der Stellfläche 20 hervor, wobei der zweite Anschlag 80 der dritten Vertiefung 26 zugewandt eine rechteckförmige Ausnehmung 81 aufweist.

Im Bereich zwischen dem ersten Anschlag 77 und der vierten Vertiefung 28 weist die Adapterplatte 11 an ihrer Oberseite 19 eine sechste Vertiefung 83 auf, die in den ersten Längsrand 18 einmündet und in der ein erstes Arretierungselement in Form eines ersten Rastbügels 85 verschwenkbar gelagert ist.

Zwischen der vierten Vertiefung 28 und dem vorderen Rand 12 der Adapterplatte 11 ist in die Oberseite 19 eine siebte Vertiefung 87 eingeformt, die im

Wesentlichen identisch ausgestaltet ist wie die sechste Vertiefung 83 und die in den ersten Längsrand 16 einmündet. In der siebten Vertiefung 87 ist ein zweites Arretierungselement in Form eines zweiten Rastbügels 88 verschwenkbar gelagert. Der zweite Rastbügel 88 ist identisch ausgestaltet wie der erste Rastbügel 85.

Zwischen der dritten Vertiefung 26 und dem vorderen Rand 12 der Adapterplatte 11 ist in die Oberseite 19 eine achte Vertiefung 90 eingeformt, die im Wesentlichen identisch ausgestaltet ist wie die sechste und siebte Vertiefung, wobei sie allerdings um 90° gedreht ist und in den vorderen Rand 12 einmündet. In der achten Vertiefung 90 ist ein drittes Arretierungselement in Form eines dritten Rastbügels 91 verschwenkbar gelagert, der identisch ausgebildet ist wie der zweite Rastbügel 88 und der erste Rastbügel 85.

Wie bereits erwähnt, kommt die Adaptervorrichtung 10 für die Anordnung eines Behälters am Gehäuse eines tragbaren Reinigungsgerätes zum Einsatz. Ein derartiges Reinigungsgerät ist in den Figuren 7 bis 10 in Form eines Staubsaugers 95 dargestellt. Dieser umfasst einen Sockel 97 mit zwei um eine gemeinsame Drehachse 98 frei drehbaren hinteren Laufrädern, von denen in Zeichnung nur ein hinteres Laufrad 99 dargestellt ist, und mit zwei vorderen Laufrädern, von denen in der Zeichnung nur ein vorderes Laufrad 101 dargestellt ist. Mittels der Laufräder 99, 101 kann der Sockel 97 entlang einer Bodenfläche verfahren werden.

Auf den Sockel 97 ist ein Saugaggregat 103 aufgesetzt, das ein Gehäuseunterteil 104 und ein Gehäuseoberteil 105 aufweist. Das Gehäuseunterteil 104 bildet in üblicher Weise einen Schmutzsammelbehälter aus, in den über einen Saugeinlass 107 Saugluft zusammen mit Sauggut eingesaugt werden kann. An den Saugeinlass 107 kann in üblicher Weise ein Saugschlauch angeschlossen

werden, der an seinem freien Ende eine Saugdüse trägt. Derartige Saugschläuche und Saugdüsen sind dem Fachmann an sich bekannt und daher in der Zeichnung nicht dargestellt.

Das Gehäuseoberteil 105 nimmt in üblicher Weise eine Saugturbine auf, die von einem Elektromotor angetrieben wird. Mittels der Saugturbine kann der Schmutzsammelbehälter des Gehäuseunterteils 104 mit Unterdruck beaufschlagt werden.

An seiner Oberseite weist das Gehäuseoberteil 104 eine Deckfläche 109 auf mit einer zentralen Vertiefung 110, die stegartig von einem Tragegriff 111 überbrückt ist. Mittels des Tragegriffes 111 kann der Staubsauger 95 vom Benutzer getragen werden.

Am Gehäuseoberteil 105 ist in einem rückwärtigen Bereich ein im Wesentlichen U-förmiger Griffbügel 113 um eine Schwenkachse 114 verschwenkbar gelagert. Der Griffbügel 113 kann um die Schwenkachse 114 zwischen einer in den Figuren 7 bis 10 dargestellten ausgeschwenkten oder aufgerichteten Stellung und einer in der Zeichnung nicht dargestellten eingeschwenkten Stellung hin und her verschwenkt werden. Mittels einer Feststelleinrichtung 116, die am freien Ende zumindest eines Schenkels des Griffbügels 113 angeordnet ist, kann der Griffbügel 113 in seiner ausgeschwenkten Stellung arretiert werden.

Die Adaptervorrichtung 10 kann auf die Deckfläche 109 des Staubsaugers 95 aufgesetzt werden, wobei die Schwenkachse 51 der Trageinrichtung 38 und der Verriegelungseinrichtung 60 parallel zu einer Längsachse 112 des Tragegriffs 111 ausgerichtet ist. Anschließend kann die Adapterplatte 11 mit dem Tragegriff 114 des Staubsaugers 95 verriegelt werden, indem die Verriege-

lungseinrichtung 60 ausgehend von ihrer in Figur 7 dargestellten Freigabestellung in die in Figur 8 dargestellte Verriegelungsstellung verschwenkt wird. In der Verriegelungsstellung hintergreifen die freien Endabschnitte 74 und 75 der Verriegelungsbügel 65 und 66 den Tragegriff 111 des Staubsaugers 95. Der Tragegriff 111 bildet somit ein hintergreifbares Gehäuseteil des Staubsaugers 95 aus, mit dem die Adapterplatte 11 mittels der Verriegelungseinrichtung 60 werkzeuglos lösbar verriegelt werden kann. Die Adapterplatte 11 ist dadurch an der Deckfläche 109 unbeweglich gehalten. Anschließend kann auf die Stellfläche 20 der Adapterplatte 11 ein Behälter 120 aufgestellt werden, wie er in Figur 10 dargestellt ist. Auf den Behälter 120 kann ein weiterer Behälter 122 positioniert sein. Der Behälter 120 kann zur Ausrichtung an der Stellfläche 20 derart positioniert werden, dass er mit einem Seitenbereich an der ersten Anschlagfläche 78 des ersten Anschlages 77 anschlägt und mit einem seitlichen zapfenförmigen Vorsprung in die Ausnehmung 81 des zweiten Anschlages 80 eingreift. Anschließend kann der Behälter 120 mittels der Rastbügel 85, 88 und 91 an der Stellfläche 20 arretiert werden. Der Behälter 20 bildet dann gemeinsam mit der Adaptervorrichtung 10 und dem Staubsauger 95 eine kompakte Transporteinheit aus, die mittels der Laufräder 99 und 101 des Sockels 97 an einer Bodenfläche entlang verfahren werden kann. Außerdem kann die Transporteinheit um die gemeinsame Drehachse 98 nach hinten verschwenkt und dann nach Art einer Sackkarre bewegt werden.

Falls kein Behälter 120 auf der Stellfläche 20 der am Tragegriff 111 des Staubsaugers 95 arretierten Adapterplatte 11 aufgestellt ist, kann die Adaptervorrichtung 10 zusammen mit dem Staubsauger 95 vom Benutzer angehoben werden. Hierzu kann der Benutzer den Tragbügel 40 ausgehend von seiner Ruhestellung, in der er vollständig in die erste Vertiefung 22 eintaucht, in seine Tragestellung verschwenken, in der der Tragebügel und vor allem der Tragegriff 43 aus der Stellfläche 20 hervorstehen, so dass der Benutzer den

Tragegriff 43 mit einer Hand umgreifen kann. Dies wird insbesondere aus Figur 9 deutlich.

Die Adaptervorrichtung 10 gibt somit die Möglichkeit, auf den Staubsauger 95 einen Behälter 120 aufzustellen, obwohl die Deckfläche 109 des Staubsaugers 95 zumindest in Teilbereichen gewölbt und im Übrigen mit Erhebungen versehen ist. Hierzu definiert die Adapterplatte 11 auf ihrer Oberseite 19 eine ebene Stellfläche 20 zum Abstellen des Behälters 120, wobei die Stellfläche 20 zur leichteren Positionierung des Behälters 120 nach oben abstehende Anschläge 77 und 80 aufweist. Mittels der Verriegelungseinrichtung 60 kann die Adapterplatte 11 auf einfache Weise am Gehäuse 105 des Staubsaugers 95 arretiert werden, so dass die aus der Adaptervorrichtung 10 und dem Staubsauger 95 gebildete Reinigungseinrichtung vom Benutzer am Tragegriff 43 getragen werden kann.

Die Adaptervorrichtung 10 kann vom Benutzer bedarfsweise eingesetzt werden, wobei er sie ohne Einsatz eines speziellen Werkzeuges am Gehäuse 105 des Staubsaugers 95 festlegen und von dieser auch ohne Werkzeug wieder lösen kann.

PATENTANSPRÜCHE

1. Adaptervorrichtung für die Anordnung eines Behälters (120) am Gehäuse (105) eines tragbaren Reinigungsgerätes (95), dadurch gekennzeichnet, dass die Adaptervorrichtung (10) eine Adapterplatte (11) aufweist, die auf das Gehäuse (105) aufsetzbar ist und oberseitig eine Stellfläche (20) aufweist zum Abstellen des Behälters (120), sowie eine Verriegelungseinrichtung (60) zum werkzeuglosen lösbaren Verriegeln der Adapterplatte (11) mit dem Gehäuse (105) des Reinigungsgerätes (95).

2. Adaptervorrichtung nach Anspruch 1, dadurch gekennzeichnet, dass die Adapterplatte (11) mittels der Verriegelungseinrichtung (60) mit einem hintergreifbaren Gehäuseteil (111) des Gehäuses (105) des Reinigungsgerätes (95) werkzeuglos lösbar verriegelbar ist.

3. Adaptervorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass die Adapterplatte (11) mittels der Verriegelungseinrichtung (60) mit einem Tragegriff (111) des Reinigungsgerätes (95) werkzeuglos lösbar verriegelbar ist, der an einer Oberseite des Gehäuses (105) des Reinigungsgerätes (95) angeordnet ist.

4. Adaptervorrichtung nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, dass die Verriegelungseinrichtung (60) mindestens ein Verriegelungsglied (65, 66) aufweist, das zwischen einer Verriegelungsstellung und einer Freigabestellung hin und her bewegbar an der Adapterplatte (11) gehalten ist.

5. Adaptervorrichtung nach Anspruch 4, dadurch gekennzeichnet, dass die Verriegelungseinrichtung (60) eine vom Benutzer ergreifbare Verriegelungshandhabe (68) aufweist, die mit dem mindestens einen Verriegelungsglied (65, 66) verbunden ist.

6. Adaptervorrichtung nach Anspruch 5, dadurch gekennzeichnet, dass die Verriegelungshandhabe (68) in der Freigabestellung des mindestens einen Verriegelungsgliedes (65, 66) aus der Stellfläche (20) der Adapterplatte (11) hervorsteht und in der Verriegelungsstellung des mindestens einen Verriegelungsgliedes (65, 66) aus der Stellfläche (20) der Adapterplatte (11) nicht hervorsteht.

7. Adaptervorrichtung nach Anspruch 5 oder 6, dadurch gekennzeichnet, dass die Verriegelungshandhabe (68) plattenförmig ausgestaltet ist und in der Verriegelungsstellung des mindestens einen Verriegelungsgliedes (65, 66) in der Ebene der Stellfläche (20) oder unterhalb der Ebene der Stellfläche (20) angeordnet ist.

8. Adaptervorrichtung nach einem der Ansprüche 4 bis 7, dadurch gekennzeichnet, dass das mindestens eine Verriegelungsglied (65, 66) um eine Schwenkachse (51) verschwenkbar ist.

9. Adaptervorrichtung nach einem der Ansprüche 4 bis 8, dadurch gekennzeichnet, dass die Verriegelungseinrichtung (60) zwei starr miteinander verbundene und im Abstand zueinander angeordnete Verriegelungsglieder (65, 66) aufweist.

10. Adaptervorrichtung nach Anspruch 9, dadurch gekennzeichnet, dass die Verriegelungshandhabe (68) die beiden Verriegelungsglieder (65, 66) starr miteinander verbindet.

11. Adaptervorrichtung nach einem der Ansprüche 4 bis 10, dadurch gekennzeichnet, dass das mindestens eine Verriegelungsglied (65, 66) haken- oder bügelartig ausgestaltet ist und in der Verriegelungsstellung ein Gehäuseteil (111) des Reinigungsgerätes (95) untergreift.

12. Adaptervorrichtung nach einem der Ansprüche 5 bis 11, dadurch gekennzeichnet, dass die Adapterplatte (11) oberseitig eine erste Vertiefung (22) aufweist, die die Verriegelungshandhabe (68) aufnimmt.

13. Adaptervorrichtung nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass die Adaptervorrichtung (10) eine Trageeinrichtung (38) aufweist mit mindestens einem Tragegriff (43), der vom Benutzer umgreifbar ist.

14. Adaptervorrichtung nach Anspruch 13, dadurch gekennzeichnet, dass der Tragegriff (43) zwischen einer Tragestellung, in der er aus der Stellfläche (20) der Adapterplatte (11) hervorsteht, und einer Ruhestellung, in der er aus der Stellfläche (20) der Adapterplatte (11) nicht hervorsteht, hin und her bewegbar ist.

15. Adaptervorrichtung nach Anspruch 13 oder 14, dadurch gekennzeichnet, dass der Tragegriff (43) der Adaptervorrichtung (10) um eine Schwenkachse (51) verschwenkbar ist.

16. Adaptervorrichtung nach Anspruch 14 oder 15, dadurch gekennzeichnet, dass die Adapterplatte (11) oberseitig eine zweite Vertiefung (24) aufweist, die den Tragegriff (43) aufnimmt.

17. Adaptervorrichtung nach einem der Ansprüche 13 bis 16, dadurch gekennzeichnet, dass die Trageeinrichtung (39) der Adaptervorrichtung (10) an der Adapterplatte (11) verschenkbar gelagert ist.

18. Adaptervorrichtung nach einem der Ansprüche 13 bis 17, dadurch gekennzeichnet, dass die Verriegelungseinrichtung (60) an der Trageeinrichtung (38) gehalten ist.

19. Adaptervorrichtung nach Anspruch 18, dadurch gekennzeichnet, dass die Verriegelungseinrichtung (60) an der Trageeinrichtung (38) beweglich gelagert ist.

20. Adaptervorrichtung nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass die Adapterplatte (11) mindestens ein aus der Stellfläche (20) hervorstehendes Anschlagelement (77, 80) aufweist, an das der Behälter (120) anlegbar ist.

21. Adaptervorrichtung nach Anspruch 20, dadurch gekennzeichnet, dass mindestens ein Anschlagelement (80) eine Ausnehmung (81) aufweist zur Aufnahme eines Vorsprunges des Behälters (120).

22. Adaptervorrichtung nach einem der voranstehenden Ansprüche, dadurch gekennzeichnet, dass die Adaptervorrichtung (10) mindestens ein Arretierungselement (85, 88, 91) aufweist zum Arretieren des Behälters (120) an der Stellfläche (20) der Adapterplatte (11).

23. Adaptervorrichtung nach Anspruch 22, dadurch gekennzeichnet, dass mindestens ein Arretierungselement (85, 88, 91) in einer oberseitigen Vertiefung (83, 87, 90) der Adapterplatte (11) beweglich gelagert ist.

24. Reinigungseinrichtung mit einem tragbaren Reinigungsgerät (95), das ein Gehäuse (104, 105) aufweist, und mit einer Adaptervorrichtung (10) nach einem der voranstehenden Ansprüche.

25. Reinigungseinrichtung nach Anspruch 24, dadurch gekennzeichnet, dass das Gehäuse (105) des Reinigungsgerätes (95) ein hintergreifbares Gehäuseteil (111) aufweist, mit dem die Verriegelungseinrichtung (60) zusammenwirkt zum werkzeuglosen lösbaren Verriegeln der Adapterplatte (11) mit dem Gehäuse (105).

26. Reinigungseinrichtung nach Anspruch 24 oder 25, dadurch gekennzeichnet, dass das Reinigungsgerät (95) einen Tragegriff (111) aufweist und die Adapterplatte (11) der Adaptervorrichtung (10) mittels der Verriegelungseinrichtung mit dem Tragegriff (111) werkzeuglos lösbar verriegelbar ist.

27. Reinigungseinrichtung nach Anspruch 24, 25 oder 26, dadurch gekennzeichnet, dass das Reinigungsgerät als Staubsauger (95) ausgestaltet ist.

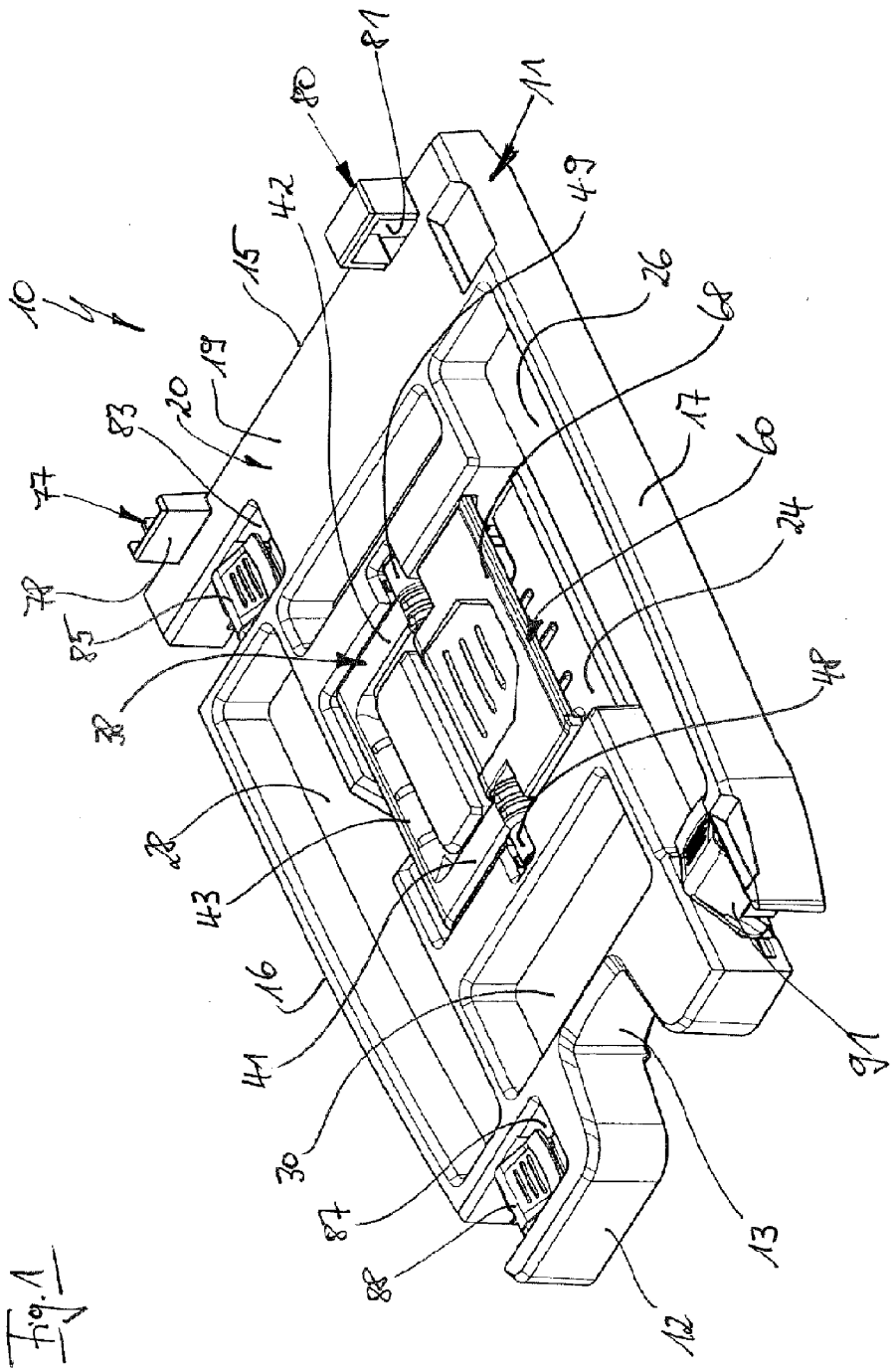

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Fig. 1

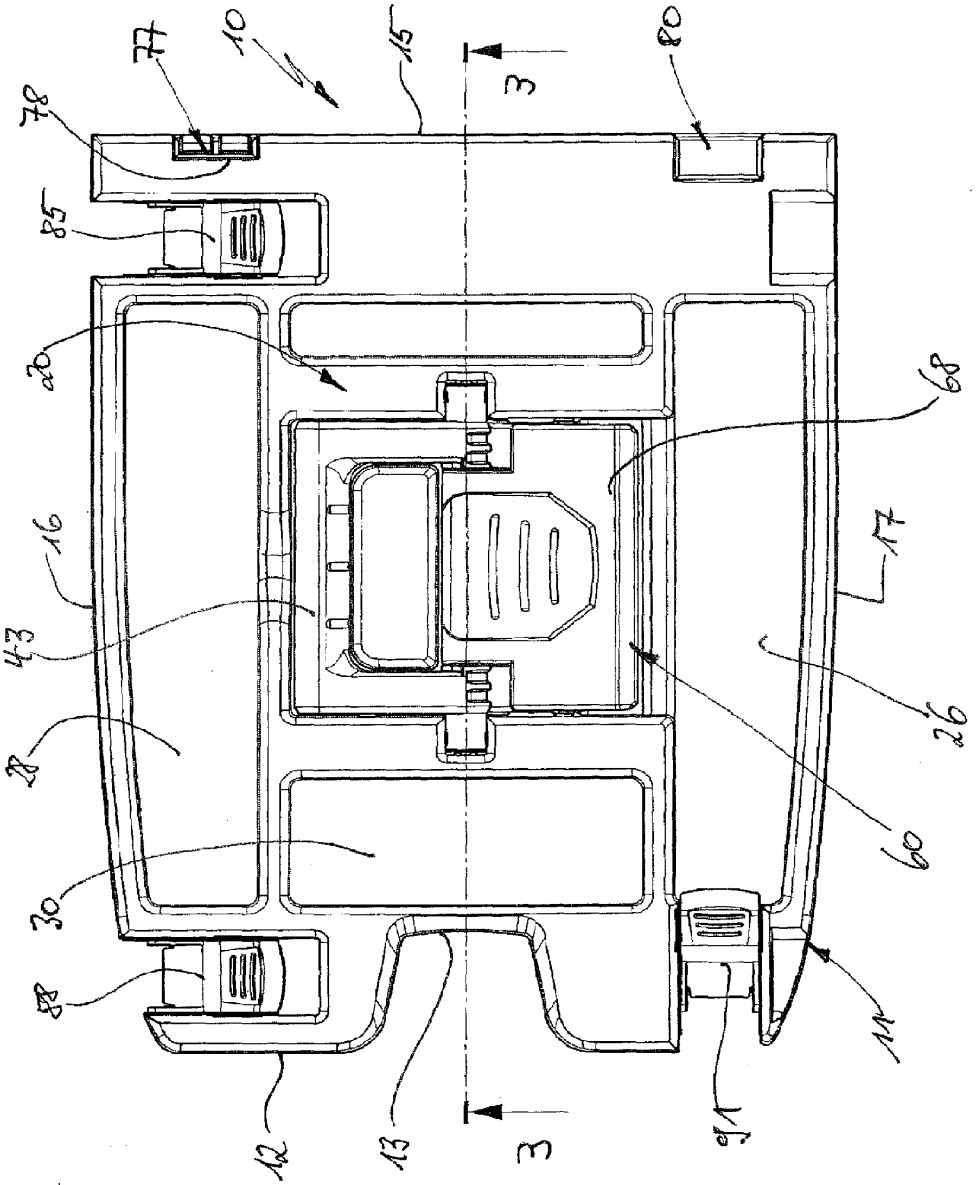


Fig.2

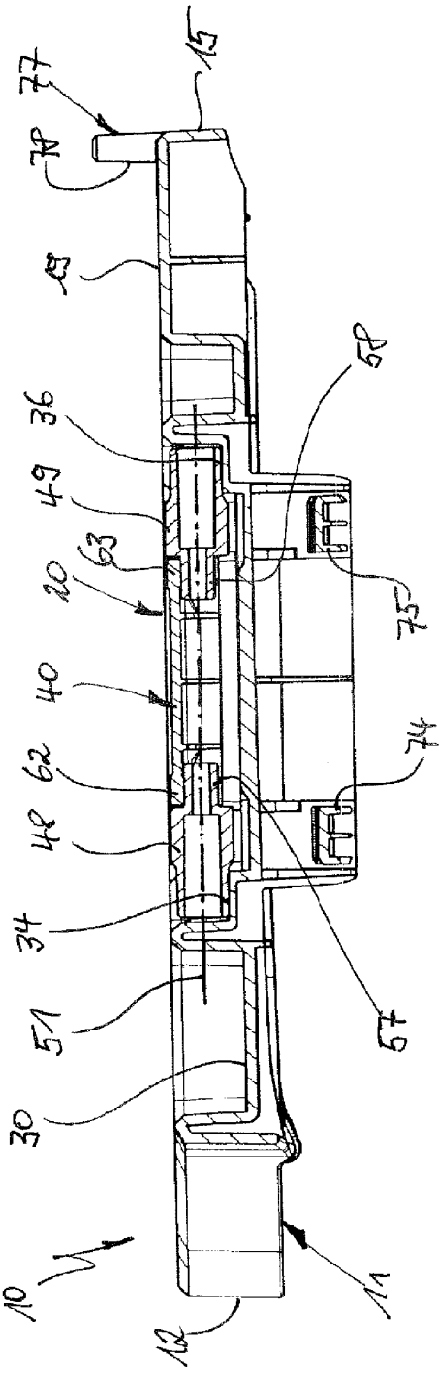


Fig. 3

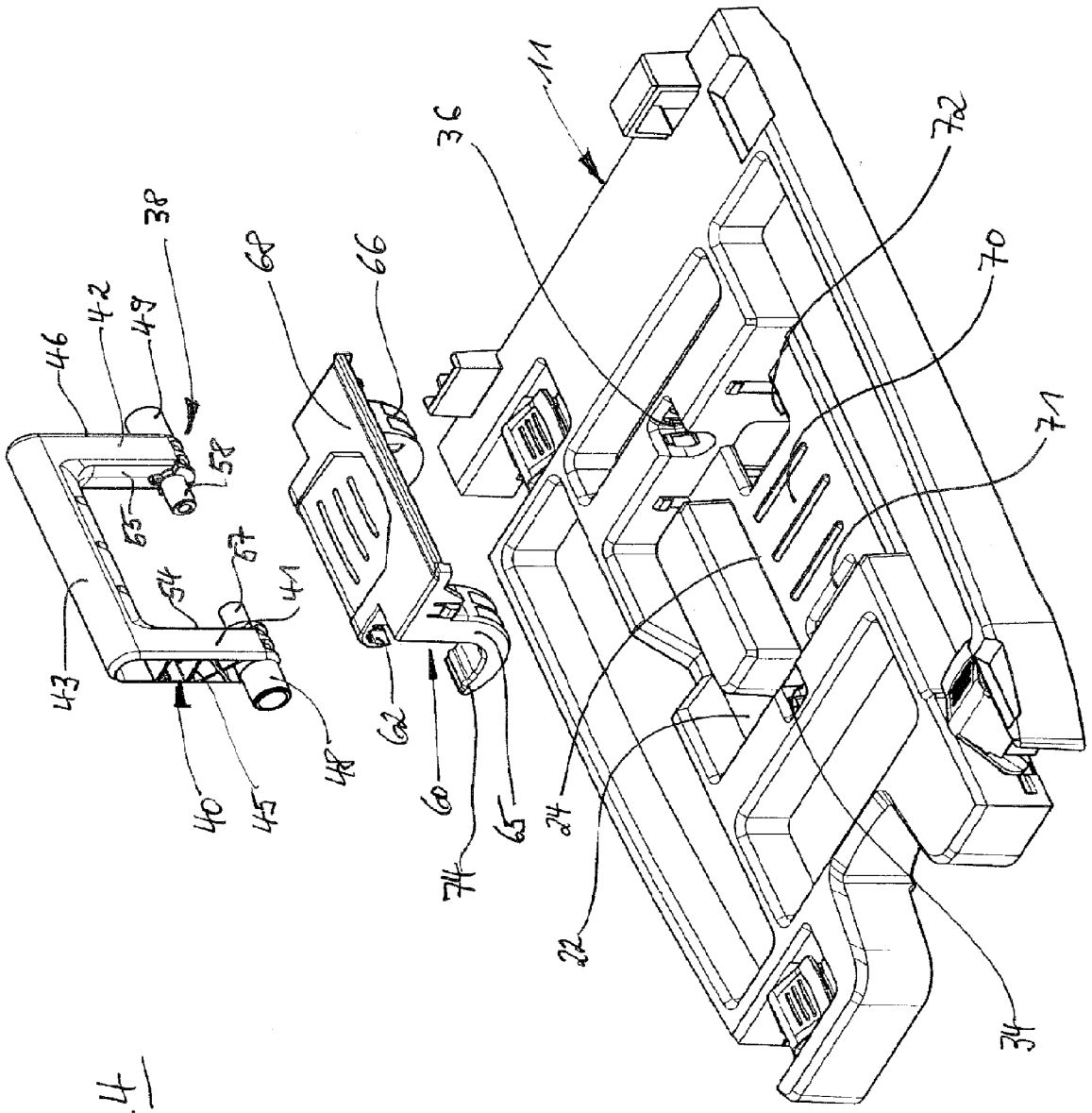

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Fig. 4

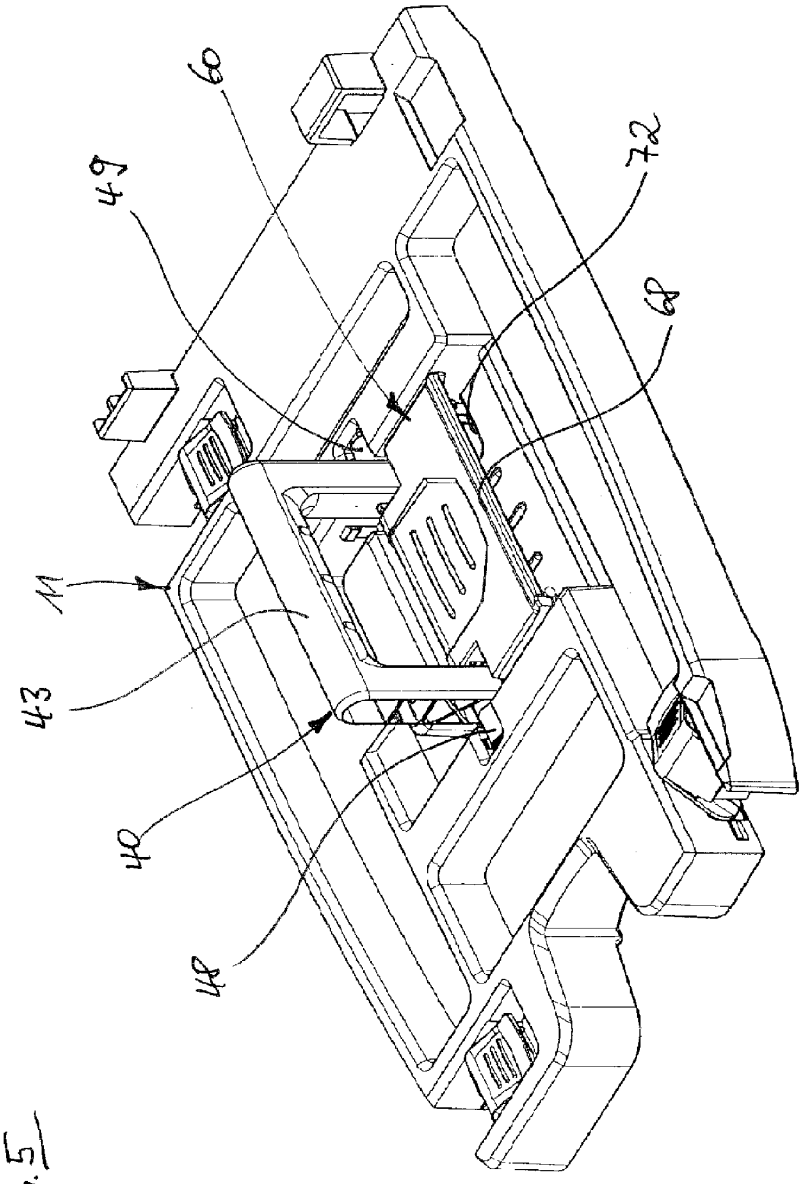


Fig. 5
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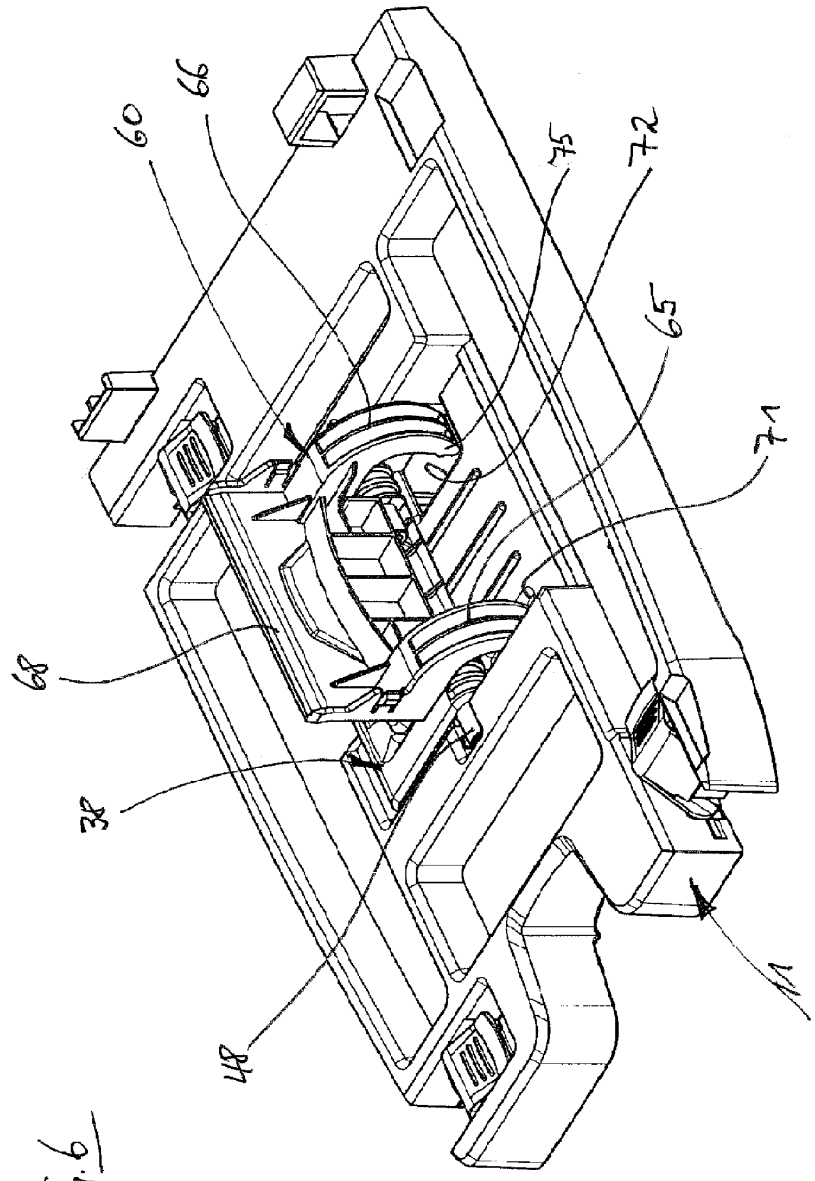


Fig. 6

Fig. 7

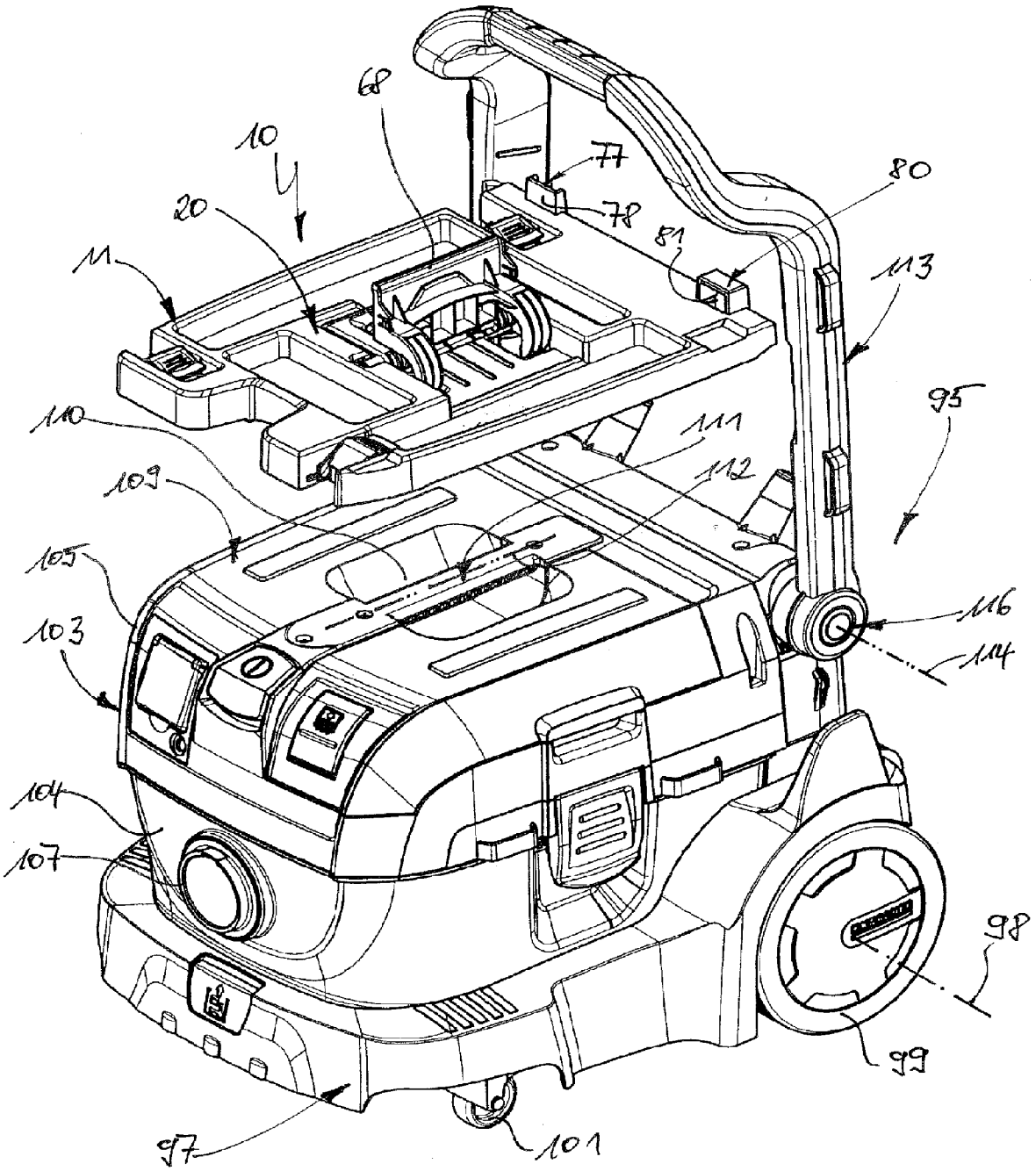

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Fig. 8

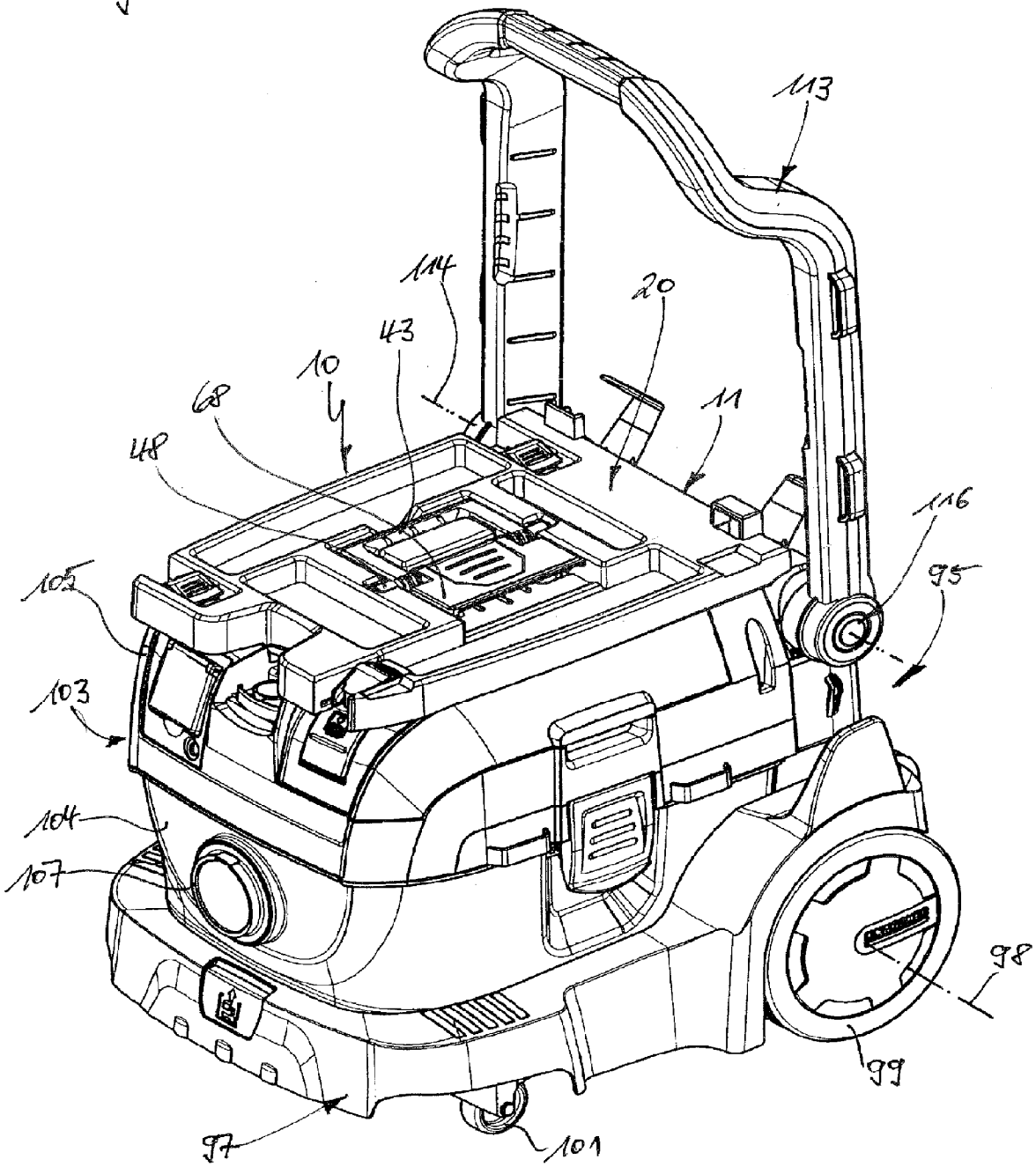


fig. 9

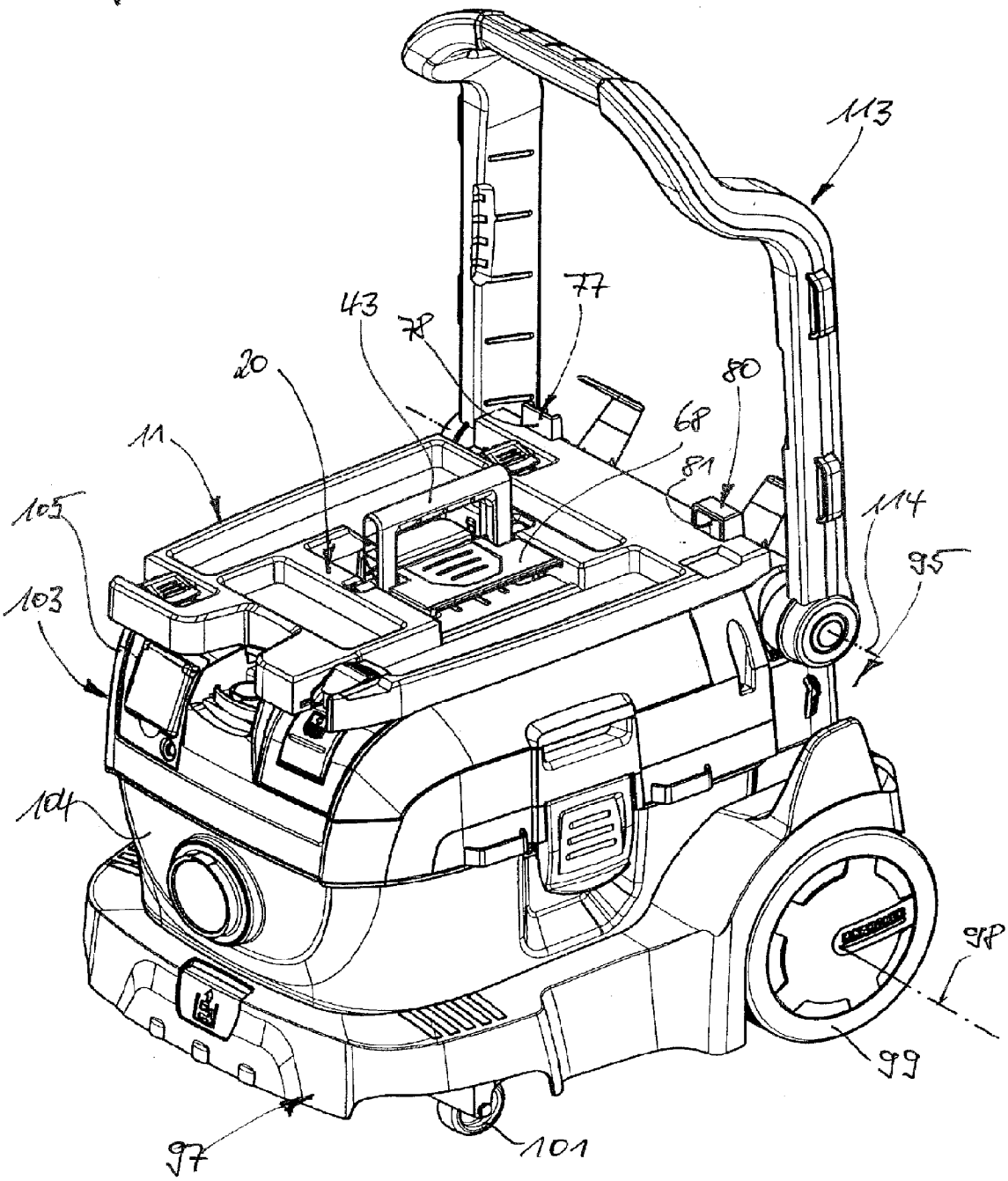
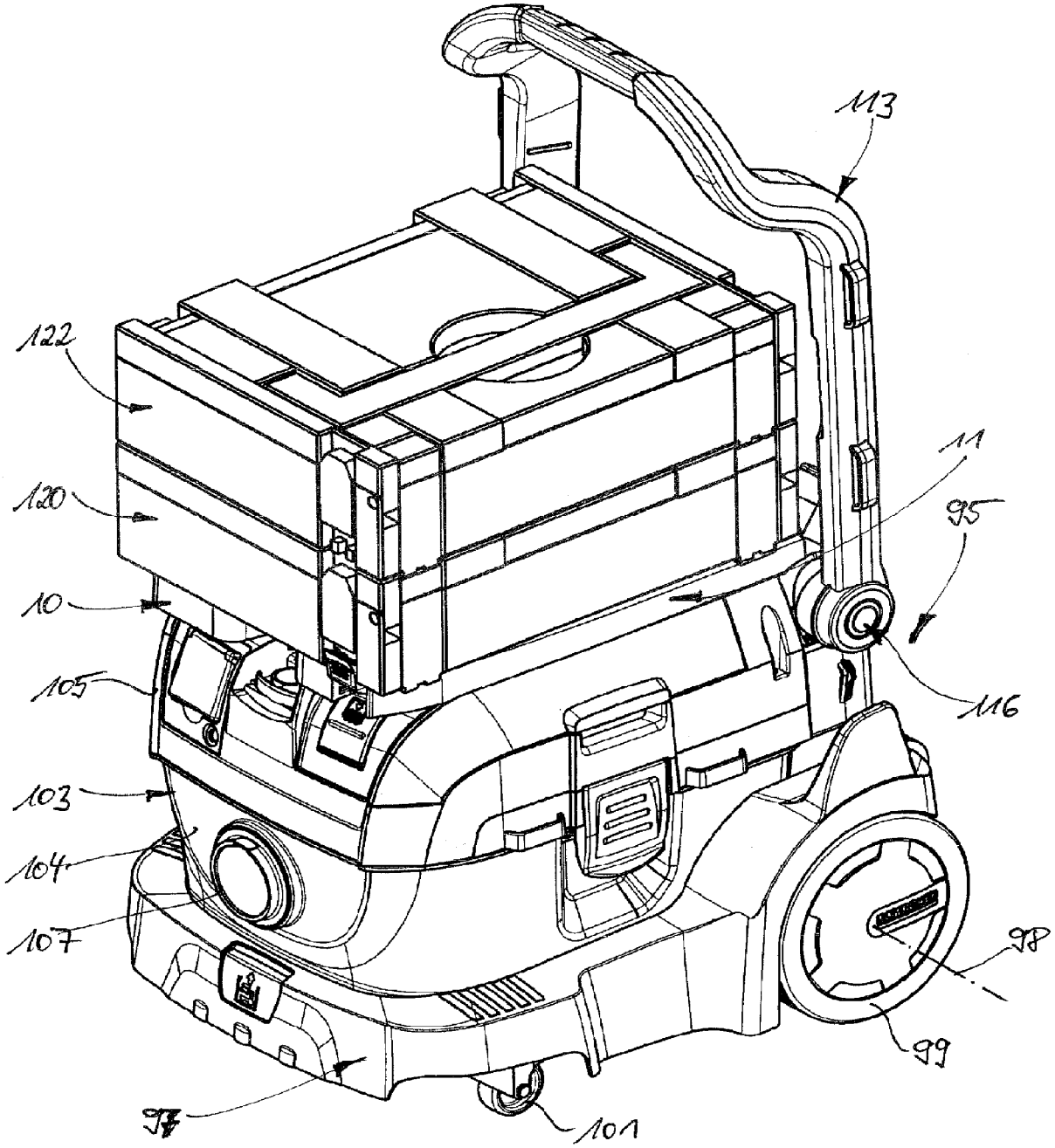


Fig. 10



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2009/059320

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47L9/00 B25H3/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47L B25H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 916 302 A2 (FESTO TOOLTECHNIC GMBH & CO [DE] FESTO TOOLTECHNIC GMBH & CO TTS TOOLT) 19 May 1999 (1999-05-19) cited in the application the whole document	1,20-27
A	EP 1 269 903 A2 (FESTOOL GMBH [DE]) 2 January 2003 (2003-01-02) abstract paragraph [0025] figures 1,3	1,22, 24-27
A	EP 1 424 170 A1 (VALENTINI GUIDO [IT]) 2 June 2004 (2004-06-02) abstract paragraphs [0005], [0007] paragraph [0013] figure 3	1,20,22, 24,27

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
31 March 2010	14/04/2010

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax. (+31-70) 340-3016	Baumgärtner, Ruth

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2009/059320

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0916302 A2	19-05-1999	DE 19750543 A1	20-05-1999
EP 1269903 A2	02-01-2003	DE 10130995 A1	16-01-2003
EP 1424170 A1	02-06-2004	AT 413949 T	15-11-2008
		ES 2316694 T3	16-04-2009
		US 2004103494 A1	03-06-2004

Form PCT/ISA/210 (patent family annex) (April 2005)

INTERNATIONALER RECHERCHENBERICHT

Internationales Aktenzeichen
PCT/EP2009/059320

A. KLASSIFIZIERUNG DES ANMELDUNGSGEGENSTANDES
INV. A47L9/00 B25H3/00
ADD.

Nach der Internationalen Patentklassifikation (IPC) oder nach der nationalen Klassifikation und der IPC

B. RECHERCHIERTE GEBIETE

Recherchierter Mindestprüfstoff (Klassifikationssystem und Klassifikationssymbole)
A47L B25H

Recherchierte, aber nicht zum Mindestprüfstoff gehörende Veröffentlichungen, soweit diese unter die recherchierten Gebiete fallen

Während der internationalen Recherche konsultierte elektronische Datenbank (Name der Datenbank und evtl. verwendete Suchbegriffe)
EPO-Internal

C. ALS WESENTLICH ANGESEHENE UNTERLAGEN

Kategorie*	Bezeichnung der Veröffentlichung, soweit erforderlich unter Angabe der in Betracht kommenden Teile	Betr. Anspruch Nr.
A	EP 0 916 302 A2 (FESTO TOOLTECHNIC GMBH & CO [DE] FESTO TOOLTECHNIC GMBH & CO TTS TOOLT) 19. Mai 1999 (1999-05-19) in der Anmeldung erwähnt das ganze Dokument	1,20-27
A	EP 1 269 903 A2 (FESTOOL GMBH [DE]) 2. Januar 2003 (2003-01-02) Zusammenfassung Absatz [0025] Abbildungen 1,3	1,22, 24-27
A	EP 1 424 170 A1 (VALENTINI GUIDO [IT]) 2. Juni 2004 (2004-06-02) Zusammenfassung Absätze [0005], [0007] Absatz [0013] Abbildung 3	1,20,22, 24,27

☐ Weitere Veröffentlichungen sind der Fortsetzung von Feld C zu entnehmen ☒ Siehe Anhang Patentfamilie

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"&" Veröffentlichung, die Mitglied derselben Patentfamilie ist

Datum des Abschlusses der internationalen Recherche	Absendedatum des internationalen Recherchenberichts
31. März 2010	14/04/2010

Name und Postanschrift der Internationalen Recherchenbehörde	Bevollmächtigter Bediensteter
Europäisches Patentamt, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Baumgärtner, Ruth

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Formblatt PCT/ISA/210 (Blatt 2) (April 2005)

INTERNATIONALER RECHERCHENBERICHT

Angaben zu Veröffentlichungen, die zur selben Patentfamilie gehören

Internationales Aktenzeichen
PCT/EP2009/059320

Im Recherchenbericht angeführtes Patentdokument		Datum der Veröffentlichung	Mitglied(er) der Patentfamilie		Datum der Veröffentlichung
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EP 1424170	A1	02-06-2004	AT	413949 T	15-11-2008
			ES	2316694 T3	16-04-2009
			US	2004103494 A1	03-06-2004

Formblatt PCT/ISA/210 (Anhang Patentfamilie) (April 2005)

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WIPO | PCT

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(51) International Patent Classification:
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B25H 3/02 (2006.01)

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PCT/AU2011/001103

(22) International Filing Date:
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(25) Filing Language: English

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(71) Applicant *(for all designated States except US)*: **DEMAIN TECHNOLOGY PTY LTD** [AU/AU]; Level 1, 13 Corporate Drive, Heatherton, VIC 3202 (AU).

(72) Inventors; and

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(54) Title: SYSTEM FOR STORAGE AND TRANSPORT

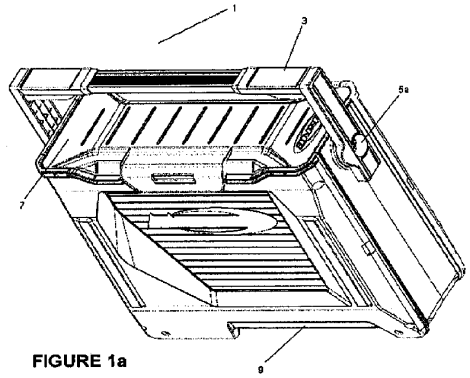


FIGURE 1a

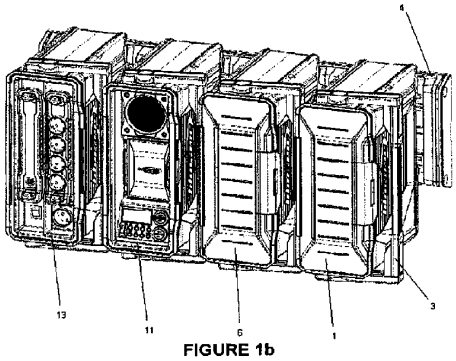


FIGURE 1b

(57) Abstract: The invention relates to a storage system for storing devices including: a frame for demountably supporting multiple carry cabinets, each carry cabinet being adapted to receive a device, characterised in that, said devices can be inserted or removed through a port in their respective carry cabinet while said multiple carry cabinets are mounted on the frame, and said devices can be transported in their respective carry cabinets when each of said carry cabinets are demounted from the frame.

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SYSTEM FOR STORAGE AND TRANSPORT

FIELD OF INVENTION

The present invention relates to a system for storage and transport of devices. In one form, the invention relates to a system for storage and transport of handheld power tools and accessories.

It will be convenient to hereinafter describe the invention in relation to power tools and their use by tradesmen and do-it-yourself (DIY) home handymen, however it should be appreciated that the present invention is not limited to that use only. The present invention has application to a wide range of devices, uses and users.

BACKGROUND ART

It is to be appreciated that any discussion of documents, devices, acts or knowledge in this specification is included to explain the context of the present invention. Further, the discussion throughout this specification comes about due to the realisation of the inventor and/or the identification of certain related art problems by the inventor. Moreover, any discussion of material such as documents, devices, acts or knowledge in this specification is included to explain the context of the invention in terms of the inventor's knowledge and experience and, accordingly, any such discussion should not be taken as an admission that any of the material forms part of the prior art base or the common general knowledge in the relevant art in Australia, or elsewhere, on or before the priority date of the disclosure and claims herein.

Tradesmen and others who earn their living in the construction and building industry need to keep their tools in close proximity to their principal workplace. For example, those in a workshop or factory will typically keep their power tools stored adjacent their workshop or work bench. The storage means may range from haphazard organisation of boxes, to hanging the devices on a shadow board or placing them on steel shelving units or in a cupboard. Accessories are typically stored nearby, or in the case of small items such as drill bits, kept in storage drawers or trays. Storage is made more difficult by the variety of ways in which power tools are packaged for sale to consumers ranging from robust hinged cases to flimsy plastic bags intended for disposal.

Many tradesmen who carry out on-site work have to store their power tools in lockable boxes and cupboards in the rear of a vehicle such as a van or utility truck. In order to avoid the time and inconvenience of shifting tools between the vehicle and a principal workplace or worksite many tradesmen purchase two sets of tools.

Similarly, as the cost of power tools has diminished individuals in a domestic environment often possess a wide variety of power tools for DIY projects or hobbies. For example, individuals often own a range of handheld devices such as power drills, AC high speed drills, hammer drills, angle grinders, circular saw, jigsaws, sanders and so forth. They also typically own a range of accessories such as drill bits, sanding papers, sanding belts, cutting blades, battery packs, torches and other lighting, battery chargers, power extension leads and multipoint plugs. Individuals commonly have the power tools stored in a garage or shed, in a disorganised state, packaged or unpackaged, in cupboards or on shelves. This degree of disorganisation makes it particularly difficult for an individual if they need to find and pack up devices and relevant accessories and transport them any distance or use them at locations around their home.

SUMMARY OF INVENTION

An object of the present invention is to provide a system for storage of devices in and area where they may be used, and transport to and from an area where they may be used.

Another object of the present invention is to provide a system for storage and transport of devices that is suitable for professionals and amateurs.

Another object of the present invention is to provide a system for storage and transport of devices and accessories that allows their ready interchange and rearrangement.

A further object of the present invention is to alleviate at least one disadvantage associated with the related art.

It is an object of the embodiments described herein to overcome or alleviate at least one of the above noted drawbacks of related art systems or to at least provide a useful alternative to related art systems.

In a first aspect of embodiments described herein there is provided a storage system for storing devices including:

- a frame for demountably supporting multiple carry cabinets, each carry cabinet being adapted to receive a device,

characterised in that,

- said devices can be inserted or removed through a port in their respective carry cabinet while said multiple carry cabinets are mounted on the frame, and
- said devices can be transported in their respective carry cabinets when each of said carry cabinets are demounted from the frame.

The frame to which the carry cabinets are mounted may be fixed free-standing, or mobile free-standing. Alternatively, the frame may be attached to a fixed structure such as a wall, or form part of a fixed structure.

Typically the carry cabinets of the storage system can be changed between a mounted and a demounted configuration respectively by engaging and disengaging a latch between the carry cabinet and frame. In a particularly preferred embodiment a simple form of latch is used, comprising one or more rails and correspondingly shaped slot(s). The rail may be integral with, or alternatively attached to the frame. The slot of the latch may be defined by a piece of metal or other material sharply curved to form a hook.

In one preferred option, the system includes two or more mountings for carry cabinets. This may be preferred for carry cabinets designed for particularly large or heavy devices. For example, the carry cabinet could include two or more hooks that can engage with two or more rails associated with the frame.

Preferably the mounting is lockable. For example the rail may include a cam that connects mounted carry cabinets such that when the cam is rotated, the carry cabinets are locked to the rail. This could be useful to prevent theft, and stop the carry cabinets accidentally demounting if for example, they were mounted to a frame in the rear of a van or truck.

Carry Cabinet

In another aspect of embodiments described herein there is provided a carry cabinet suitable for use in the storage system of the present invention.

Typically each carry cabinet is of square or rectangular cross section so that multiple carry cabinets can be mounted side-by-side or one on top of the other. Typically the rear end of a rectangular or square carry cabinet includes at least one hook or other engagement means for engaging and disengaging the frame, thus mounting and demounting the carry cabinet on the frame.

Optimally, the positions of the mounted carry cabinets are interchangeable so that they may be arranged and re-arranged in any convenient order.

Typically each carry cabinet includes a fixed or detachable handle. The handle may for example, be used in a first, raised position for manual transportation and a second, retracted position when the carry cabinet is mounted on the frame. The handle may be moved between the first and second positions by rotation about pivots located at either end of the handle. This may make it easier to access the port, and/or the handle may act as a 'spacer' between adjacent carry cabinets. Optimally the handle can be rotated in one direction only so that all handles on mounted carry cabinets are identically oriented.

Preferably a releasable retainer holds the handle in the raised position. For example the retainer may comprise a detent to check the rotational motion of the handle. This will stop the handle falling into the second position which may be inconvenient for example, when the carry cabinet is being mounted on the frame. The retainer may be manually disabled with light manual pressure.

The port may be, for example, an opening, or open side in the carry cabinet. Preferably the carry cabinet includes a cover, such as a hinged door associated with the port. The cover may be adapted to be detached, or swung, rotated, slid, or otherwise moved to allow full access to the port. Typically the cover is transparent or translucent so that it is possible to identify the contents of the carry cabinet when the cover closes over the port.

In a particularly preferred embodiment the carry cabinets can be disassembled for flat packing. For example, if the carry cabinets are constructed of rectangular panels the side and end panels can be stacked for better freight and storage logistics and to take up minimal retail shelf space.

The interior of the carry cabinet may be configured in any convenient manner such as to receive and firmly hold a device, such as a power tool, or accessories for the device. It is important that the cabinet holds the device or

accessories firmly when mounted, when being transported and during mounting/dismounting from the frame. The carry cabinet may, if convenient, be configured to receive an insert consisting of some or all of the packaging in which the device was sold. This would include packaging such as 'cradles' or 'storage docks'. These could for example, be sold with power tools. The storage docks could be constructed of robust plastic material. In a particularly preferred embodiment the storage dock can be slidably inserted along slots in the carry cabinet, preferably using a handle. The handle may be adapted to act as a spacer for at least one other adjacent insert and may, for example prevent a storage dock being inserted in the wrong position.

Preferably the interior of the carry cabinet may be configured using inserts comprising removable dividers or drawers. For example the interior surface of the carry cabinet may be able to slidably receive one or more dividers at one or more positions for location or support of a drawer, or device, or accessory, with or without packaging. Thus a single design of carry cabinet can be adapted to house a wide range of sizes of devices and accessories, thus avoiding the need to design and manufacture multiple housings. Preferably the dividers will interlock with the interior surface of the carry cabinet to provide bracing and thus rigidity and strength.

A removable divider in the form of a flat plate located underneath a drawer may provide support, while a removable divider in the form of a flat plate located above a drawer may enclose the contents so that they do not fall out. The divider may also include a releasable latch for retaining the drawer. Typically the drawers can be slidably positioned in the carry cabinet and readily removed. Optimally they may be slid out at a downward angle so the contents can be easily seen and accessed. The drawers would typically be used for small accessories such as drill bits, cutting blades and batteries.

Shelf

Preferably the storage system includes a shelf removably attached to the frame, or a wall or other structure adjacent the frame. The shelf or shelves may be located at any convenient positions on the frame. Typically the shelf would be elevated, located adjacent the lower surface of mounted carry cabinets.

The shelf may be adapted to support or be used in concert with the devices and accessories in the carry cabinets. For example the shelf may include electrical mountings or connections with wiring to the mains hidden within the frame. The shelf may also include drawers, recesses or other physical supports for devices or accessories.

The shelf may be connected to the frame for shipping and transport to avoid any warping in transit.

Bench

Preferably the storage system includes a bench removably attached to the frame. The bench may be located at any convenient position on the frame. Typically the bench would be located such that carry cabinets could be mounted above or optionally below the bench.

In a particularly preferred embodiment the storage system of the present invention is a bench, that is, the frame consists or comprises a bench that may be free standing, mobile free standing or attached to a structure such as a wall or floor.

Cover

The storage system may include an openable cover or 'hood' which can move from a first, open position to a second, closed position. In the closed position the cover typically encloses the shelf and/or mounted carry cabinets and may be lockable.

It may be convenient to attach the cover to the frame, or a rail forming part of a latch for mounting and demounting the carry cabinets, or a wall or other structure adjacent the frame. Typically the cover is attached to the frame using a pivot or spring mechanism.

Devices and Accessories

The devices contained in the carry cabinets are typically chosen from the group comprising drilling apparatus, cutting apparatus, grinding apparatus, impact drilling apparatus, screw driving apparatus and combinations thereof. For example the devices may include common AC or DC power tools such as power drills, high speed drills, hammer drills, angle grinders, circular saw, jigsaws, sanders and so forth.

The accessories are typically items used in conjunction with power tools or associated with the relevant type of work. For example, accessories would include drill bits, sanding papers, sanding belts, cutting blades and battery packs for use with the power tools. Accessories would also include torches and other lighting, battery chargers, power extension leads and multipoint plugs which contribute to carrying out the relevant work.

In a preferred embodiment, a carry cabinet can carry a device and a draw adapted to store accessories for the device. For example the interior of the draw may be configured to hold the accessories to keep them organised, make them easy to identify and stop them moving about when the carry cabinet is moved. In a particularly preferred embodiment accessories are sold separately from a drawer. Alternatively the accessories may be sold with a drawer functioning as packaging, enabling them to be fitted directly into a carry cabinet.

Some of the many accessories that can be used with the system of the present invention are power and light modules. These include work lights, spotlights, multi-power point strips optionally with retractable power cords. These are particularly valuable for those using power tools. It is particularly convenient to have these stored in carry cabinets, readily demountable to transport to a workplace indoor or outdoor. Alternatively they may be adapted for removable attachment to the frame, particularly the rail, or the shelf where they are held secure. Furthermore a multi-power point strip can be oriented horizontally for ease of use and connection when mounted on the frame or on the shelf and oriented vertically in the carry cabinet.

Another accessory that can be used with the system of the present invention is an audio/communications device. For example the audio/communications device may include functionality derived from mobile phone connection (eg iPhone dock, blutooth connectivity), audio connection (eg for mp3 players, CD player, iPods), AM/FM/digital radio and any other convenient audio or communications means. In a particularly preferred embodiment the audio/communications device includes a charging mat to charge audio or communications devices, particularly mobile phones or mp3 players.

Locating these devices within a carry cabinet creates a low cost, robust, transportable audio module for use at a worksite, particularly outdoor worksites.

The audio/communications device may be plugged into an external power source such as the electricity mains or an electricity generator, or operated by battery, or any other convenient means. In a particularly preferred embodiment the audio/communications device can be powered by plugging into a controller for a drill head or other tool part.

Optimally any speaker internal or integral to the audio/communications device may be improved, for example, by conversion from mono to stereo by coupling to an external speaker/sub woofer/ amp.

Other aspects and preferred forms are disclosed in the specification and/or defined in the appended claims, forming a part of the description of the invention.

In essence, embodiments of the present invention stem from the realization that cabinets can be adapted for storage and transport of devices and accessories that allows their ready interchange and rearrangement while maintaining the ability to readily access the devices and accessories.

Advantages provided by the present invention comprise the following:

- ability to add to the fundamental system on an 'as needs' basis, buying only what is needed at any particular time;
- the system can be used and afforded by professionals or amateurs;
- allows devices to be readily put in order, identified, rearranged, stored and transported;
- provides universal use/interchangeability of the carry cabinets allowing multiple uses and re-uses;
- devices and accessories can be kept secure at any convenient locus such as a workshop or vehicle and transported therefrom.

Further scope of applicability of embodiments of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the disclosure herein will become apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

Further disclosure, objects, advantages and aspects of preferred and other embodiments of the present application may be better understood by those skilled in the relevant art by reference to the following description of embodiments taken in conjunction with the accompanying drawings, which are given by way of illustration only, and thus are not limitative of the disclosure herein, and in which:

- Figure 1 illustrates a carry cabinet for use with the storage system of the present invention in (a) a perspective view when dismounted, and (b) in a perspective view while mounted with three other carry cabinets;
- Figure 2 illustrates a perspective view of single carry cabinet mounted on a frame according to the storage system of the present invention;
- Figure 3 illustrates a perspective view of the single carry cabinet and frame of Figure 2 combined with a shelf;
- Figure 4 illustrates a perspective view of multiple carry cabinets mounted on the frame of Figure 2;
- Figure 5 illustrates a perspective view of multiple carry cabinets mounted on the frame of Figure 2 in combination with a shelf and cover; and
- Figure 6 illustrates a perspective view of the storage system as depicted in Figure 5 with the cover in the closed position.

DETAILED DESCRIPTION

Figure 1a depicts a carry cabinet 1 suitable for use in the storage system of the present invention. In this embodiment the carry cabinet is of rectangular cross section and includes a handle 3 rotatable about pivots 5a, 5b (5b not visible in this view) at either end of the handle 3. The handle is depicted in a first, raised position for manual transportation, held in that position by a detent (not visible in this view). The detent may be overcome with medium manual pressure and the handle 3 may rotated in one direction only about the pivots 5a, 5b to provide unfettered access the opaque cover 7 covering the port. The port substantially comprises an open side in the carry cabinet 1 and the cover 7 comprises a hinged door which in this view is shown to be closed over the port. When the cover 7 is open it permits full access to the interior of the carry cabinet 1 so that a device may be inserted or removed.

One end 9 of the carry cabinet 1 includes a hook or other engagement means for engaging and disengaging the frame as the carry cabinet is mounted and dismounted.

Figure 1b depicts the carry cabinet 1 of Figure 1a mounted on a frame 4 according to the storage system of the present invention. The handle 3 can be seen in the lowered position, having been rotated out of the raised position shown in Figure 1a. Three other carry cabinets are also demountably supported on the frame 4. The rear surfaces of the carry cabinets include latches (not visible in this view) for engaging the frame 4. Two of the carry cabinets 1, 6 include hinged doors and can be used to store devices such as power tools. Carry cabinet 13 includes a removable multi-point power board, other power outlets and a work light. Carry cabinet 11 includes an audio/communications device including a speaker, AM/FM/digital radio and audio connection for an mp3 players or iPod.

Figure 2 depicts a further embodiment of a carry cabinet 2 mounted on a frame 10 according to the storage system of the present invention. The frame 10 can demountably support multiple carry cabinets however for clarity, only one is shown In this drawing. The rear surface of the carry cabinet 2 includes a hook-like formation 12 for engaging a corresponding shaped rail or ridge 14 on the frame 10. The carry cabinet 2 includes an opaque cover 8. Thus it is possible to identify any device inside the carry cabinet 2. Opening the opaque cover 8 provides access to the device.

Figure 3 depicts the carry cabinet 2 and frame 10 of Figure 2 combined with a shelf 15 attached to the lower edge of the frame 10. The shelf 15 can be used to support useful items. In this embodiment the carry cabinet 2 is adapted to support a drawer 19 for storing accessories such as drill bits for use with the power drill 12.

Figure 4 illustrates multiple carry cabinets 2, 20-24 mounted on the frame 10 of Figure 2. The cabinets may be readily re-arranged and put in a different order. In this arrangement it is easy for the user to find and collect the devices and accessories he needs and demount their carry cabinet. Alternatively the user can re-pack the device(s) and accessories in a single carry cabinet.

Each carry cabinet 2, 20-24 is adapted to support a drawer 19, 30-34 for storing accessories. Each carry cabinet 2, 20-23 stores one or more devices.

Carry cabinet 24 stores a multi-point power board 42 including an extendible power cord (not visible).

Figure 5 illustrates multiple carry cabinets 2,20-24 mounted on the frame 10 of Figure 2 in combination with a shelf 15, drawers 19,30-34 for storing accessories and a hood (cover) 40. The cover 40 is pivotally attached to either end of the frame 10 and in this view is shown in the open position. Also in this view, the cover 8 is lifted to show the interior of the carry case 2, and drawer 19 is extended to show how it has a downward slope to provide a user with an adequate view and adequate access to the contents.

Figure 6 illustrates the storage system as depicted in Figure 5, with the cover 40 in the closed position, enclosing the mounted carry cabinets 2, 20-24. The cover 40 can be locked to the frame 10 and/or shelf 15 to keep the carry cabinets secure.

While this invention has been described in connection with specific embodiments thereof, it will be understood that it is capable of further modification(s). This application is intended to cover any variations uses or adaptations of the invention following in general, the principles of the invention and including such departures from the present disclosure as come within known or customary practice within the art to which the invention pertains and as may be applied to the essential features hereinbefore set forth.

As the present invention may be embodied in several forms without departing from the spirit of the essential characteristics of the invention, it should be understood that the above described embodiments are not to limit the present invention unless otherwise specified, but rather should be construed broadly within the spirit and scope of the invention as defined in the appended claims. The described embodiments are to be considered in all respects as illustrative only and not restrictive.

Various modifications and equivalent arrangements are intended to be included within the spirit and scope of the invention and appended claims. Therefore, the specific embodiments are to be understood to be illustrative of the many ways in which the principles of the present invention may be practiced. In the following claims, means-plus-function clauses are intended to cover structures

as performing the defined function and not only structural equivalents, but also equivalent structures.

"Comprises/comprising" and "includes/including" when used in this specification is taken to specify the presence of stated features, integers, steps or components but does not preclude the presence or addition of one or more other features, integers, steps, components or groups thereof. Thus, unless the context clearly requires otherwise, throughout the description and the claims, the words 'comprise', 'comprising', 'includes', 'including' and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

CLAIMS

1. A storage system for storing devices including:
   - a frame for demountably supporting multiple carry cabinets, each carry cabinet being adapted to receive a device,

   characterised in that,
   - said devices can be inserted or removed through a port in their respective carry cabinet while said multiple carry cabinets are mounted on the frame, and
   - said devices can be transported in their respective carry cabinets when each of said carry cabinets are demounted from the frame.

2. A storage system according to claim 1 wherein the devices are chosen from the group comprising electric tools, battery powered tools, electronic devices, electrical devices and combinations thereof.

3. A storage system according to claim 2 wherein the devices are chosen from the group comprising drilling apparatus, cutting apparatus, grinding apparatus, impact drilling apparatus, screw driving apparatus and combinations thereof.

4. A storage system according to claim 1 wherein a carry cabinet can be changed between a mounted and a demounted configuration respectively by engaging and disengaging a latch between the carry cabinet and frame.

5. A storage system according to claim 4 wherein the latch comprises a rail and correspondingly shaped slot.

6. A storage system according to claim 5 wherein the frame includes multiple rails, each interlocked to an adjacent rail.

7. A storage system according to claim 4 wherein the carry cabinets can be releasably locked to the frame.

8. A storage system according to claim 1 wherein each carry cabinet includes a handle which can be used in a first, raised position for manual transportation and a second, retracted position when the carry cabinet is mounted on the frame.

9. A storage system according to claim 8 wherein the handle is rotatable in one direction for changing between the first and second positions and includes a releasable retainer for holding the handle in the raised position.

10. A storage system according to claim 1 wherein the frame may be used for demountably supporting one or more of said devices.

11. A storage system according to claim 10 wherein the device supported by the frame is chosen from the group comprising a power module, a multi-point power outlet having a retractable cord, a light module, an audio device, a communications device, charging mat for an electronic device or combinations thereof.

12. A storage system according to claim 10 wherein the device is an audio module which is powered by an external power supply when the carry cabinet is demounted.

13. A storage system according to claim 12 wherein the audio module may be connected to an external speaker.

14. A storage system according to claim 1 which comprises a bench.

15. A storage system according to claim 1 which comprises a panel which is suitable for use as a work bench, the panel being horizontally mounted on the frame and above or below said mounted carry cabinets.

16. A storage system according to claim 1 which comprises a panel which is suitable for use as a shelf, the panel being horizontally mounted on the frame adjacent said carry cabinets and suitable for demountably supporting one or more of said devices.

17. A storage system according to claim 16 wherein the device supported by the panel is chosen from the group comprising a power module, a multi-point power outlet having a retractable cord, a light module, an audio module, a communications interface, charging mat for an electronic device or combinations thereof.

18. A storage system according to claim 17 wherein the panel is demountable from the frame.

19. A storage system according to claim 1 which comprises an openable cover for enclosing said mounted carry cabinets.

20. A storage system according to claim 5 which comprises an openable cover which is mounted to the frame.

21. A storage system according to claim 1 wherein the frame comprises a base member for location at floor level, which supports members on which the carry cabinets may be mounted, and wherein the frame is either fixed, freestanding, or mobile freestanding.

22. A carry cabinet suitable for use with the storage system of claim 1 wherein each carry cabinet is further adapted to receive at least one insert chosen from the group comprising drawers, dividers, shelves, storage docks and combinations thereof.

23. A storage dock suitable for being received in the carry cabinet of claim 22, the storage dock including a handle adapted to act as a spacer for at least one other adjacent insert.

24. A carry cabinet according to claim 22 wherein the insert is slidably received in a carry cabinet and adapted to releasably receive device accessories by interference fit.

25. A carry cabinet according to claim 22, each carry cabinet including a port for insertion or removal of the device, wherein the carry cabinet includes a cover associated with the port.

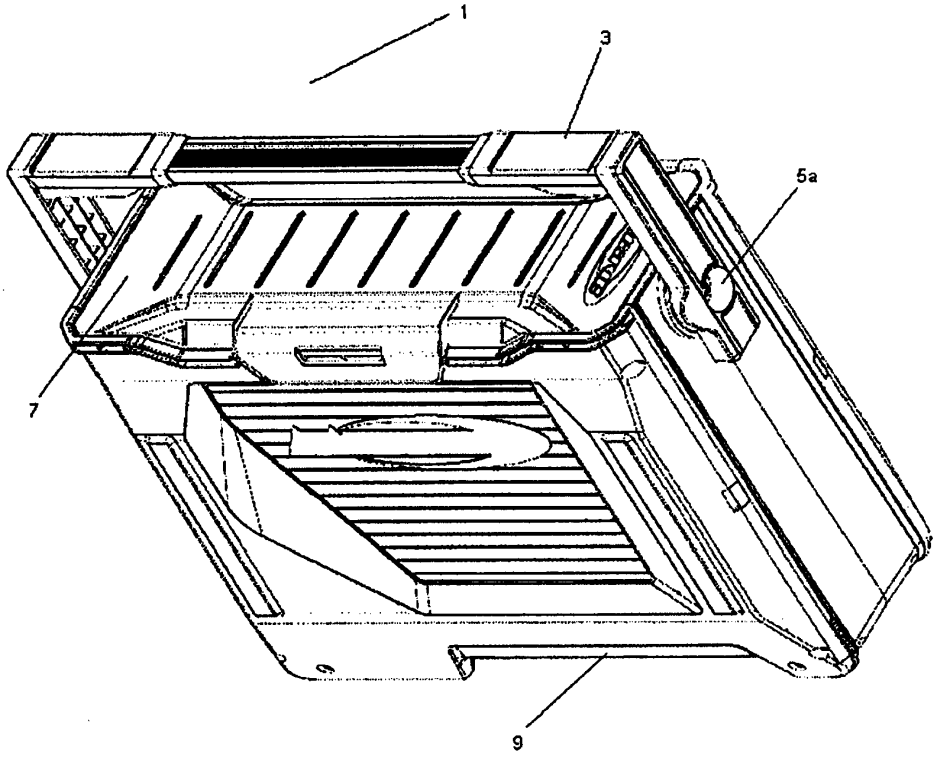


FIGURE 1a

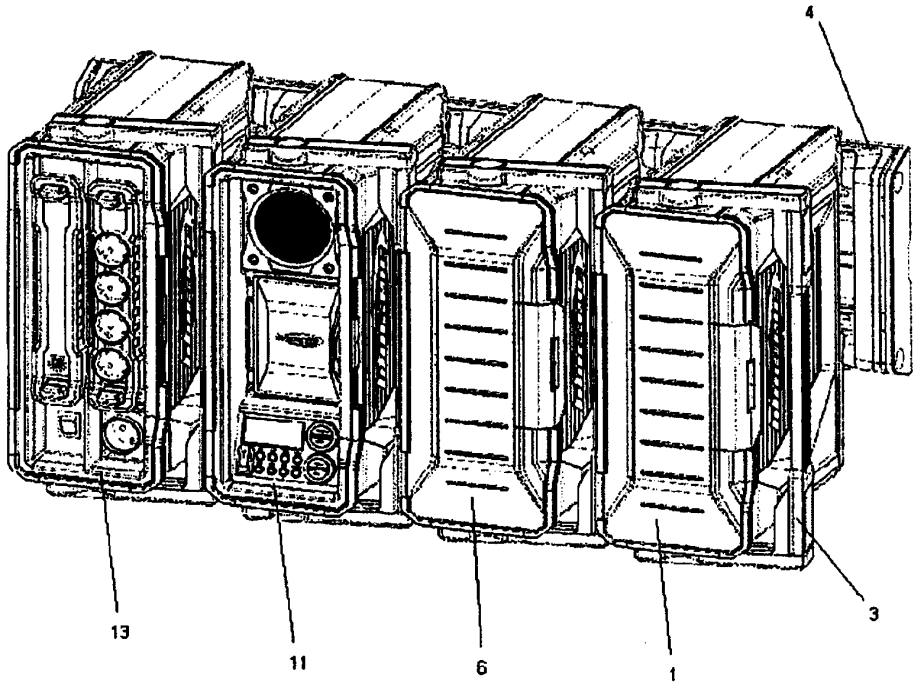


FIGURE 1b

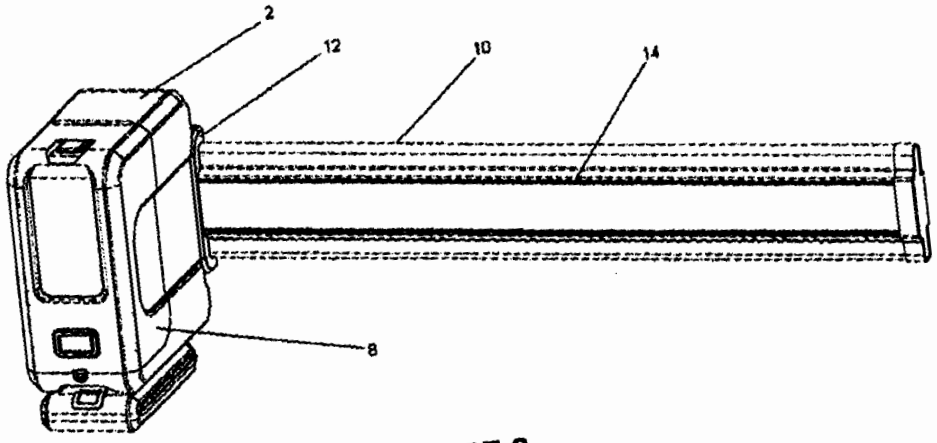


FIGURE 2

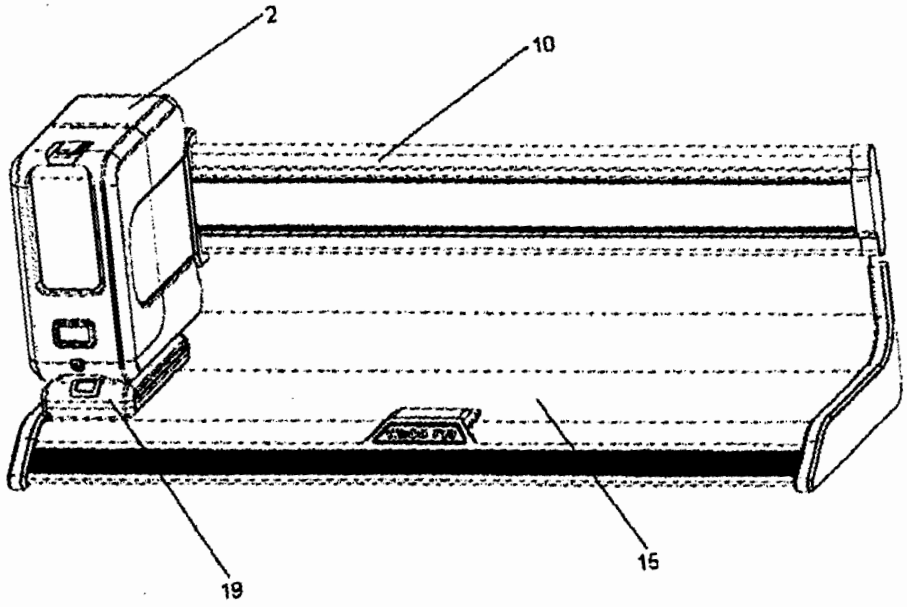


FIGURE 3

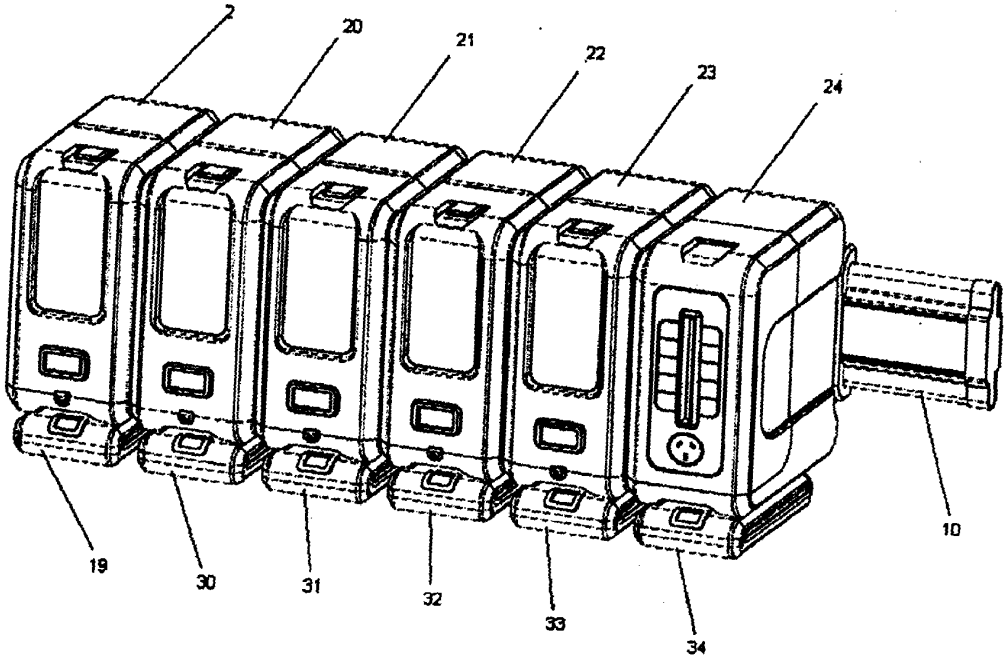


FIGURE 4

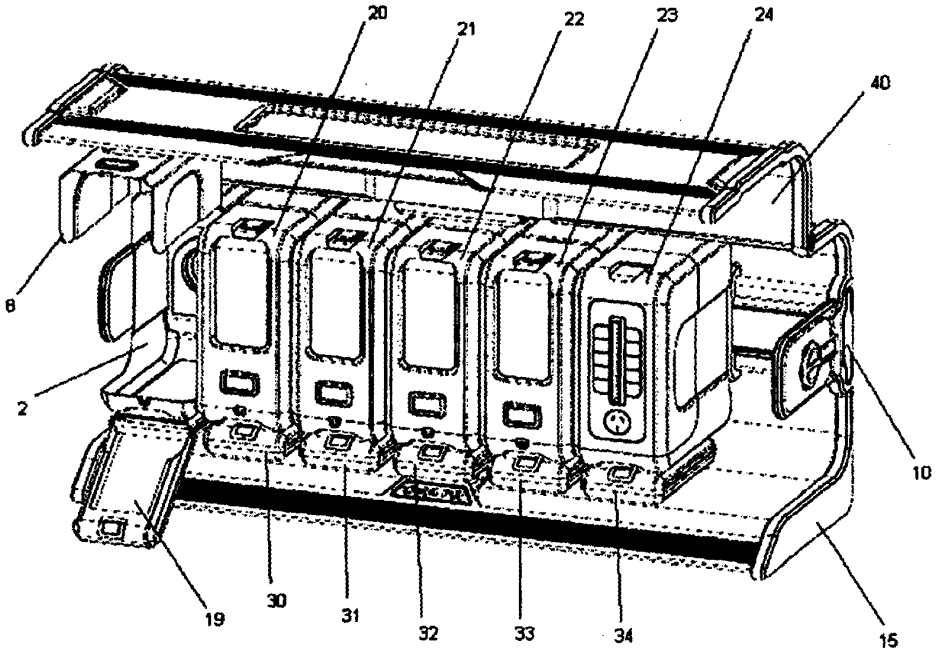


FIGURE 5

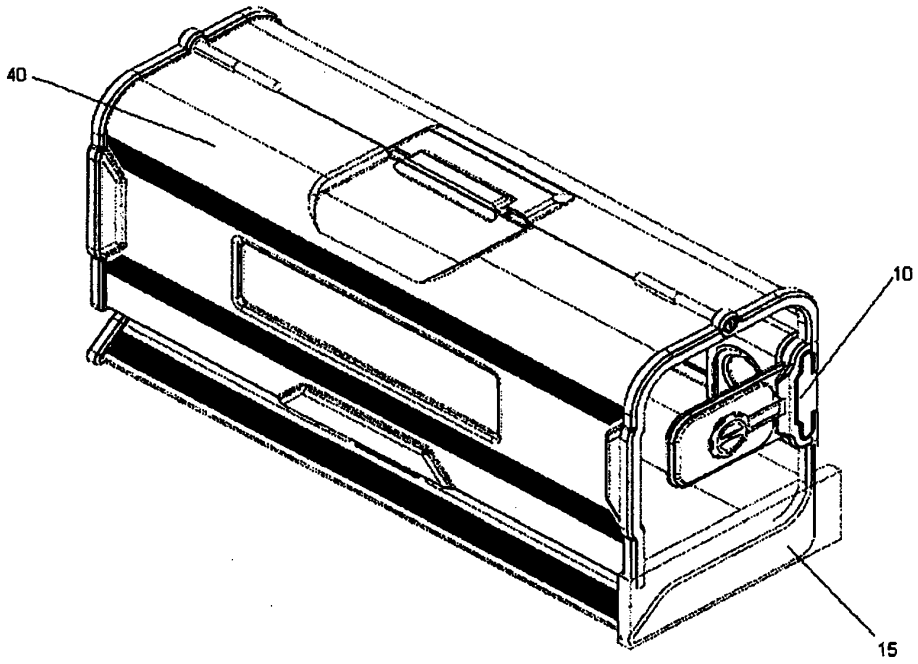


FIGURE 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2011/001103

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

B25H 3/00 (2006.01) ***B25H 3/02*** (2006.01) ***B25H 3/04*** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI, EPODOC: IPC, ECLA B25H 3/00, 3/02, 3/04 A47F 3/00, 3/08 A47B 47/00, 81/00, 87/00 B65G 1/00/LOW & Key words (stor+, rack+, magazine+, rail+, shel+, hook+, attach+, detach+, suspend+, demount+, hold+, support+, container+, case+, carry+, transport+, box+, cabinet?, tool+, device+, accessor+, medical+, electrical+, communicat+,)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5984441 A (STOKHUIJZEN) 16 November 1999. Abstract, figs 1-7 & column 2 lines 10-50	1-4,6,7,10-19,22-25
X	US 20100224527 A1 (HUANG) 9 September 2010 Abstract, figs 1-12 & paras 0003-0005	1-8, 10-25
X	DE 202009012602 U1 (KWB KARL W BURMEISTER GMBH & CO KG) 27 January 2011-09-29 English abstract retrieved from EPODOC database & FIGS 1-8	1-3, 6-19,21-25

☐ Further documents are listed in the continuation of Box C ☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 September 2011	05/10/2011
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. +61 2 6283 7999	Authorized officer **SARAVANAMUTHU PONNAMPALAM** AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : (02) 6283 2070

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/AU2011/001103

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	5984441	AU	16754/97	EP	0820367	WO	9728931
US	2010224527	CA	2694801	CN	101837854	EP	2226163
DE	202009012602U	WO	2011033012				

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1833
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(81) **Designated States** *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

— *of inventorship (Rule 4.17(iv))*

[Continued on next page]

(54) **Title**: A CABINET OF STORAGE UNITS

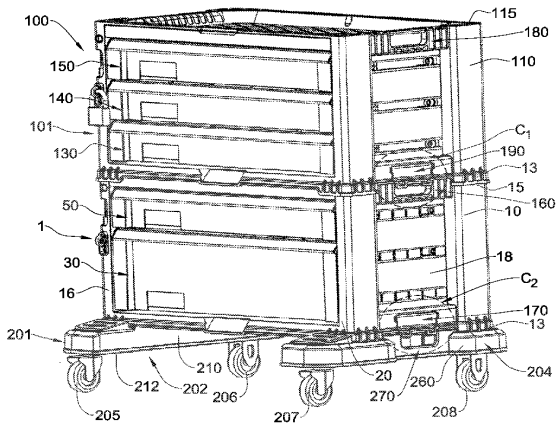


Fig. 18A

(57) **Abstract**: A cabinet comprising: a housing; two or more storage units, each accommodated within the housing and displaceable between a closed position in which a majority of the storage unit is disposed within the housing and an open position in which the storage unit projects from the housing to an extent greater than in said closed position; and a blocking mechanism comprising two or more blocking members, each associated with its corresponding storage unit and configured for selectively arresting said corresponding storage unit in its closed position; the blocking mechanism being displaceable between an unblocked state in which each one of the storage units is free to be displaced from its closed position to its open position and a blocked state in which at least one and no more than all but one of the storage units are arrested in their closed position by their corresponding blocking members. The association between the blocking mechanism and the storage units is such that, when said blocking mechanism is in its unblocked position, displacement of one of said storage units from its closed position to its open position induces displacement of the blocking mechanism from its unblocked state to its blocked state.

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— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

A CABINET OF STORAGE UNITS

TECHNOLOGICAL FIELD

The presently disclosed subject matter relates to cabinets having at least one storage unit.

BACKGROUND

Storage cabinets are used to store parts, such as nuts, bolts, and nails, and tools, such as screw drivers, wrenches, and utility knives. These cabinets typically include storage units in the form of drawers, having a predetermined arrangement and size. The drawers are usually arranged from upper side to lower side of the cabinet. The drawers can slide horizontally into and out of the cabinet. Sliding drawers are commonly built into tool cabinets, kitchen cabinets, desks, dining room cabinetry, office furniture, and the like to provide more convenient access to storage space therein.

GENERAL DESCRIPTION

According to one aspect of the presently disclosed subject matter, there is provided a cabinet comprising:

a housing;

two or more storage units, each accommodated within the housing and displaceable between a closed position in which the majority of the storage unit is disposed within the housing and an open position in which the storage unit projects from the housing to an extent greater than in said closed position; and

a blocking mechanism comprising two or more blocking members, each associated with its corresponding storage unit and configured for selectively arresting said corresponding storage unit in its closed position; the blocking mechanism being displaceable between an unblocked state in which each one of the storage units is free to be displaced from its closed position to its open position and a blocked state in which at least one and no more than all but one of the storage units are arrested in their closed position by their corresponding blocking members;

the association between the blocking mechanism and the storage units is such that, when said blocking mechanism is in its unblocked position, displacement of one of said storage units from its closed position to its open position induces displacement of the blocking mechanism from its unblocked state to its blocked state.

The term "majority of the storage unit" may be interpreted with respect to any one of the following: length of the storage unit measured along the direction of its displacement with respect to the housing, nominal dimensions of the storage unit, volume of the storage unit and weight of the storage unit.

The blocking mechanism is configured for preventing more than one storage unit being in their open position at the same time, thereby reducing the probability of tipping over of the cabinet, for example, due to shifting of the center of gravity thereof.

According to one example, at least one of the storage units is a drawer.

According to another example, at least one of the storage units is an assortment box.

The association between the blocking mechanism and the storage units can also be such that displacement of one storage unit from its open position to its closed position induces displacement of the blocking mechanism from its blocked state to its unblocked state.

The storage units can comprise a restricting arrangement associated with the blocking mechanism so that in the blocked state of the blocking mechanism, the blocking mechanism obstructs the restricting arrangement, to thereby prevent displacement thereof from their closed position to their open position. In particular, the restricting arrangement can be constituted by restricting portions of the storage units. In the blocked state, the blocking members are aligned with the corresponding restricting portions of the storage units so that during an attempt to displace a blocked storage unit from its closed position to its open position, the blocking members are configured to engage corresponding restricting portions of the restricting arrangement to thereby obstruct of the storage units and prevent their above displacement.

The cabinet can further comprise a following arrangement associated, on the one hand, with the blocking mechanism, and on the other hand with the storage units. The following arrangement is associated with said storage units such that displacement of one storage unit from its closed position to its open position entails displacement of the following arrangement from its inoperative state to its operative state. The following

arrangement is associated with said blocking mechanism such that displacement of the following arrangement from its inoperative state to its operative state entails displacement of the blocking mechanism from its unblocked state to its blocked state. Thus, displacement of a single storage unit from its closed position to its open position entails displacement of the blocking mechanism from the unblocked state to the blocked state.

The following arrangement can comprise two or more following members configured for association with each of the two or more storage units respectively. According to a particular design, the following arrangement can be a part of the blocking mechanism, i.e. the following members can be integrally formed with the blocking mechanism.

Each of the storage units can be configured with a guiding portion associated with its corresponding following member, so that during the displacement of the storage unit between its closed position and its open position, the corresponding following member slidingly engages its corresponding guiding portion (e.g. cam and following configuration), thereby changing the operative state of the following arrangement between its inoperative state and its operative state, respectively.

During the engagement of the following member with its corresponding guiding portion, the following member can rest on the guiding portion and slide along its length.

The blocking mechanism can be in the form of a single-molded member. In particular, both the blocking members and the following members can be integrally formed therewith and constitute portions of the single-molded member.

Each blocking member and following member can be constituted by a single blocking-following member. In particular, a first portion (e.g. a side surface) of the blocking-following member can constitute the blocking member and a second portion (e.g. a bottom end) of the blocking-following member can constitute the following member.

The storage units can be arranged within the cabinet along a longitudinal axis, and the blocking mechanism can have an elongated shape and can extend along said longitudinal axis.

According to one example, the longitudinal axis can be a vertical axis along which the blocking mechanism is configured to be displaced between its blocked state and its unblocked state.

In particular, the blocking mechanism can be displaced in the upward direction, when displaced from its unblocked state to its blocked state, and in the downward direction, when displaced from its blocked state to its unblocked state.

According to another example, the longitudinal axis can be a horizontal axis along which the blocking mechanism is configured to be displaced between its blocked state and its unblocked state.

The blocking mechanism can be normally urged into its unblocked state by virtue of gravity forces.

The blocking mechanism can further comprise a biasing arrangement configured for biasing the blocking mechanism from its blocked state towards its unblocked state.

The biasing arrangement can be constituted by a compression spring.

The biasing arrangement can be disposed at the uppermost end of the blocking mechanism.

Each guiding portion can be provided with a ramp portion configured to displace the corresponding following member while sliding thereon, thereby displacing the following arrangement towards its operative state, and consequentially, displacing the blocking mechanism towards its blocked state.

The blocking-following member can be sized for passing between the corresponding restricting and guiding portions during the displacement of the storage unit between its closed position and its open position.

The blocking-following member can have a predetermined width which, during the displacement of the storage unit from its closed to its open position, allows the blocking-following member to pass by the corresponding restricting portion before engaging a lower end of the ramp portion, so as to allow the blocking-following member to be displaced in the upper direction when sliding on the ramp portion.

Each of the storage units can have a cavity defined by a base section, a front wall, a first sidewall and a second sidewall, each having a first and a second exterior surface, respectively. The guiding portion of each storage unit can protrude from one of the first and the second exterior surfaces.

The restricting portion of each storage unit can protrude from one of the first and the second exterior surfaces.

At least one of the storage units can further have an intermediate position in which the storage unit projects from the housing to an extent greater than in the closed

position and smaller than in the open position. In the intermediate position, the blocking mechanism is in its unblocked state, thereby allowing more than one storage unit to be displaced to its open position.

In the closed position of the storage unit, a lower end of the ramp portion can be spaced from the blocking-following member along the guiding portion to an intermediate distance, so that the storage unit can be displaced from its closed position to its intermediate position without displacing the blocking mechanism to its blocked state.

The intermediate distance can be such that when all the storage units are in their intermediate position, there is no danger of tipping over of the cabinet.

Each of the blocking members can protrude out of the blocking mechanism towards the respective storage unit.

The cabinet can have a front wall. The blocking members can be disposed along a first plane and the restricting portions can be disposed along a second plane, such that the first plane is closer to the front wall than the second plane.

Each of the following members can protrude out of the blocking mechanism towards the respective storage unit.

The following members can be disposed along the first plane.

Each storage unit can include at least one slide mechanism configured for mounting the storage unit to the housing and facilitating the displacement of the storage unit between its closed position and its open position.

For example, each storage unit can include two slide mechanisms, connected to the first and the second sidewalls of the storage unit, respectively.

The guiding portion can be constituted by a portion of the slide mechanism.

According to another aspect of the presently disclosed subject matter, there is provided a cabinet comprising:

a housing;

one or more storage units, each accommodated within the housing and displaceable between a closed position in which the majority of the storage unit is disposed within the housing and an open position in which the storage unit projects from the housing to an extent greater than in said closed position;

a locking mechanism configured with one or more locking members, each associated with its corresponding storage unit and configured for selectively arresting

said corresponding storage unit in its closed position; the locking mechanism being displaceable between an unlocked state in which each of the storage units is free to be displaced from its closed position to its open position and a locked state in which all the storage units are arrested in their closed position by their corresponding locking members.

The locking mechanism is configured to control the ability of a user to open at least one of the storage units of the cabinet. This control can be important for different safety and/or security reasons in which a user should be prevented from opening the storage units. For example, the locking mechanism can be used for locking all the storage units at their closed position in order to prevent children from opening them and being exposed to their interior content.

It is appreciated that the above cabinet can also be provided with a blocking mechanism according to the previous aspect of the present application, thereby preventing a user from opening more than one storage unit at a time.

According to one example, the storage unit is a drawer.

According to another example, the storage unit is an assortment box.

The storage units can comprise an arresting arrangement associated with the locking mechanism so that in the locked state of the locking mechanism, the locking mechanism obstructs the arresting arrangement, to thereby prevent displacement thereof from their closed position to their open position. In particular, the arresting arrangement can be constituted by arresting portions of the storage units. In the locked state, the locking members are aligned with respective arresting portions of the storage units so that during an attempt to displace a locked storage unit from its closed position to its open position, the locking members are configured to engage corresponding arresting portions of the arresting arrangement to thereby obstruct of the storage units and prevent their above displacement.

The locking mechanism can be in the form of a single-molded member. In particular, the locking members can be integrally formed therewith and constitute portions of the single-molded member.

The storage units can be arranged within the cabinet along a longitudinal axis, and the locking mechanism can have an elongated shape and can extend along the longitudinal axis.

According to one example, the longitudinal axis can be a vertical axis along which the locking mechanism is configured to be displaced between its locked state and its unlocked state.

In particular, the locking mechanism can be displaced in the downward direction, when displaced from its locked state to its unlocked state, and in the upward direction, when displaced from its unlocked state to its locked state.

According to another example, the longitudinal axis can be a horizontal axis along which the locking mechanism is configured to be displaced between its locked state and its unlocked state.

The locking members can be sized for passing beneath the corresponding arresting portions during the displacement of the storage unit between its closed position and its open position.

Each of the storage units can have a cavity defined by a base section, a front wall, a first sidewall and a second sidewall, each having a first and a second exterior surface, respectively. The arresting portion of each storage unit can protrude from one of the first and the second exterior surfaces.

Each of the locking members can protrude out of the locking mechanism towards the respective storage unit.

The cabinet can have a front wall. The locking members can be disposed along a first plane and the arresting portions can be disposed along a second plane, such that the first plane is closer to the front wall than the second plane.

The locking mechanism can comprise an actuator for displacing the locking mechanism between its unlocked state and its locked state.

The actuator can have an actuator cavity configured to accommodate at least one finger of a user for allowing him to displace the locking mechanism between its unlocked state and its locked state.

The front wall of the cabinet can have a front edge. The front edge can have an actuator window configured for providing access to the actuator cavity.

The actuator can be configured with an indicating member, visible via an indicating window formed in the front edge of the cabinet, and configured for indicating the state in which the locking mechanism is disposed.

The indicating member can have a first portion with a first color associated with the locked state of the locking mechanism, and a second portion with a second color

associated with the unlocked state of the locking mechanism. The indicating window is configured to provide visual access to one of the first and the second portions at a time, thereby indicating the state at which the locking mechanism is disposed.

The locking mechanism can further include a securing member protruding therefrom and formed with a securing recess therein. The front edge of the cabinet can be formed with an elongate opening configured for receiving therethrough the securing member. The opening in the front edge of the cabinet can be formed with a raised rim extending about the opening, and being formed with a locking recess.

The arrangement is such that the securing member can assume a first position with respect to the elongate opening, corresponding to a locked state of the locking mechanism, in which the securing recess is aligned with the locking recess of the raised rim, and a second position in with respect to the elongate opening, corresponding to a locked state of the locking mechanism, in which the securing recess is misaligned with the locking recess of the raised rim.

In the first position of the securing member, a member of a lock can be received via the locking recess and the securing recess so as to fix the locking mechanism in its locked state.

Each storage unit can include at least one slide mechanism configured for mounting the storage unit to the housing and facilitating the displacement of the storage unit between its closed position and its open position.

According to still another aspect of the presently disclosed subject matter, there is provided a modular assembly of cabinets, which are configured to be modularly stacked on each other, comprising:

a first cabinet and a second cabinet, each comprising a housing with a base section, a top section and sidewalls extending therebetween, at least one of the sidewalls being provided with at least one upper latching mechanism disposed closer to said top section and at least one lower latching mechanism disposed closer to said base section; and

a support structure comprising at least one support latching mechanism, the support structure being configured to be disposed under a lowermost cabinet of the assembly, so as to provide support to the assembly;

the lower latching mechanism of the first cabinet being selectively engageable with the upper latching mechanism of the second cabinet or with the support latching

mechanism, and the lower latching mechanism of the second cabinet being selectively engageable with the upper latching mechanism of the first cabinet or with the support latching mechanism, thereby allowing modular latched stacking of the first cabinet, the second cabinet and the support structure to each other.

The assembly of cabinets allows selectively stacking the cabinets on each other and on the support structure so that each one of the cabinets is latched to its neighboring cabinet by corresponding upper and lower latching mechanisms while the lowermost cabinet is latched to the support structure by the corresponding lower latching mechanism and the support latching mechanism.

The base section can have a base rim and the top section can have a top rim. The base rim of the first cabinet can correspond in shape and size to the top rim of the second cabinet, so as to allow the first cabinet to be modularly stacked on the second cabinet. The base rim of the second cabinet can correspond in shape and size to the top rim of the first cabinet, so as to allow the second cabinet to be modularly stacked on the first cabinet.

The support structure can have a top section and a base section. The top section can have a support top rim. The support top rim can correspond in shape and size to the base rim of the first cabinet and to the base rim of the second cabinet, so as to allow the first cabinet or the second cabinet to be disposed on the support structure and latched thereto.

The support structure can further have sidewalls extending between the top section and the base section. At least one of the sidewalls of the support structure can be is provided with the support latching mechanism.

The support latching mechanism can be disposed closer to the support top rim than to the base section.

The sidewalls of the support structure can include a right support sidewall, a left support sidewall and a rear support sidewall.

The support structure can be constituted by two separate support members, each including its respective right and left support sidewall.

Each support member can have at least one support connecting portion configured to engage with a corresponding cabinet connecting portion formed within the first and the second bottom for disposing the first or the second cabinet on the support structure.

The support connecting portion can be constituted by a support connecting protrusion, and the cabinet connecting portion can be constituted by a cabinet connecting recess configured to receive said support connecting protrusion.

The support structure can comprise a plurality of wheels mounted to the bottom structure thereof for allowing displacement of the assembly.

The first upper latching mechanism can be similar to the second upper latching mechanism, and the first lower latching mechanism can be similar to the second lower latching mechanism.

The walls of the first and the second cabinets can be generally coplanar with each other when the cabinets are stacked on each other.

The sidewalls of the first and the second cabinets can include a right sidewall, a left sidewall, a rear sidewall and a front sidewall. The front sidewall can have a front opening formed therein configured to receive at least one storage unit into the respective cabinet.

According to one example, the storage unit is a drawer.

According to another example, the storage unit is an assortment box.

According to one example, the lower latching mechanism can comprise a latch recess formed within the respective sidewall, configured for accommodating therein a pivotally rotatable latch member. The latch member can be configured with at least one tongue.

According to still one example, the upper latching mechanism can be a detachably attachable unit.

According to still one example, the upper latching mechanism can comprise a recess formed therein with at least one catch member configured for selectively engaging with the at least one tongue of the latch member.

According to another example, the upper latching mechanism can comprise a latch recess formed within the respective sidewall, configured for accommodating therein a pivotally rotatable latch member. The latch member can be configured with at least one tongue.

According to still another example, the lower latching mechanism can be a detachably attachable unit.

According to still another example, the lower latching mechanism can comprise a recess formed therein with at least one catch member configured for selectively engaging with the at least one tongue of the latch member.

The support latching mechanism can comprise a recess formed therein with at least one catch member configured for selectively engaging with the at least one tongue of the latch member.

The upper latching mechanism can be used as a gripping member configured to be gripped by a user for raising the respective cabinet, while the recess is used for accommodating the user's fingers therein.

The structure of the sidewalls, the top section and the base section of the first and the second cabinets can be similar to each other.

In particular, the first and the second cabinets can be similar to each other.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to better understand the subject matter that is disclosed herein and to exemplify how it may be carried out in practice, embodiments will now be described, by way of non-limiting example only, with reference to the accompanying drawings, in which:

Fig. 1A is a front left isometric view of a cabinet, in accordance with one example of the presently disclosed subject matter;

Fig. 1B is a rear left isometric view of the cabinet of **Fig. 1A**;

Fig. 2A is a front left isometric view of a lower drawer of the cabinet of **Fig. 1A**;

Fig. 2B is an enlarged view of a portion A_1 of **Fig. 2A**;

Fig. 2C is a front left isometric view of an upper drawer of the cabinet of Fig. 1A;

Fig. 2D is an enlarged view of a portion A_2 of **Fig. 2A**;

Fig. 2E is a front left isometric view of a housing of the cabinet of **Fig. 1A**, with the drawers being removed;

Fig. 3 is a rear isometric view of a blocking mechanism of the cabinet of **Fig. 1A**;

Fig. 4A is the cabinet of **Fig. 1A**, with its housing removed therefrom;

Fig. 4B is an enlarged view of a portion A_3 of **Fig. 4A**;

Fig. 5A is a rear left isometric view of the cabinet of **Fig. 1A**, with its housing removed therefrom;

Fig. 5B is an enlarged view of a portion A_4 of **Fig. 5A**;

Figs. 5C to **5E** are rear isometric views of the portion A_4 of **Fig. 5B**, presented during consecutive steps of operation of the drawer;

Fig. 6A is a front left isometric view of the cabinet of the **Fig. 1A** with one drawer shown in its open position and another drawer shown in its closed position;

Fig. 6B is a rear left isometric view of the cabinet of the **Fig. 6A**;

Fig. 7A is the cabinet of **Fig. 6A**, with its housing removed therefrom;

Fig. 7B is an enlarged view of a portion A_5 of **Fig. 7A**;

Fig. 8A is a rear left isometric view of the cabinet of **Fig. 6A**, with its housing removed therefrom;

Fig. 8B is an enlarged view of a portion A_6 of **Fig. 8A**;

Fig. 9A is a front right isometric view of a cabinet, in accordance with another example of the presently disclosed subject matter;

Fig. 9B is a rear right isometric view of the cabinet of **Fig. 9A**;

Fig. 10A is a front right isometric view of a lower drawer of the cabinet of **Fig. 9A**;

Fig. 10B is an enlarged view of a portion B_1 of **Fig. 10A**;

Fig. 10C is a front right isometric view of an upper drawer of the cabinet of **Fig. 9A**;

Fig. 10D is an enlarged view of a portion B_1' of **Fig. 10C**;

Fig. 10E is a front right isometric view of a housing of the cabinet of **Fig. 9A**, with the drawers being removed;

Fig. 11 is a front isometric view of a locking mechanism of the cabinet of **Fig. 9A**, according to another aspect of the presently disclosed subject matter;

Fig. 12A is the cabinet of **Fig. 9A**, with its housing removed therefrom;

Fig. 12B is an enlarged view of a portion B_2 of **Fig. 12A**;

Fig. 13A is a rear right isometric view of the cabinet of **Fig. 9A**, with its housing removed therefrom;

Fig. 13B is an enlarged view of a portion B_3 of **Fig. 13A**;

Fig. 14A is a front right isometric view of the cabinet of the **Fig. 9A** with one drawer shown in its open position and another drawer shown in its closed position;

Fig. 14B is a rear right isometric view of the cabinet of the **Fig. 14A**;

Fig. 15A is the cabinet of Fig. 14A, with its housing removed therefrom;

Fig. 15B is an enlarged view of a portion B_4 of **Fig. 15A**;

Fig. 16A is a rear right isometric view of the cabinet of **Fig. 15A**, with its housing removed therefrom;

Fig. 16B is an enlarged view of a portion B_5 of **Fig. 16A**;

Fig. 17A is an enlarged view of a portion B_6 of **Fig. 9A**;

Fig. 17B is an enlarged view of a portion B_7 of **Fig. 14A**;

Fig. 18A is a front left isometric view of a modular assembly of cabinets, in accordance with another aspect of the presently disclosed subject matter;

Fig. 18B is an enlarged view of a portion C_1 of **Fig. 18A**;

Fig. 18C is an enlarged view of a portion C_2 of **Fig. 18A**;

Fig. 19 is an exploded view of the housing of **Fig. 2E**;

Fig. 20A is a front isometric view of an upper latching mechanism of the cabinets of **Fig. 18A**;

Fig. 20B is a rear isometric view of an upper latching mechanism of the cabinets of **Fig. 18A**;

Fig. 21A is a front isometric view of a lower latching mechanism of the cabinets of **Fig. 18A**;

Fig. 21B is a rear isometric view of a lower latching mechanism of the cabinets of **Fig. 18A**;

Fig. 22A is a front isometric view of a supporting structure of the assembly of **Fig. 18A**;

Fig. 22B is an enlarged view of a portion C_3 of Fig. 22A;

Figs. 23A and **23B** are an isometric view of a cabinet of assortment boxes; and

Figs. 24A and **24B** are an isometric view of an assortment box of the cabinet of **Figs. 23A** and **23B**.

DETAILED DESCRIPTION OF EMBODIMENTS

Attention is first directed to Figs. 1A to 2E, 6A and 6B of the drawings illustrating a cabinet in accordance with one example of the presently disclosed subject matter, generally designated **1**. The cabinet **1** comprises a housing **10** and two storage units in the form of drawrs, including a lower drawer **30** and an upper drawer **50**, each

accommodated within the housing **10** and slidingly displaceable between a closed position in which the drawer is disposed within the housing **10** and an open position in which the drawer projects from the housing **10**. The drawers **30** and **50** are vertically stacked within the housing **10** along a vertical axis **Y**. In Figs. 1A and 1B, the drawers **30** and **50** are in their closed position, and in Figs. 6A and 6B, the drawer **30** is in its open position and the drawer **50** is in its closed position.

As shown in Fig. 2E, the housing **10** has a base section **12** with a base rim **13**, a top section **14** with a top rim **15**, a right sidewall **16**, a left sidewall **18**, a front frame **20** with an opening therein and a rear wall **22**. The front frame **20** has a right front edge **19** and a left front edge **21**. The housing **10** further has a housing cavity **23** defined by the base section **12**, the top section **14**, the sidewalls **16** and **18**, and the walls **20** and **22**. The housing cavity **23** is configured to accommodate the drawers **30** and **50** therein.

It is appreciated that the number of the drawers is not limited to two. An example of a cabinet with three drawers in presented in Fig. 18A. According to the present example, the drawer **30** occupies a space of two drawers, each having dimensions similar to those of the drawer **50**.

As shown in Fig. 2A, the drawer **30** has a front wall **32**, a rear wall **34**, a right sidewall **36**, a left sidewall **38** and a base section (not seen). The front and rear walls **32** and **34**, the right and left sidewalls **36** and **38**, and the base section of the drawer **30** define together a cavity **31** configured for accommodating work tools and appliances. The right sidewall **36** has a right exterior surface **37** and the left sidewall **38** has a left exterior surface **39**.

As shown in Figs. 2C, the drawer **50** has a front wall **52**, a rear wall **54**, a right sidewall **56**, a left sidewall **58** and a base section **60**. The front and rear walls **52** and **54**, the right and left sidewalls **56** and **58**, and the base section **60** define together a cavity **51** configured for accommodating work tools and appliances. The right sidewall **56** has a right exterior surface **57** and the left sidewall **58** has a left exterior surface **59**.

Each of drawers **30** and **50** is slidingly displaceable with respect to the housing **10** by two slide mechanisms interconnecting each drawer to the housing **10**. Each of the two slide mechanisms is a full-extension mechanism being disposed at a respective sidewall of each drawer. The description below is made for example to a left slide mechanism **2** of the drawer **30**.

The slide mechanism **2** (the location of which is generally shown in Fig. 1A) has the following three members: a first member **4** (shown in Figs. 2A and 2B) protruding from the left sidewall **38** and extending between the front wall **32** and the rear wall **34**; a second member (not seen) protruding from the left sidewall **18** of the housing **10** towards the drawer **30** and extending between the front wall **20** and the rear wall **22**; and an intermediate member **6** (shown in Figs. 4A and 4B) slidingly disposed between the first and the second members. The existence of the intermediate member **6** allows the drawer **30** to fully extend out of the housing **10** in its open position (as shown for example in Figs. 6A and 6B). As shown in Figs. 6A and 6B, in the fully extended position of the slide mechanism **2**, one half of the intermediate member **6** is engaging the first member **4**, and another half of the intermediate member **6** is engaging the second member of the slide mechanism **2**, thereby providing support to the drawer **30** with respect to the housing **10**.

Reference is now made to Figs. 3, 4A to 4B and 5A to 5B, in which a blocking mechanism **70** of the cabinet **1** is illustrated, in accordance with one aspect of the presently disclosed subject matter. The blocking mechanism **70** is disposed within the cabinet **1** behind the front edge **21**, between the left sidewall **18** of the housing **10** and the left sidewalls **38** and **58** of the drawers **30** and **50**. The blocking mechanism **70** is mechanically associated with the drawers **30** and **50** for preventing more than one drawer from being displaced to its open position at the same time.

The blocking mechanism **70** is mechanically associated with the drawers **30** and **50** such that, when these drawers are in their closed position, displacement of one drawer from its closed position to its open position induces displacement of the blocking mechanism **70** which, in turn, arrests each of the other drawers in its closed position. The structure of the blocking mechanism **70** and its way of operation will now be described.

The blocking mechanism **70** is a single-molded elongate member oriented within the housing **10** along the vertical axis **Y**. The blocking mechanism **70** has three blocking-following members **71a**, **71b** and **71c**, each associated with its corresponding drawer (if accommodated within the housing **10**) for selectively arresting said corresponding drawer in its closed position. Each of the blocking-following members **71a**, **71b** and **71c** is a blocking member and a following member integrally formed in a single member. As shown in Figs. 4A and 4B, the blocking-following member **71b** is

associated with the drawer **30**, the blocking-following member **71c** is associated with the drawer **50**, and the blocking-following member **71a** is not associated with a specific drawer since the drawer **30** occupies a space of two drawers as mentioned above. The blocking-following members **71a**, **71b** and **71c** laterally are integrally formed with the blocking mechanism **70** and constitute portions thereof. The blocking-following members **71a**, **71b** and **71c** protrude from the blocking mechanism towards their corresponding drawers of the cabinet **1**.

According to the example of the drawings, the blocking mechanism **70** is vertically displaceable along the axis **Y** between a downward unblocked state (shown in Figs. 4A, 4B, 5A and 5B) in which each one of the drawers **30** and **50** is free to be displaced from its closed position to its open position and an upward blocked state (shown in Figs. 7A, 7B, 8A and 8B) in which the drawer **50** is arrested in its closed position by its corresponding blocking-following member **71c**, while the drawer **30** is in its open position. The blocking mechanism **70** is normally urged into its unblocked state by virtue of gravity forces.

As shown in Fig. 3, the blocking mechanism **70** further has a biasing arrangement **79** disposed at the uppermost end thereof and configured for biasing the blocking mechanism **70** towards its unblocked state. The biasing arrangement **79** is constituted by a biasing spring arm configured to engage the top wall **14** of the housing **1**, when the blocking mechanism is in its blocked state, and consequently to be bent. The elastic nature of the biasing arrangement **79** allows the arm to assume its original shape, thereby facilitating the displacement of the blocking mechanism **70** to its unblocked state, when possible.

It should be indicated that the description below is made to a particular example according to which the drawer **30** is displaced to its open position, while the drawer **50** is arrested in its closed position by virtue of the blocking mechanism **70**. It is appreciated that if the drawer **50** is displaced to its open position instead of the drawer **30**, the drawer **30** will be arrested in its closed position by virtue of the blocking mechanism **70** in the same manner as the drawer **50** is arrested when the drawer **30** is displaced to its open position.

Reference is now made again to Figs. 2A to 2D, 3, 4A to 4B and 5A to 5B in order to describe the mechanical association between the blocking mechanism **70** and

the drawers **30** and **50** when the drawer **30** is displaced from its closed position to its open position.

As clearly shown in Fig. 2B and 5B, the drawer **30** has a restricting portion **42** and a guiding portion **43** which are mechanically associated with the blocking-following member **71b**. The restricting portion **42** and the guiding portion **43** protrude from the left exterior surface **39** towards the left sidewall **18** of the housing **10**, and particularly towards to blocking mechanism **70**. The guiding portion **43** is disposed along and under the first element **4** of the slide mechanism **2**. The guiding portion **43** has three portions: a first straight portion **43a**, a ramp portion **43b** and a second straight portion **43c**. The the ramp portion **43b** has a lower end **45** which is disposed between the first straight portion **43a** and the ramp portion **43b**.

As clearly shown in Fig. 2D and 5B, the drawer **50** has a restricting portion **62** and a guiding portion **63** which are mechanically associated with the blocking-following member **71c**. The restricting portion **62** and the guiding portion **63** protrude from the left exterior surface **59** towards the left sidewall **18** of the housing **10**, and particularly towards to blocking mechanism **70**. The guiding portion **63** is disposed along and under the first element of the slide mechanism of the drawer **50**.

As shown in Fig. 3, each of the blocking-following members **71a, 71b** and **71C** has respectively two portions: a side blocking portion **72a**, **72b** and **72c** and a bottom following portion **73a**, **73b** and **73c**. Each of the blocking portions **72a**, **72b** and **72c** constitutes a blocking member which is mechanically associated with the restricting portion of its corresponding drawer and each of the following portions **73a**, **73b** and **73c** constitutes a following member which is mechanically associated with the guiding portion of its corresponding drawer. In particular, the blocking portion **72b** is mechanically associate with the restricting portion **42**, the blocking portion **72c** is mechanically associate with the restricting portion **62**, the following portion **73b** is mechanically associate with the guiding portion **43**, and the following portion **73c** is mechanically associate with the guiding portion **63**.

The association between the restricting portion **62** and the blocking-following members **71c** and particularly with its blocking portion **72c** is such that in the blocked state of the blocking mechanism **70**, when the drawer **30** is in its open position and the drawer **50** is in its closed position, the blocking portion **72c** obstructs the restricting portion **62**, to thereby prevent displacement thereof into its open position.

In a similar manner, the association between the restricting portion **42** and the blocking-following members **71b** and particularly with its blocking portion **72b** is such that in the blocked state of the blocking mechanism **70**, when the drawer **50** is in its open position and the drawer **30** is in its closed position, the blocking portion **72b** obstructs the restricting portion **42**, to thereby prevent displacement thereof into its open position.

As shown in Fig. 5B, the blocking-following members **71a**, **71b** and **71c** are disposed along a first plane which passes through line **AA** and which is substantially parallel to the front frame **20** of the housing **10**. As further shown in this figure, the restricting portions **42** and **62** are disposed along a second plane which passes through line **BB** and which is substantially parallel to the first plane. The first plane is closer to the front frame **20** than the second plane, and both planes are disposed in proximity to the front frame **20**.

The blocking-following member **71b** is sized for passing between the restricting portion **42** and the guiding portion **43** during the displacement of the drawer **30** between its closed position and its open position.

In a similar manner, the blocking-following member **71c** is sized for passing between the restricting portion **62** and the guiding portion **63** during the displacement of the drawer **50** between its closed position and its open position.

In order to describe the mechanical association between the guiding portion **43** and the following portion **73b**, reference is now made particularly to Fig. 5B and additionally to Figs. 5C to 5E, which illustrate the steps of displacement of the drawer **30** from its closed position to its open position, and consequent displacement of the blocking mechanism **70** to its blocked state. As shown in Fig. 5B, when the drawer **30** is in its closed position, the following portion **73b** rests on the guiding portion **43**. As shown in Fig. 5C, when the drawer **30** begins its displacement along a horizontal axis **X** to its open position, the following portion **73b** slides over the first straight portion **43a** of the guiding portion **43** until it reaches the lower end **45** of the ramp portion **43b**. Upon further displacement of the drawer **30** along the axis **X** to its open position, as shown in Fig. 5D, the following portion **73b** engages the ramp portion **43b** and slides along its length. Due to the inclined structure of the ramp portion **43b**, the following portion **73b**, and consequentially the entire blocking mechanism **70** is urged to displace in the upward direction towards the blocked state of the blocking mechanism **70**. As

shown in Fig. 5E, the following portion **73b** has passed the ramp portion **43b**, and as a result of that, the blocking mechanism **70** is disposed in its blocked state. In this state of the blocking mechanism **70**, the blocking-following member **71c** is arresting the drawer **50** in its closed position. A detailed explanation of the blocked state of the blocking mechanism **70** is provided below. Further displacement of the drawer **30** from its position in Fig. 5E to its open position in Figs. 6A and 6B does not influence on the blocking mechanism **70**, which is already in its blocked state.

Reference is now made particularly to Fig. 5B, in which the following distances are used:

W_1 – the width of the blocking following member **72**;

W_2 – the distance between the projection of the restricting member **42** on the first straight portion **43a** and the lower end **45**;

W_3 – the distance between the blocking portion **72b** and the lower end **45**; and

W_4 – the length of a horizontal portion **42'** of the restricting portion **42**.

As seen in Fig. 5B, since W_1 is smaller than W_2 ($W_1<W_2$), during its sliding along the first straight portion **43a** along a distance of W_4, the blocking-following member **71b** is able to pass by the restricting portion **42,** and particularly its horizontal portion **42'**, before engaging the lower end **45** and starting to vertically displace in the upward direction. Only after passing by the restricting portion **42** and engaging the ramp portion **43b**, the blocking-following member **71b** starts to vertically displace in the upward direction together with the entire blocking mechanism **70**. Thus, since the blocking portion **72b** is disposed behind the restricting portion **42**, the blocking mechanism in its blocked state arrest the drawer **30** in its closed position.

In addition to the open and the closed positions of the drawers **30** and **50**, these drawers also have an intermediate position in which the drawer projects from the housing to an extent greater than in the closed position and smaller than in the open position, while the blocking mechanism **70** is still in its unblocked state.

The maximal extent to which the drawers can be displaced and still be in the intermediate position is defined by the distance W_3, which is shown in Fig. 5B.

Since the displacement of the drawer **30** to its intermediate position does not entail displacement of the blocking mechanism **70**, the drawer **50** which is not arrested in its closed position, can also be displaced to its intermediate position. The intermediate distance W_3 can be such that when all the drawers of the cabinet, i.e., the

drawer **30** and the drawer **50** are in their intermediate position, there is no danger of tipping over of the cabinet.

It should be indicated that in the intermediate position of the drawer **30**, the blocking mechanism **70**, and particularly its following portion **73b**, rests on the first straight portion **43a** of the guiding portion **43**. In this position, the gravity forces which are constantly applied on the blocking mechanism **70** will not cause any displacement of the blocking mechanism **70** in the downward direction. Therefore, the drawer **30** will not be displaced from this position due to the existence of these gravity forces.

When the displacement of the drawer **30** from its closed position is stopped in a position in which the following portion **73b** rests on the ramp portion **43b**, the gravity forces that are constantly applied on the blocking mechanism **70** may cause the blocking mechanism **70** to move in the downward direction, thereby causing the following portion **73b** to slide on the ramp portion **43b** towards the first straight portion **73a** which in turn will entail displacement of the drawer **30** to its intermediate or closed position.

When the displacement of the drawer **30** from its closed position is stopped in a position in which the following portion **73b** rests on the second straight portion **43c,** the gravity forces that are constantly applied on the blocking mechanism **70** will not cause any displacement of the blocking mechanism **70** in the downward direction. Therefore, the drawer **30** will not be displaced from this position due to the existence of these gravity forces.

Reference is now made to Figs. 7A, 7B, 8A and 8B in order to describe the mechanical association between the blocking mechanism **70** and the drawers **30** and **50** when the drawer **30** is in its open position and the drawer **50** is arrested in its closed position by the blocking mechanism **70**.

In the blocked state of the blocking mechanism **70**, when the drawer **30** is in its open position, the blocking portion **72c** is aligned with the restricting portion **62** so that during an attempt to displace the drawer **50** from its closed position to its open position, the blocking portion **72c** engages the restricting portion **62** to thereby obstruct the drawer **50** and prevent its displacement to its open position.

Upon displacement of the drawer **30** back to its closed position, the blocking mechanism reverts to its unblocked state by virtue of gravity forces and the operation of the biasing arrangement **79** which tends to revert to its original shape and thereby bias the blocking mechanism **70** to its unblocked state.

Attention is now directed to Figs. 9A to 10E, 14A and 14B of the drawings illustrating a cabinet in accordance with another example of the presently disclosed subject matter, generally designated **301**. The cabinet **301** comprises a housing **310** and two storage units in the form of drawers, including a lower drawer **330** and an upper drawer **350**, each accommodated within the housing **310** and slidingly displaceable between a closed position in which the drawer is disposed within the housing **310** and an open position in which the drawer projects from the housing **310**. The drawers **330** and **350** are vertically stacked within the housing **310** along a vertical axis **Y**. In Figs. 9A and 9B, the drawers **330** and **350** are in their closed position, and in Figs. 14A and 14B, the drawer **330** is in its open position and the drawer **350** is in its closed position.

As shown in Fig. 10E, the housing **310** has a base section **312** with a base rim **313**, a top section **314** with a top rim **315**, a right sidewall **316**, a left sidewall **318**, a front frame **320** with an opening therein and a rear wall **322**. The front frame **320** has a right front edge **319** and a left front edge **321**. The housing **310** further has a housing cavity **323** defined by the base section **312**, the top section **314**, the sidewalls **316** and **318**, and the walls **320** and **322**. The housing cavity **323** is configured to accommodate the drawers **330** and **350** therein.

It is appreciated that the number of the drawers is not limited to two. An example of a cabinet with three drawers in presented in Fig. 18A. According to the present example, the drawer **330** occupies a space of two drawers, each having dimensions similar to those of the drawer **350**.

As shown in Fig. 10A, the drawer **330** has a front wall **332**, a rear wall **334**, a right sidewall **336**, a left sidewall **338** and a base section (not seen). The front and rear walls **332** and **334**, the right and left sidewalls **336** and **338**, and the base section of the drawer **330** define together a cavity **331** configured for accommodating work tools and appliances. The right sidewall **336** has a right exterior surface **337** and the left sidewall **338** has a left exterior surface **339**.

As shown in Figs. 10C, the drawer **350** has a front wall **352**, a rear wall **354**, a right sidewall **356**, a left sidewall **358** and a base section **360**. The front and rear walls **352** and **354**, the right and left sidewalls **356** and **358**, and the base section 3**60** define together a cavity **351** configured for accommodating work tools and appliances. The right sidewall **356** has a right exterior surface **357** and the left sidewall **358** has a left exterior surface **359**.

Each of drawers **330** and **350** is slidingly displaceable with respect to the housing **10** by two slide mechanisms interconnecting each drawer to the housing **10**. Each of the two slide mechanisms is a full-extension mechanism being disposed at a respective sidewall of each drawer.

Reference is now made to Figs. 9A to 14B in which the cabinet **301** is illustrated with a locking mechanism **390** disposed therein, in accordance with another aspect of the presently disclosed subject matter. The locking mechanism **390** is disposed within the housing **310** in proximity to the right front edge **319**, between the right sidewall **316** of the housing **310** and the right sidewalls **336** and **356** of the drawers **330** and **350**. The locking mechanism **390** is mechanically associated with the drawers **330** and **350** for controlling the ability of a user to open at least one of the drawers **330** and **350** of the cabinet **301**. This control allows selectively arresting all the drawers of the cabinet **301**, i.e., the drawers **330** and **350**, in their closed position and respectively releasing the drawers **330** and **350** from their arrested position, and thereby allowing each one of the drawers to be displaced to its open position.

As shown in Figs. 11, 12A, 12B, 13A and 13B, the locking mechanism **390** is a single-molded elongate member oriented within the housing **310** along the vertical axis **Y**. The locking mechanism **390** has three locking members **391**, **392** and **393**, each associated with its corresponding drawer (if accommodated within the housing **310**) for selectively arresting the drawers **330** and **350** in their closed position, and respectively allowing the drawers **330** and 3**50** to be displaced to their open position. The locking member **392** is associated with the drawer **330**, the locking member **393** is associated with the drawer **360**, and the locking member **391** is not associated with any specific drawer since the drawer **330** has a double depth as mentioned above. The locking members **391**, **392** and **393** are integrally formed with the locking mechanism **390** and constitute a portion thereof.

The locking mechanism **390** is vertically displaceable along the axis **Y** between an upward locked state (shown in Figs. 12A, 12B, 13A and 13B) in which the drawers **330** and **350** of the cabinet **301** are arrested in their closed position by their corresponding locking members **392** and **393**, and a downward unlocked state (shown in Figs. 15A, 15B, 16A and 16B) in which each of the drawers **330** and **350** of the cabinet **301** is free to be displaced from its closed position to its open position.

The locking mechanism **390** further comprises a stopping element **388** protruding therefrom. When the locking mechanism **390** is displaced to its upward locked state, the stopping element **388** is configured to be received in a corresponding first cavity (not shown) formed within the housing **310**, and thereby to be stopped at the locked state. This function of the stopping element **388** will prevent from gravity forces to displace the locking mechanism to its downward unlocked state. When the locking mechanism **390** is displaced to its unlocked state, the stopping element **388** is configured to be received in a corresponding second cavity (not shown) formed within the housing **310**, and thereby to be stopped at the unlocked state. When the stopping element **388** is received within the first and the second cavities, the user may feel or hear a 'click', which can provide indication and feedback regarding the state of the locking mechanism **390**.

As shown in Figs. 10A, 10B, 13A and 13B, the drawer **330** has an arresting portion **344** which is configured to be mechanically associated with the locking member **392** by arresting this drawer in its closed position, and the drawer **350** has an arresting portion **364** (shown in Fig. 13B) which is configured to be mechanically associated with the locking member **393** by arresting this drawer in its closed position. The arresting portions **344** and **364** protrude from the right exterior surfaces **337** and 3**57**, respectively, towards the right sidewall **316** of the housing **310**, and particularly towards to locking mechanism 3**90**.

According to Fig. 13B, the locking members **391**, **392** and **393** are disposed along a third plane which passes through line **CC** and which is parallel to the front frame **320** of the housing **310**, and the arresting portions **344** and **364** are disposed along a fourth plane which passes through line **DD** and which is parallel to the third plane. The third plane is closer to the front frame **320** than the fourth plane, and both planes are disposed in proximity to the front frame **320**.

As shown in Fig. 13B, in which the locking mechanism **390** is in its locked state, the mechanical association between the arresting portions **344** and **364** and the locking members **392** and **393** is such that the locking members **392** and **393** are aligned with their corresponding arresting portions **344** and **366**. In this position of the locking mechanism **390**, during an attempt to displace one of the drawers **330** and **350** from its closed position to its open position, the corresponding locking member **392** or **393**

engages the corresponding arresting portion **344** or **364** to thereby obstruct the drawer and prevent displacement thereof to its open position.

Reference is now made particularly to Figs. 15A, 15B, 16A, 16B, 17A and 17B, in which the locking mechanism **390** is displaced to its unlocked state, allowing any one of the drawers **330** and **350** to be displaced to its open position. According to the particular example of these figures, the drawer **330** is displaced to its open position.

In the unlocked state of the locking mechanism **390**, this mechanism is vertically displaced in a downward direction, thereby causing the locking members **392** and **393** to be misaligned with the arresting portions **344** and **364** and to be disposed under these portions. This disposition of the locking members **392** and **393** with respect to the arresting portions **344** and **364** allows any of the drawers to be displaced to its open position without engaging its corresponding locking member. As shown for example in Fig. 16B, the drawer **330** is displaced to its open position by to the fact that the locking member 3**92** was misaligned with its arresting portion **344**. Due to the existence of the blocking mechanism **370** in the cabinet **301**, only if the drawer **330** will be displaced to its closed position, the drawer **350** will be allowed to be displaced to its open position since the arresting portion **364** is misaligned with the locking member **393**.

Reference is now made to Figs. 9A, 11, 17A and 17B in which further elements of the locking mechanism **390** are presented. The locking mechanism **390** has an actuator **394** configured for displacing the locking mechanism between its unlocked state and its locked state. The actuator has an actuator cavity **395** configured to accommodate at least one finger of a user for allowing him to displace the locking mechanism between its unlocked state and its locked state. The right front edge **319** has an actuator window **324** configured for providing access to the actuator cavity **395**. The actuator **394** has an upward state corresponding to the locked state of the locking mechanism **390** and a downward state corresponding to the unlocked state of the locking mechanism **390**.

As shown in Fig. 17A, in which the locking mechanism **390** is disposed in its locked state, the actuator cavity **395** is disposed in its upward state. In order to displace to locking mechanism **390** to its unlocked state, the user can apply a downwardly directed pushing force on the actuator **394** and against the stopping element **388** which is received within the first cavity. This will result in displacement of the locking mechanism **390** to its unlocked state which is shown in Fig. 17B.

The actuator **394** is configured with an indicating member 3**96** (shown in Fig. 11), visible via an indicating window **325** (shown in Figs. 17A and 17B) formed within the right front edge **319** of the housing **310**, and configured for indicating the state in which the locking mechanism **390** is disposed to the user. The indicating member **396** has a first portion **397** with a first color associated with the locked state of the locking mechanism **390**, and a second portion **398** with a second color associated with the unlocked state of the locking mechanism **390**. The indicating window **325** is configured to provide visual indication of one of the first and the second portions **397** and **398** at a time, thereby indicating respectively the state at which the locking mechanism **90** is disposed. It should be appreciated that indication by means other than color can be applied. These means can include text, touch, etc.

In Fig. 17A it is shown that the first portion **397** is visible via the indicating window **325**, and in Fig. 17B it is shown that the second portion **398** is visible via the indicating window **325**.

The locking mechanism **390** further includes a securing member **399** protruding therefrom and formed with a securing recess **389** therein. The right front edge **319** of the housing 3**10** is formed with an elongate opening **326** configured for receiving therethrough the securing member **399**. The elongate opening **326** is formed with a raised rim **327** extending about the opening, and being formed with a locking recess **328**.

As shown in Fig. 17A, in the locked state of the locking mechanism **390**, the locking recess **328** is aligned with the securing recess **389**, so that a shackle **309** of a lock **308** can be received through the locking recess **328** and the securing recess **389** so as to fix the locking mechanism **390** in its locked state.

As shown in Fig. 17B, in the unlocked state of the locking mechanism **390**, the locking recess **28** is misaligned with the securing recess **389**, so that the shackle **309** cannot be received within the locking recess **328** and the securing recess **389** at the same time because the rim **327** obstructs a portion of the securing recess **389**. The In this position, the lock **308** cannot be used for fixing the locking mechanism in its unlocked state.

Reference is now made to Figs. 18A to 24B, in which modular assembly **100** of cabinets illustrated, in accordance with another aspect of the presently disclosed subject matter.

The modular assembly **100** includes the cabinet **1**, a cabinet **101** and a support structure **201** which are modularly stacked on each other, while the support structure **201** provides support to the whole assembly. In general, the modular assembly **100** can include more than two cabinets which can be modularly stacked on each other, while the lowermost cabinet is disposed on the support structure **201**.

The cabinet **1** comprises the housing **10** and the two drawers **30** and **50**. As described above with reference to Fig. 2E, the housing **10** has the following elements: the base section **12** with the base rim **13**, the top section **14** with the top rim **15**, the right sidewall **16**, the left sidewall **18**, the front frame **20** and the rear wall **22**.

The housing **10** further comprises two upper latching mechanisms and two lower latching mechanisms. The upper latching mechanisms include a right upper latching mechanism (not seen) and a left upper latching mechanism **160**, and the lower latching mechanisms include a right lower latching mechanism (not seen) and a left lower latching mechanism **170**. The right upper latching mechanism of the housing **10** is formed within the right sidewall **16** and partially in the top rim **15**. The left upper latching mechanism **160** is formed within the left sidewall **18** and partially in the top rim **15**. The right lower latching mechanism of the housing **10** is formed within the right sidewall **16** and partially in the bottom rim **13**. The left lower latching mechanism **170** is formed within the left sidewall **18** and partially in the bottom rim **13**.

The cabinet **101** comprises a housing **110** (shown in Fig. 19) which is similar in its structure to the housing **10,** with three storage units in the form of drawers **130**, **140** and **150** accommodated therein. As shown in Fig. **19**, the housing **110** has a base section **112** with a base rim **113**, a top section **114** with a top rim **115**, a right sidewall **116**, a left sidewall **118**, a front frame **120** with an opening therein and a rear wall **122**.

The housing **110** further comprises two upper latching mechanisms and two lower latching mechanisms. The upper latching mechanisms include a right upper latching mechanism **151** (shown in Fig. 19) and a left upper latching mechanism **180**, and the lower latching mechanisms include a right upper mechanism **141** (shown in Fig. 19) and a left lower latching mechanism **190**. The right upper latching mechanism of the housing **110** is formed within the right sidewall **116** and partially in the top rim **115**. The left upper latching mechanism **180** is formed within the left sidewall **118** and partially in the top rim **115**. The right lower latching mechanism of the housing **110** is formed within the right sidewall **116** and partially in the bottom rim **113**. The left lower

latching mechanism **190** is formed within the left sidewall **118** and partially in the bottom rim **113**. When the cabinets **1** and **101** are stacked on each other, their front wall, rear wall and sidewalls are generally coplanar with each other.

As shown in Figs. 18A and 22A, the support structure **201** is constituted by two support members, including a right support member **202** and a left support member **204**, each configured to be latched under its respective sidewall of the lowermost cabinet of the assembly. According to the present example, the lowermost cabinet is constituted by the cabinet **1**.

The right support structure **202** has a housing **210** and the left support structure **204** has a housing **260**. The housing **210** has a base section **212**, a top section **214** with a top rim **215**, a right sidewall (not seen) and a left sidewall **218**. The housing **260** has a base section **262**, a top section **264** with a top rim **265**, a right sidewall (not seen) and a left sidewall **268**.

The top section **214** has two support connecting portions **281** and **282** extending therefrom, and the top section **264** has two support connecting portions **283** and **284** extending therefrom. Each of the support connecting portions **281**, **282**, **283** and **284** is configured to be received within a corresponding cabinet connecting portion (not seen) formed within the bottom sections **12** and **112** for selectively disposing the cabinets **1** and **101** on the support structure **201**.

The support connecting portions **281**, **282**, **283** and **284** are constituted by protruding element, and the cabinet connecting portions are constituted by corresponding recesses configured to receive the protruding elements.

The right support member **202** has two wheels **205** and **206** mounted to the base section **212**, and the left support member **204** has two wheels **207** and **208** mounted to the base section **262**. The wheels **205**, **206**, **207** and **208** are for allowing displacement of the assembly from place to place.

The support structure **201** includes two support latching mechanisms, including a right support latching mechanism (not seen) disposed in the right support member **202**, and a left support latching mechanism **270** disposed in the left support member **204**. The right support latching mechanism of the housing **210** is formed within the right sidewall of the housing **210** and partially in the top rim **215**. The left support latching mechanism **270** is formed within the left sidewall **268** and partially in the top rim **265**.

The modular assembly **100** of cabinets allows selectively stacking the cabinets **1** and **101** on each other and on the support structure **201** so that each one of the cabinets is latched to its neighboring cabinet by corresponding upper and lower latching mechanisms while the lowermost cabinet of the modular assembly is latched to the support structure by the corresponding lower latching mechanisms which is latched to the support latching mechanisms. In other words, the cabinets **1** and **101** can be stacked on top of each other such that in one configuration the cabinet **1** is disposed on the cabinet **101** and latched thereto, and in another configuration, the cabinet **101** is disposed on the cabinet **1** and latched thereto. In addition, the lowermost cabinet of the assembly can be latched to the support structure **201** by using the same latching mechanism of the lowermost cabinet which is used for latching this cabinet to another cabinet, as detailed below.

As shown in Fig. 18A, the base rim **113** of the cabinet **101** correspond in shape and size to the top rim **15** of the cabinet **1**, so that the base rim **113** rests on the top rim **15**. It should be indicated that the base rim **13** of the cabinet **1** corresponds in shape and size to the top rim **115** of the cabinet **101**, so as to allow the cabinet **1** to be modularly stacked on the cabinet **101**.

In addition, the base rim **13** correspond in shape and size to the support rim **265,** so that the base rim **13** rests on the the support rim **265**. It should be indicated that the base rim **113** also correspond in shape and size to the support rim **265,** so as to allow the base rim **113** rests on the the support rim **265** when the cabinet **101** is disposed on the support structure **201**.

As further shown in Fig. 18A, the left lower latching mechanism **190** of the cabinet **101** is latched to the left upper latching mechanism **160** of the cabinet **1**, and the left lower latching mechanism **170** of the cabinet **1** is latched to the left support latching mechanism **270** of the support structure **201**. Although it is not seen in Fig. 18A, the right lower latching mechanism **141** of the cabinet **101** is latched to the right upper latching mechanism of the cabinet **1**, and the right lower latching mechanism of the cabinet **1** is latched to the right support latching mechanism of the support structure **201**.

It is appreciated that the cabinets **1** and **101** can be replaced with each other, so that the cabinet **1** is stacked on the cabinet **101** and latched thereto, and the cabinet **101** is stacked on the support structure **201** and latched thereto by its right and left lower latching mechanisms of the cabinet **101** and the support latching mechanisms.

Reference is now made to Figs. 20A and 20B to describe the structure of the left upper latching mechanism **160**, which is similar in its structure to the left upper latching mechanism **180** and to the right upper latching mechanisms of the cabinets **1** and **101**. Due to this similarity, the description below with respect to left upper latching mechanism **160** is relevant to the other upper latching mechanisms as well.

The left upper latching mechanism **160** is a detachably attachable unit having a front surface **161** and a rear surface **162**. The rear surface **162** includes two fixing members **163** and **164**, each of which is configured to be received within its corresponding cavity within the left wall **118**. One example of such a cavity is shown in Fig. 19, and designated as **166**. The cavity **166** is configured for receiving a fixing member of the left upper latching mechanism **180**. Fig. 19 illustrates the way in which the left upper latching mechanism **180** can be mounted to the left sidewall **118**.

The front surface **161** has a recess **167** formed therein with two catch members **168** and **169**, each configured for selectively engaging with a corresponding portion of the lower latching mechanism **190**.

The right and the left upper latching mechanisms of the cabinets **1** and **101** can be further used as gripping members for allowing a user to grip the respective cabinet and raise it. In this case, the recess which is formed within the respective upper latching mechanism, such as the recess **167**, can be used for accommodating the user's fingers when being gripped.

It should be indicated that the left and the right upper latching mechanisms are attachable to the cabinets **1** and **101** is a lateral direction, so as to support the weight of the cabinet when griped and raised by a user. The attachment in the lateral direction is provided by the direction of the fixing members **163** and **164** and their respective cavities, which is along the axis **X**. Since the axis **X** is perpendicular to the axis **Y** in which the cabinet is raised, the support to the weight of the cabinet is provided.

Reference is now made to Figs. 19, 21A and 21B to describe the structure of the left lower latching mechanism **190**, which is similar in its structure to the left lower latching mechanism **170** and to the right lower latching mechanisms of the cabinets **1** and **101**. Due to this similarity, the description below with respect to left lower latching mechanism **190** is relevant to the other lower latching mechanisms as well.

The left lower latching mechanism **190** is constituted by a latch member **191** (shown in Figs. 21A and 21B), a latch recess **192** (shown in Fig. 19) formed within the

sidewall **118**. The latch member **191** is a pivotally rotatable member having two pivoting elements **193** and **194**, disposed at the upper end of thereof. The pivoting elements **193** and **194** are configured to be received within corresponding cavities formed in the latch recess **192**. One example of such a cavity is shown in Fig. 19, and designated as **195**. When the latch member **191** is mounted within the latch recess **192,** the pivoting element **194** is configured to be received in the cavity **195**. The latch member **191** has two tongues **196** and **197** disposed at the lower end thereof. When the left lower latching mechanism **190** is engaged with the left upper latching mechanism **160**, the latch member **191** is rotated towards the recess **167**, so that the tongue **196** is received within the catch member **169**, and the tongue **197** is received within the catch member **168,** thereby latching the left lower latching mechanism **190** to the left upper latching mechanism **160** .

As shown in Fig. 22B, the left support latching mechanism **270** has a support recess **271** formed therein with two catch members **272** and **273**, each configured for selectively engaging with a corresponding tongue of the left lower latching mechanism **170**. According to another example, in which the cabinet **101** is the lowermost cabinet, the left lower latching mechanism **190** is engaged and latched with the left support latching mechanism **270** by the tongue **196** which is received within the catch member **272** and by the tongue **197** which is received within the catch member **273**.

Turning now to Figs. 18B and 18C, which summarizes the manner according to which the latching mechanisms of the left side of the modular assembly **100** are latched to each other. Fig. 18B illustrates the latching of the left lower latching mechanism **190** to the left upper latching mechanism **160**. In this figure it is shown that the two tongues of the latch member **191** are received within their corresponding catch members. Fig. 18C illustrates the latching of the left lower latching mechanism **170** to the left support latching mechanism **270**. In this figure it is shown that the two tongues of the latch member of the left lower latching mechanism **170** are received within their corresponding catch members **272** and **273**.

Although not detailed above, the latching mechanisms of the right side of the modular assembly **100** are latched to each other in a similar manner at those of the left side.

Reference is now made particularly to Figs. 23A to 24B, which illustrate another example of a cabinet **401**. The cabinet **401** can be modularly integrated within the

modular assembly of the presently disclosed subject matter, and in particular to be stacked above or below each one of the cabinets **1** and **101**, or above the support structure **201**. As part of the modular assembly, the cabinet **401** can also be stacked with another cabinet which is similar the cabinet **401**.

The cabinet **401** comprises a housing **410** which is similar in its exterior structure to the housings **10** and **110** with three storage units in the form of assortment boxes **430**, **440** and **450** accommodated therein. The housing **410** has a base section with a base rim **413**, a top section **414** with a top rim **415**, a right sidewall (not shown), a left sidewall **418**, a front frame **420** with an opening therein and a rear wall **422**.

The housing **410** further comprises two upper latching mechanisms and two lower latching mechanisms. The upper latching mechanisms include a right upper latching mechanism (not shown) and a left upper latching mechanism **480**, and the lower latching mechanisms include a right upper mechanism (not shown) and a left lower latching mechanism **490**. The right upper latching mechanism of the housing **410** is formed within the right sidewall and partially in the top rim **415**. The left upper latching mechanism **480** is formed within the left sidewall **418** and partially in the top rim **415**. The right lower latching mechanism of the housing **110** is formed within the right sidewall and partially in the bottom rim **413**. The left lower latching mechanism **490** is formed within the left sidewall **418** and partially in the bottom rim **413**.

For example, in order to connect the cabinet **401** to the cabinet **1**, when the cabinet **401** is disposed on the cabinet **1**, the right lower latching mechanism of the housing **410** has to be engaged with the right upper latching mechanism of the cabinet **1** and the left lower latching mechanism **490** has to be engaged with the left upper latching mechanism **160** of the cabinet **1**.

The assortment boxes **430**, **440** and **450** are configured to be inserted into and extracted from the housing **410**. As shown in Fig. 23B, the assortment box **430** is extracted from the housing **410**.

Reference is now made to Figs. 24A and 24B, in which the assortment box **430** is illustrated. As shown in these figures, the assortment box **430** has an assortment box housing **432** and a cover **434** pivotally articulated thereto. The assortment box **430** is convertible between a closed position in which the cover **434** covers the assortment box housing **432** (shown in Fig. 24A) and an open position shown in Fig. 24B in which the cover **434** provides access to the interior of the assortment box housing **432**. The

housing **434** has a right rail (now shown) and a left rail **435** in form of a recess, which is configured to receive a corresponding elongated protruding member of the housing **410** so as to allow the assortment box **430** to slide within the housing **410**.

CLAIMS:

1. A cabinet comprising:

a housing;

two or more storage units, each accommodated within the housing and displaceable between a closed position in which a majority of the storage unit is disposed within the housing and an open position in which the storage unit projects from the housing to an extent greater than in said closed position; and

a blocking mechanism comprising two or more blocking members, each associated with its corresponding storage unit and configured for selectively arresting said corresponding storage unit in its closed position; the blocking mechanism being displaceable between an unblocked state in which each one of the storage units is free to be displaced from its closed position to its open position and a blocked state in which at least one and no more than all but one of the storage units are arrested in their closed position by their corresponding blocking members;

the association between the blocking mechanism and the storage units is such that, when said blocking mechanism is in its unblocked position, displacement of one of said storage units from its closed position to its open position induces displacement of the blocking mechanism from its unblocked state to its blocked state.

2. A cabinet according to Claim 1, wherein the association between the blocking mechanism and the storage units is further such that displacement of one storage unit from its open position to its closed position induces displacement of the blocking mechanism from its blocked state to its unblocked state.

3. A cabinet according to Claim 1 or 2, wherein the storage units comprise a restricting arrangement associated with the blocking mechanism so that in the blocked state of the blocking mechanism, the blocking mechanism obstructs the restricting arrangement, to thereby prevent displacement of the storage units from their closed position to their open position.

4. A cabinet according to Claim 3, wherein the restricting arrangement is constituted by restricting portions of the storage units, so that in the blocked state, the blocking members are aligned with the corresponding restricting portions of the storage units so that during an attempt to displace a blocked storage unit from its closed position to its open position, the blocking members are configured to engage corresponding

restricting portions of the restricting arrangement to thereby obstruct of the storage units and prevent their displacement.

5. A cabinet according to any one of the preceding claims, further comprising a following arrangement associated with the blocking mechanism and with the storage units; said following arrangement being associated with said storage units such that displacement of one storage unit from its closed position to its open position entails displacement of the following arrangement from its inoperative state to its operative state, and said following arrangement being associated with said blocking mechanism such that displacement of the following arrangement from its inoperative state to its operative state entails displacement of the blocking mechanism from its unblocked state to its blocked state.

6. A cabinet according to Claim 5, wherein the following arrangement comprises two or more following members configured for association with each of the two or more storage units respectively.

7. A cabinet according to Claim 6, wherein each of the storage units is configured with a guiding portion associated with its corresponding following member, so that during the displacement of the storage unit between its closed position and its open position, the corresponding following member slidingly engages its corresponding guiding portion, thereby changing the operative state of the following arrangement between its inoperative state and its operative state, respectively.

8. A cabinet according to Claim 7, wherein during the engagement of the following member with its corresponding guiding portion, the following member is configured to rest on the guiding portion and slide along its length.

9. A cabinet according to Claim 7 or 8, wherein each of the guiding portion is provided with a ramp portion configured to displace the corresponding following member while sliding thereon, thereby displacing the following arrangement towards its operative state, and consequentially, displacing the blocking mechanism towards its blocked state.

10. A cabinet according to any one of claims 6 to 9, wherein each said blocking member and said following member is constituted by a single blocking-following member so that a first portion of the blocking-following member constitutes the blocking member and a second portion of the blocking-following member constitutes the following member.

11. A cabinet according to Claim 10, wherein the blocking-following member is sized for passing between the corresponding restricting and guiding portions during the displacement of the storage unit between its closed position and its open position.

12. A cabinet according to Claim 10 or 11, wherein the blocking-following member has a predetermined width which, during the displacement of the storage unit from its closed to its open position, allows the blocking-following member to pass by the corresponding restricting portion before engaging a lower end of the ramp portion, so as to allow the blocking-following member to be displaced in the upper direction when sliding on the ramp portion.

13. A cabinet according to any one of the preceding claims, wherein the storage units are arranged within the cabinet along a longitudinal axis, and the blocking mechanism has an elongated shape extending along said longitudinal axis.

14. A cabinet according to Claim 13, wherein the longitudinal axis is a vertical axis along which the blocking mechanism is configured to be displaced between its blocked state and its unblocked state.

15. A cabinet according to any one of the preceding claims, wherein the blocking mechanism is normally urged into its unblocked state by virtue of gravity forces.

16. A cabinet according to any one of the preceding claims, wherein the blocking mechanism comprises a biasing arrangement configured for biasing the blocking mechanism from its blocked state towards its unblocked state.

17. A cabinet according to any one of the preceding claims, wherein the cabinet has a front wall, the blocking members are disposed along a first plane and the restricting portions are disposed along a second plane, such that the first plane is closer to the front wall than the second plane.

18. A cabinet comprising:

a housing;

one or more storage units, each accommodated within the housing and displaceable between a closed position in which a majority of the storage unit is disposed within the housing and an open position in which the storage unit projects from the housing to an extent greater than in said closed position; and

a locking mechanism configured with one or more locking members, each associated with its corresponding storage unit and configured for selectively arresting said corresponding storage unit in its closed position; the locking mechanism being

displaceable between an unlocked state in which each of the storage units is free to be displaced from its closed position to its open position and a locked state in which all the storage units are arrested in their closed position by their corresponding locking members.

19. A cabinet according to Claim 18, wherein the storage units comprise an arresting arrangement associated with the locking mechanism so that in the locked state of the locking mechanism, the locking mechanism obstructs the arresting arrangement, to thereby prevent displacement thereof from their closed position to their open position.

20. A cabinet according to Claim 19, wherein the arresting arrangement is constituted by arresting portions of the storage units; and wherein in the locked state, the locking members are aligned with respective arresting portions of the storage units so that during an attempt to displace a locked storage unit from its closed position to its open position, the locking members are configured to engage corresponding arresting portions of the arresting arrangement to thereby obstruct of the storage units and prevent their displacement.

21. A cabinet according to any one of Claims 18 to 20, wherein the storage units are be arranged within the cabinet along a longitudinal axis, and the locking mechanism has an elongated shape extending along the longitudinal axis.

22. A cabinet according to Claim 21, wherein the longitudinal axis is a vertical axis along which the locking mechanism is displaceable between its locked state and its unlocked state.

23. A cabinet according to any one of Claims 18 to 22, wherein the locking members are sized for passing beneath the corresponding arresting portions during the displacement of the storage unit between its closed position and its open position.

24. A cabinet according to any one of Claims 18 to 23, wherein the cabinet has a front wall, the locking members are disposed along a first plane and the arresting portions are disposed along a second plane, such that the first plane is closer to the front wall than the second plane.

25. A cabinet according to any one of Claims 18 to 24, wherein the locking mechanism comprises an actuator for displacing the locking mechanism between its unlocked state and its locked state.

26. A cabinet according to Claim 25, wherein the actuator has an actuator cavity configured to accommodate at least one finger of a user for allowing him to displace the locking mechanism between its unlocked state and its locked state.

27. A modular assembly of cabinets configured to be modularly stacked on each other, said modular assembly comprising:

a first cabinet and a second cabinet, each comprising a housing with a base section, a top section and sidewalls extending therebetween, at least one of the sidewalls being provided with at least one upper latching mechanism disposed closer to said top section and at least one lower latching mechanism disposed closer to said base section; and

a support structure comprising at least one support latching mechanism, the support structure being configured to be disposed under a lowermost cabinet of the assembly, so as to provide support to the assembly;

the lower latching mechanism of the first cabinet being selectively engageable with the upper latching mechanism of the second cabinet or with the support latching mechanism, and the lower latching mechanism of the second cabinet being selectively engageable with the upper latching mechanism of the first cabinet or with the support latching mechanism, thereby allowing modular latched stacking of the first cabinet, the second cabinet and the support structure to each other.

28. A modular assembly according to Claim 27, wherein the base section has a base rim and the top section has a top rim. The base rim of the first cabinet is corresponding in shape and size to the top rim of the second cabinet, so as to allow the first cabinet to be modularly stacked on the second cabinet; and wherein the base rim of the second cabinet is corresponding in shape and size to the top rim of the first cabinet, so as to allow the second cabinet to be modularly stacked on the first cabinet.

29. A modular assembly according to Claim 27 or 28, wherein the support structure has a top section and a base section, and the top section has a support top rim; and wherein the support top rim is corresponding in shape and size to the base rim of the first cabinet and to the base rim of the second cabinet, so as to allow the first cabinet or the second cabinet to be disposed on the support structure and latched thereto.

30. A modular assembly according to Claim 29, wherein the support latching mechanism is disposed closer to the support top rim than to the base section than to the base section.

31. A modular assembly according to any one of Claims 27 to 30, wherein the support structure further comprises sidewalls extending between the top section and the base section, at least one of the sidewalls of the support structure being provided with the support latching mechanism.

32. A modular assembly according to any one of Claims 27 to 31, wherein the first upper latching mechanism is similar to the second upper latching mechanism, and the first lower latching mechanism is similar to the second lower latching mechanism.

33. A modular assembly according to any one of Claims 27 to 32, wherein the lower latching mechanism comprises a latch recess formed within the respective sidewall, configured for accommodating therein a pivotally rotatable latch member.

34. A modular assembly according to Claim 33, wherein the upper latching mechanism comprises a recess formed therein with at least one catch member configured for selectively engaging with the at least one tongue of the latch member.

35. A modular assembly according to Claim 34, wherein the upper latching mechanism constitutes a gripping member configured to be gripped by a user for raising the respective cabinet, while the recess of the upper latching mechanism is used for accommodating the user's fingers therein.

36. A modular assembly according to any one of Claim 27 to 35, wherein the first and the second cabinets are similar to each other.

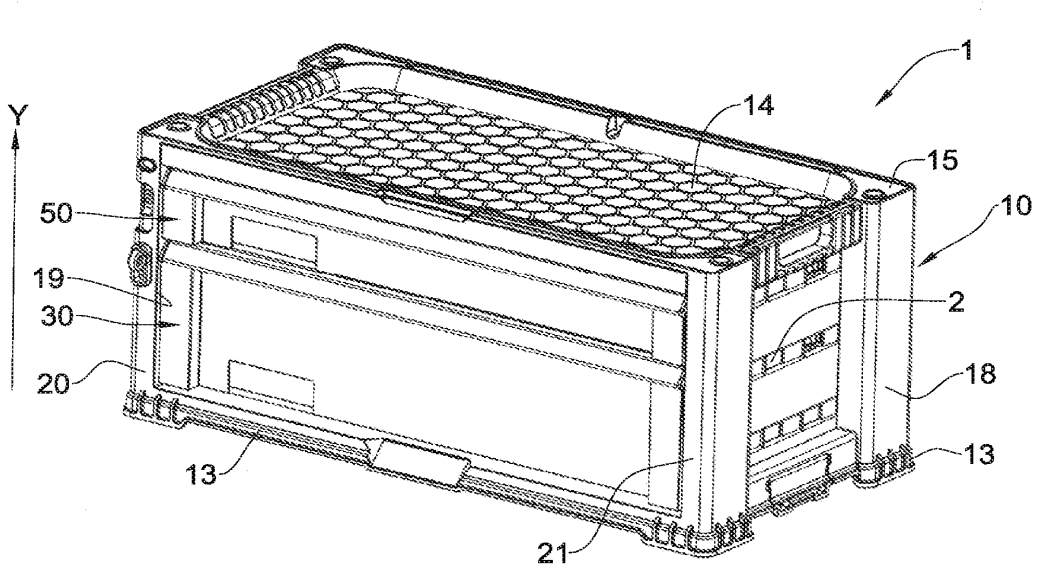


Fig. 1A

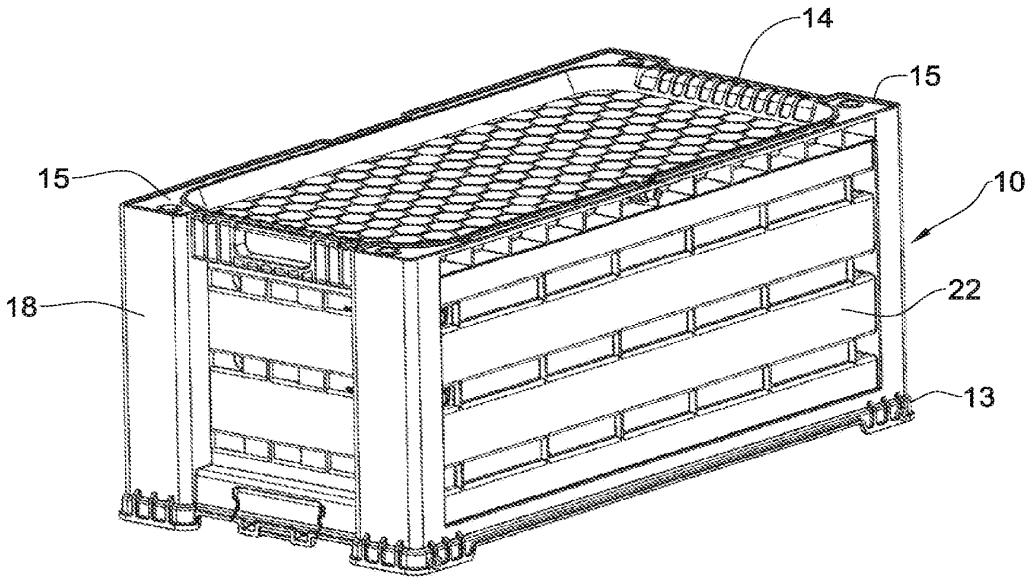


Fig. 1B

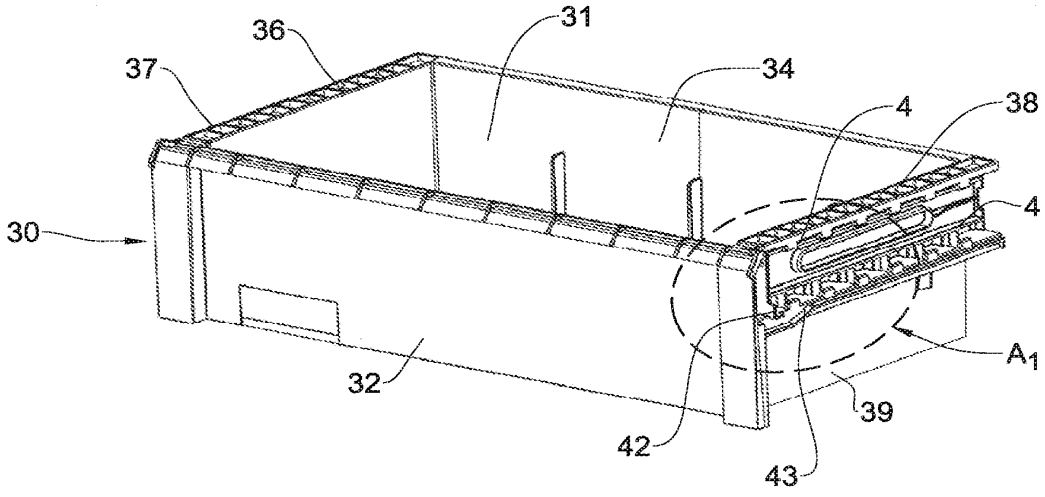


Fig. 2A

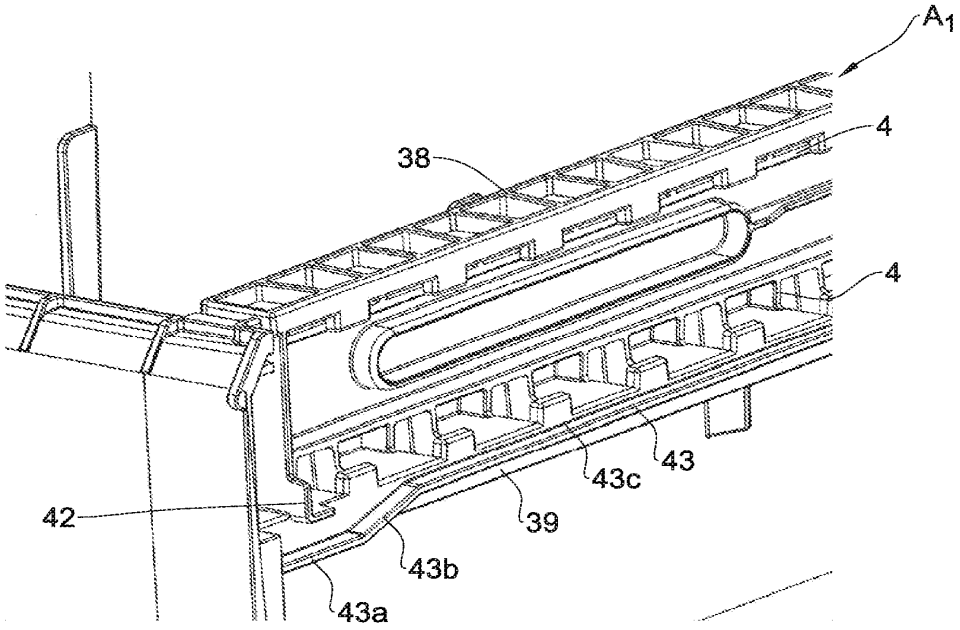


Fig. 2B

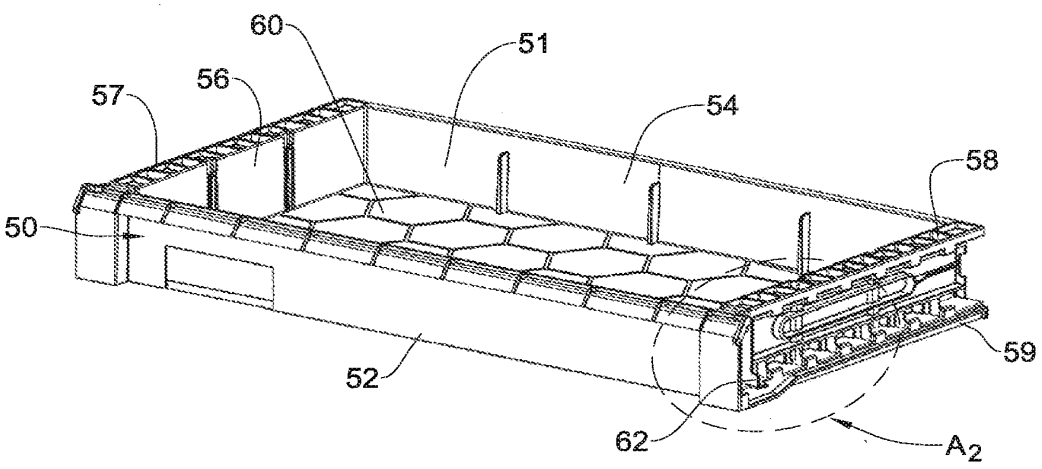


Fig. 2C

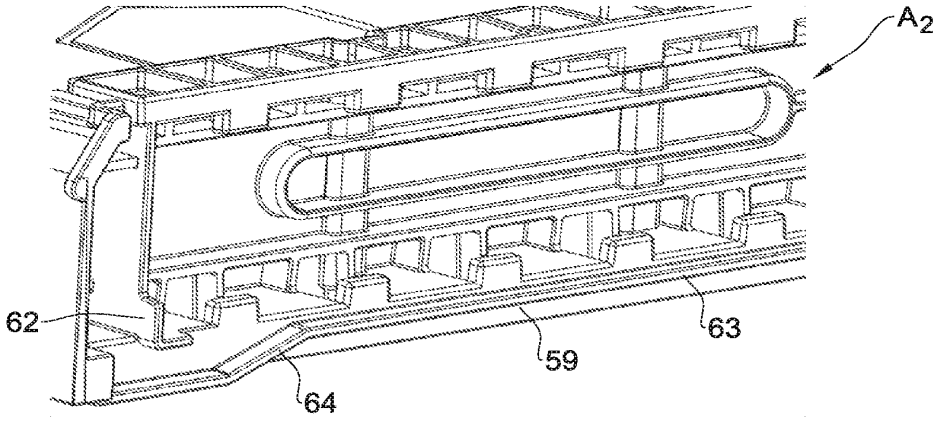


Fig. 2D

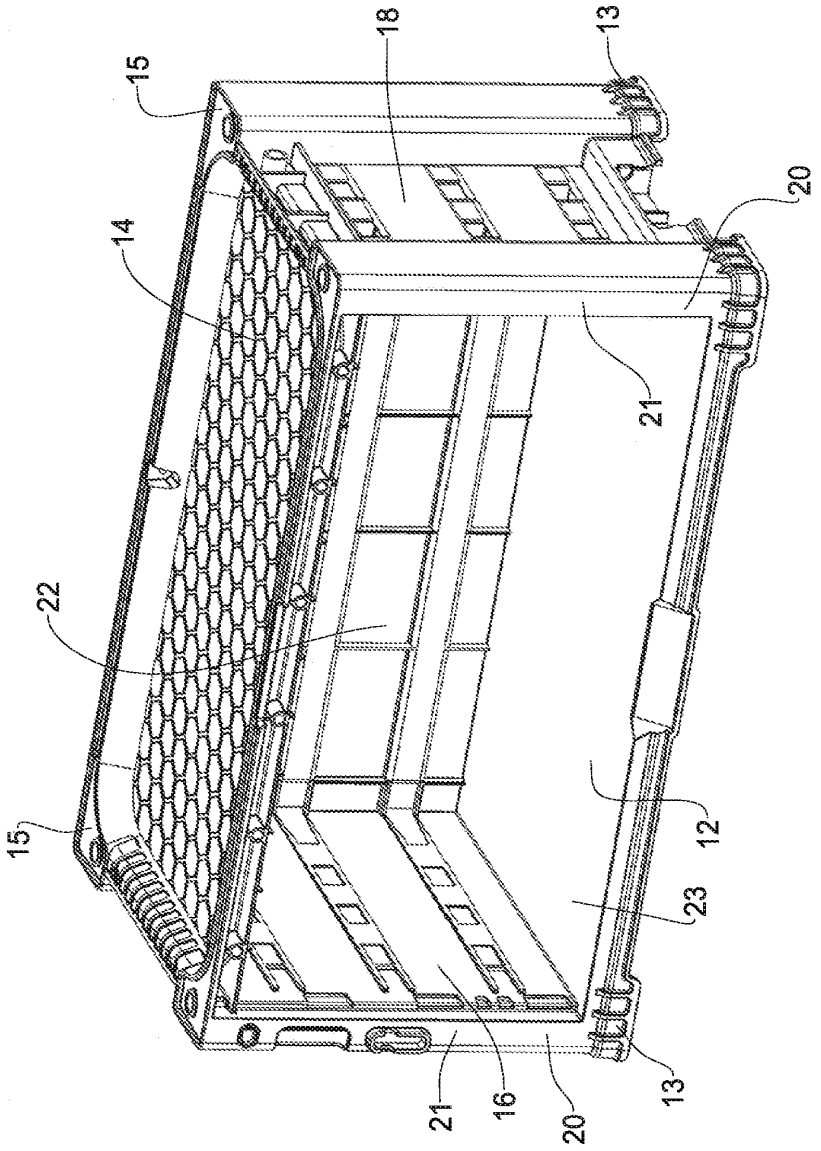


Fig. 2E

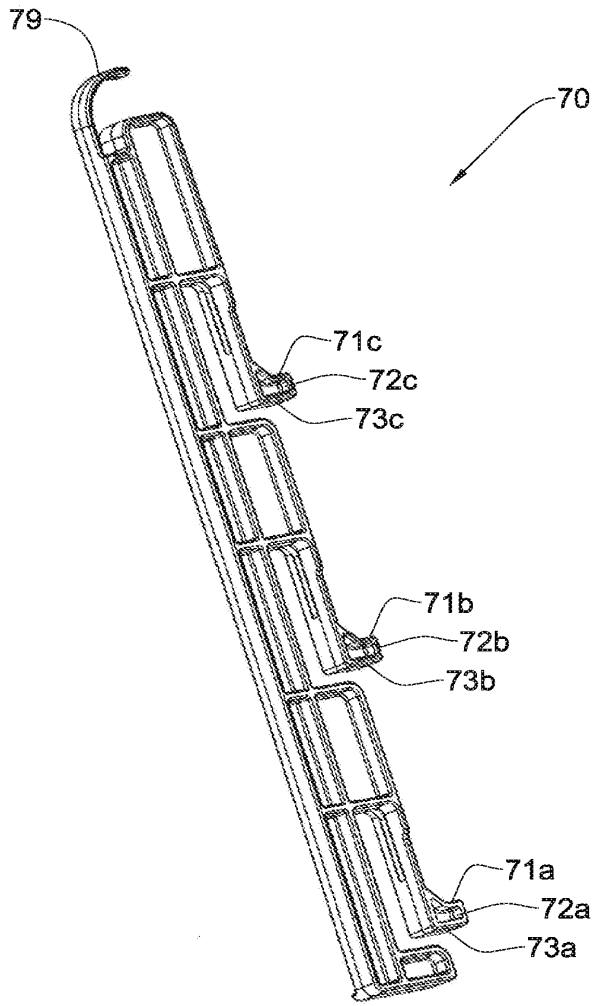


Fig. 3

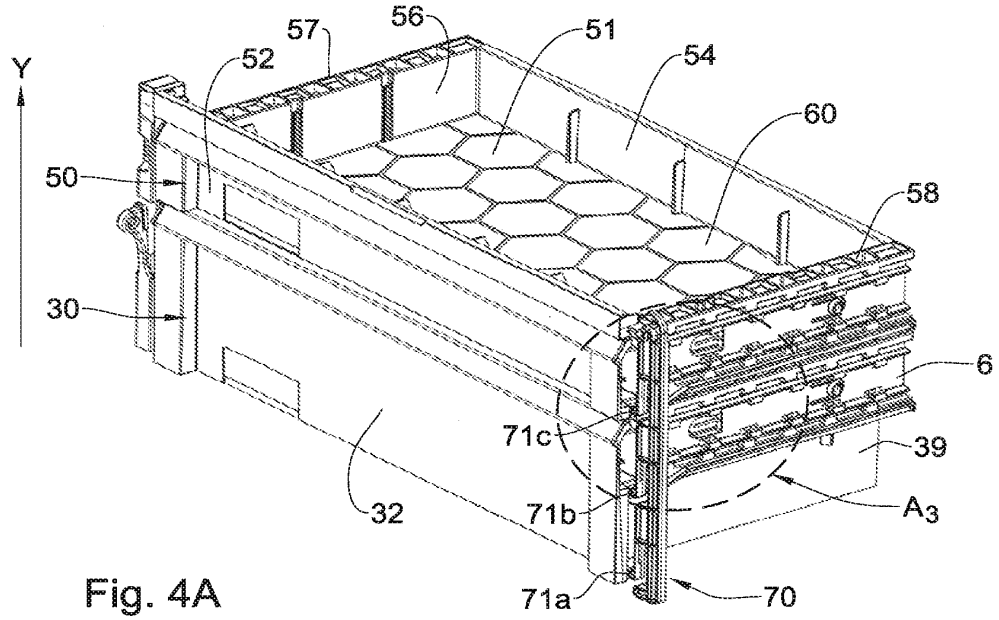

Y
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71c
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32
71b
A3
71a
70

Fig. 4A

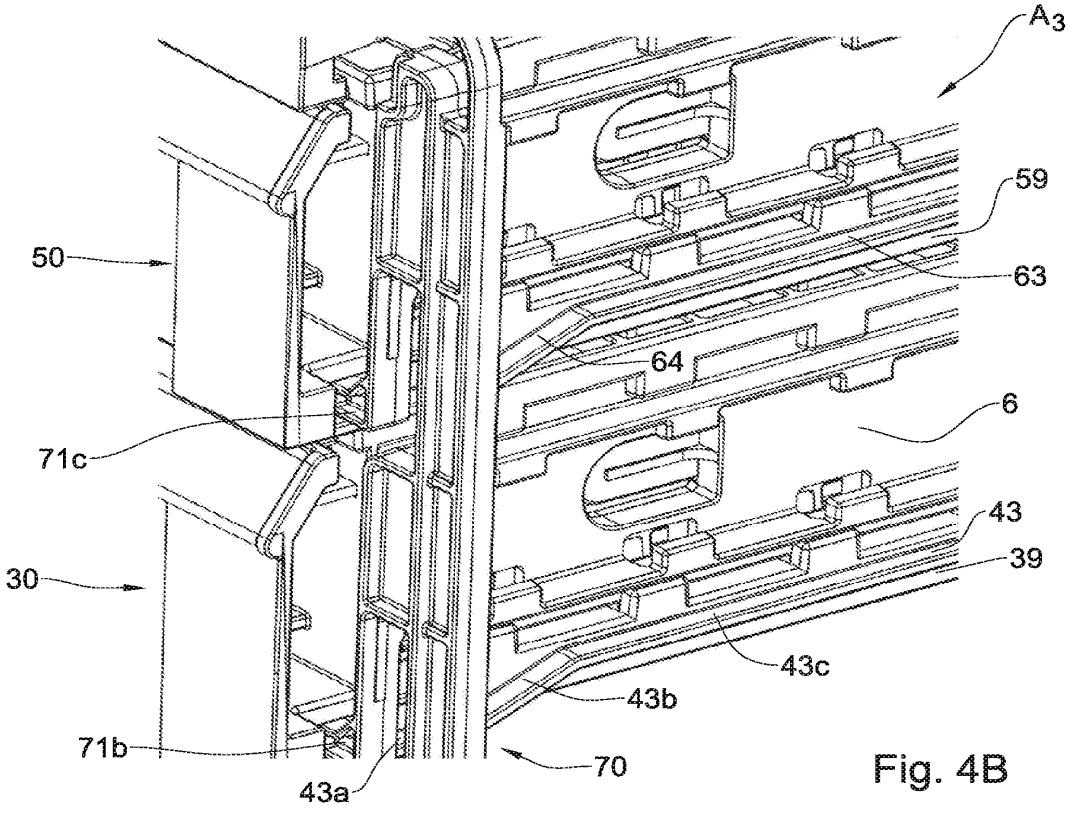

A3
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71c
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30
43c
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43a

Fig. 4B

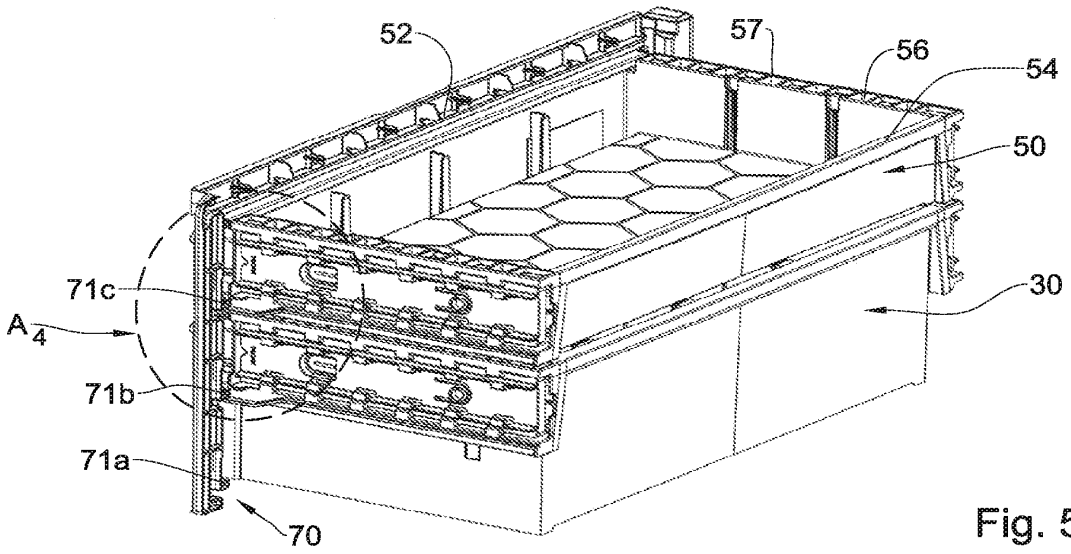

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71c
A4
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Fig. 5A

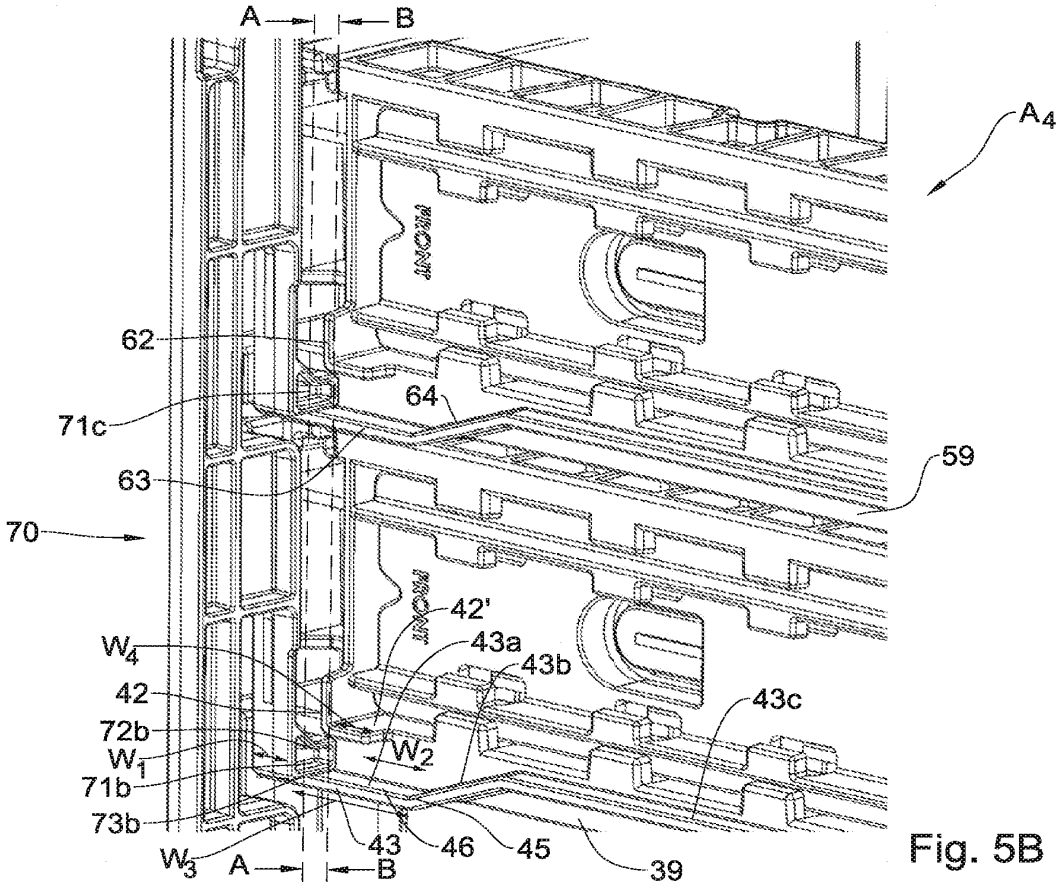

A
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A4
62
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71c
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43a
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W2
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73b
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Fig. 5B

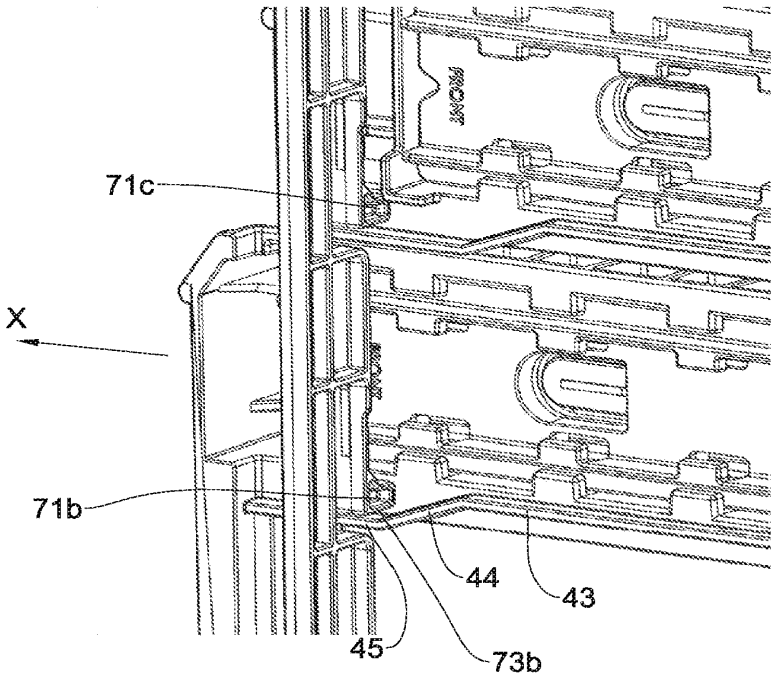


Fig. 5C

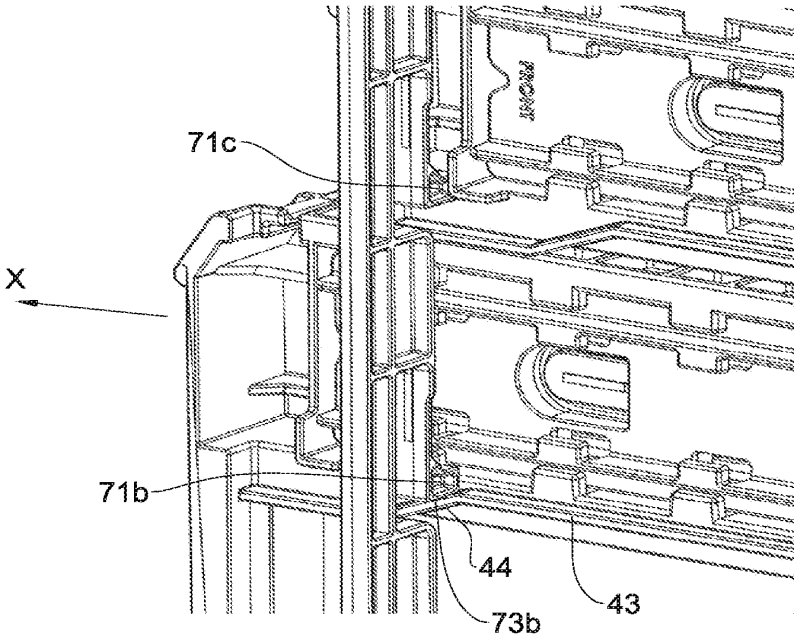


Fig. 5D

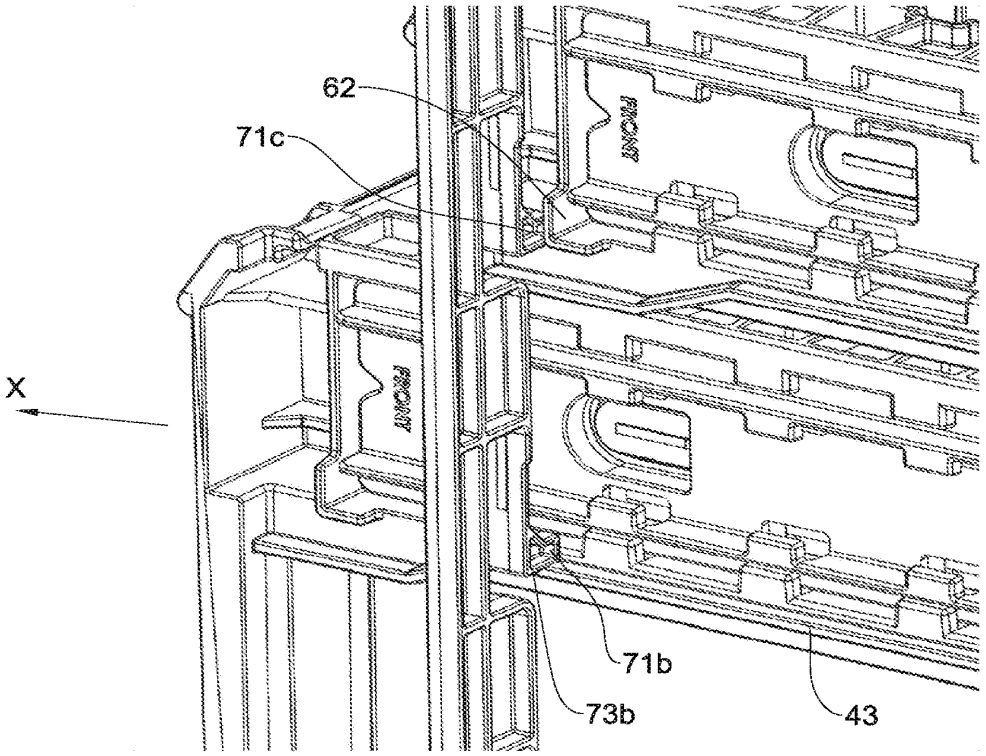


Fig. 5E

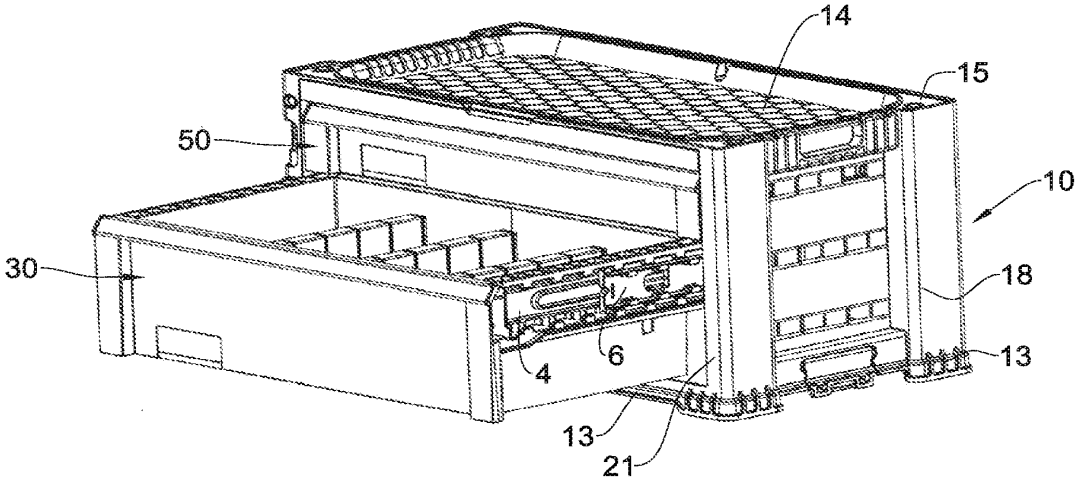


Fig. 6A

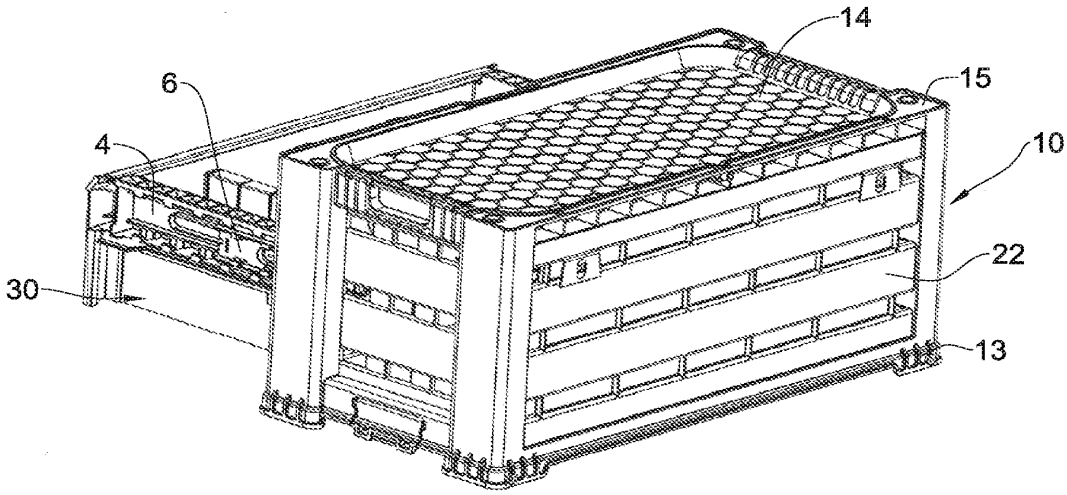


Fig. 6B

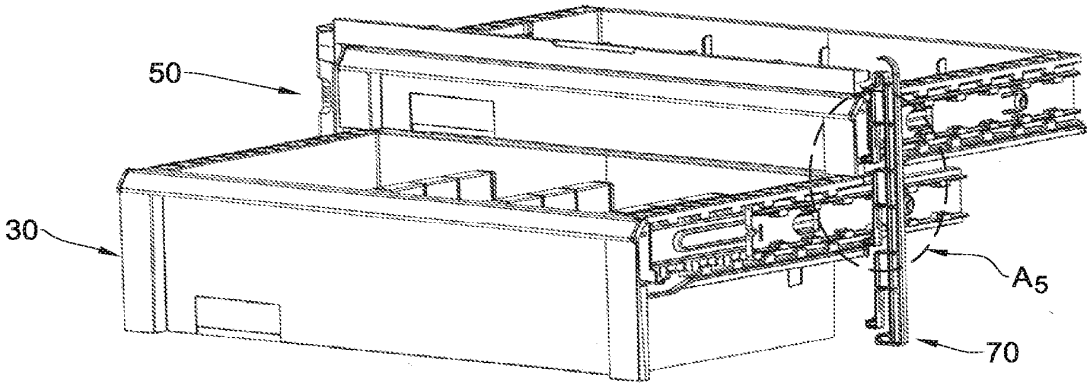


Fig. 7A

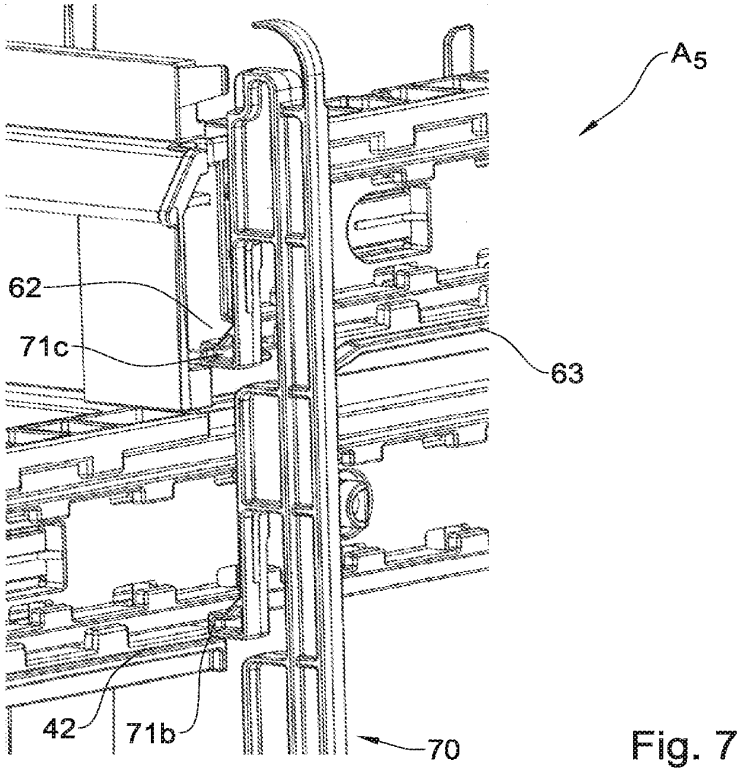


Fig. 7B

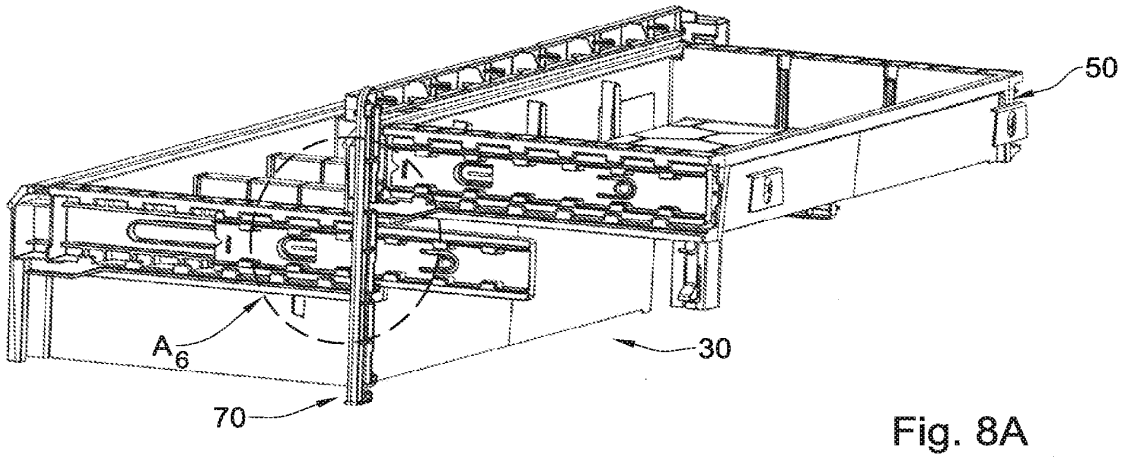


Fig. 8A

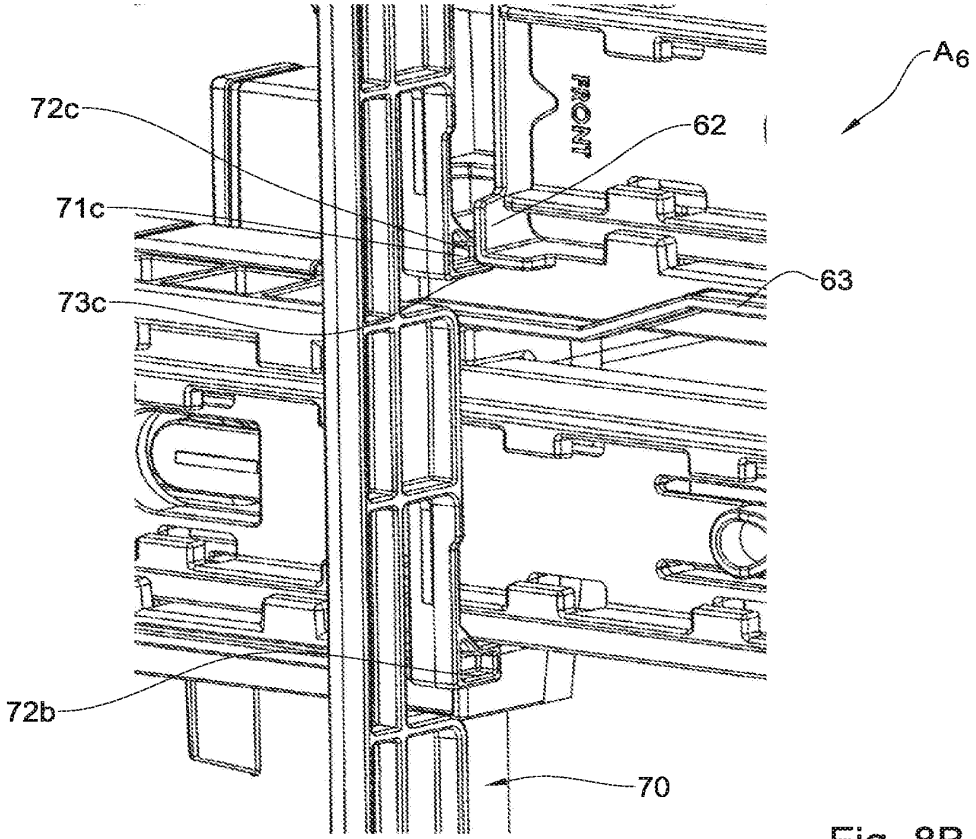


Fig. 8B

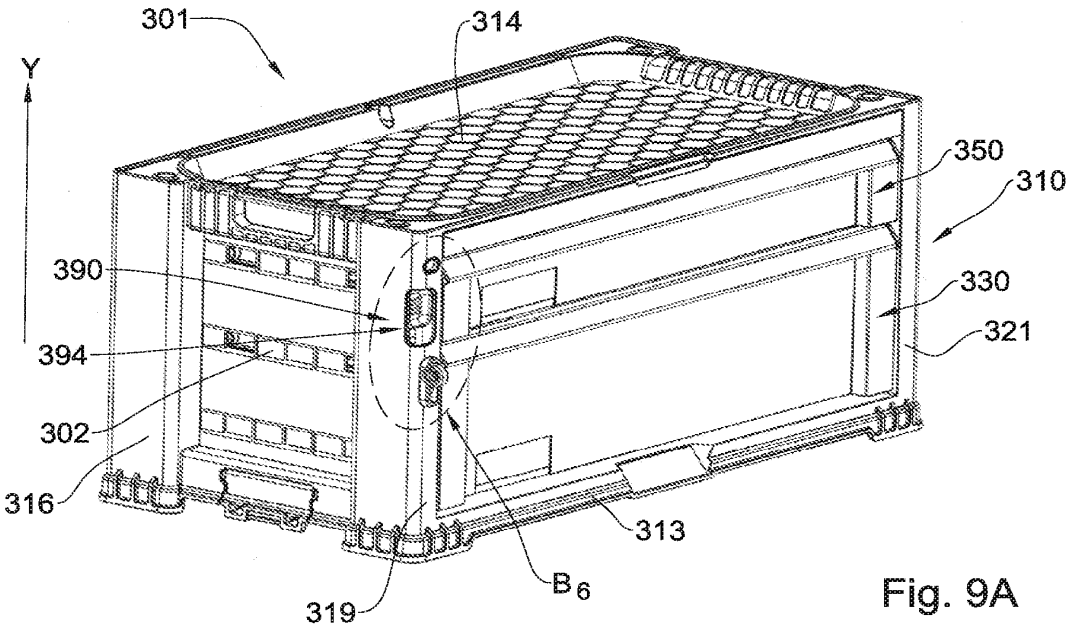

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Fig. 9A

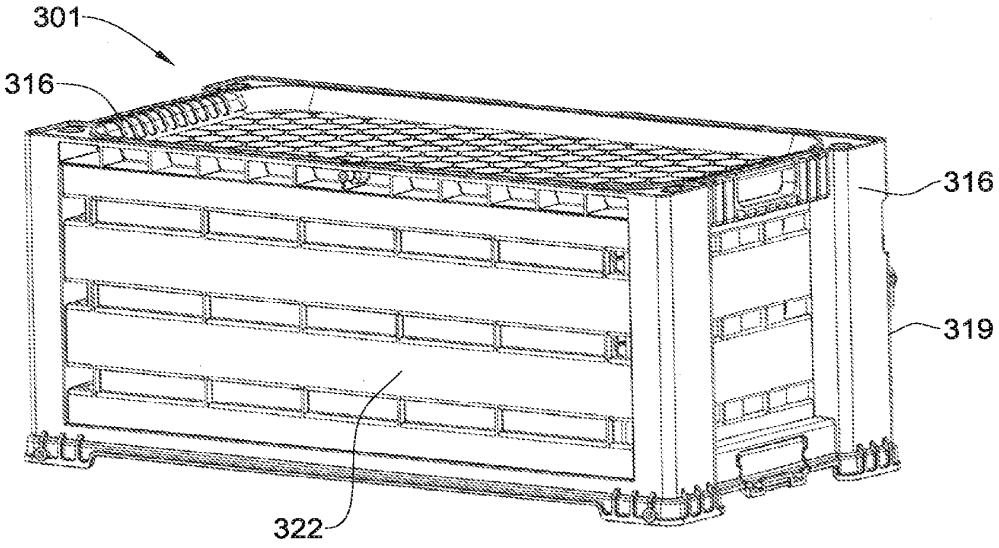

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Fig. 9B

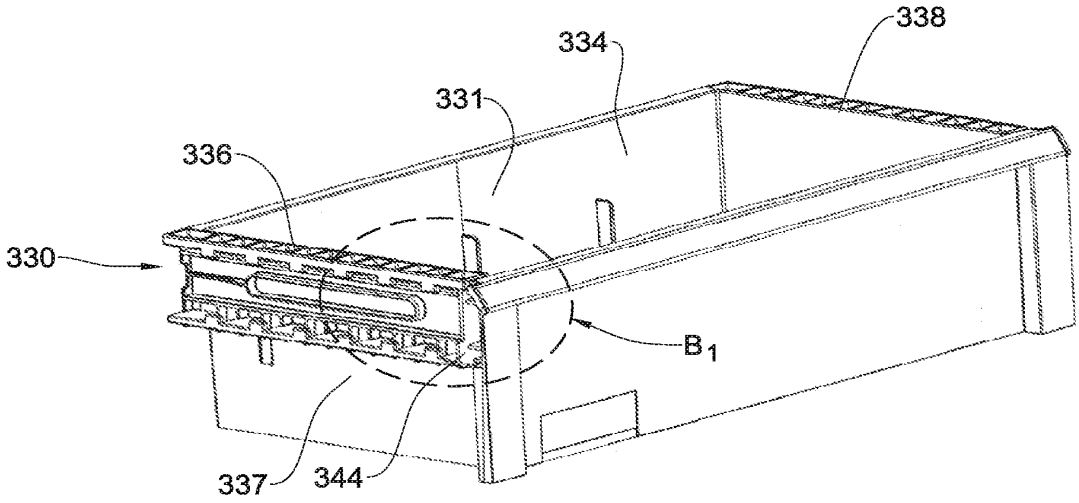


Fig. 10A

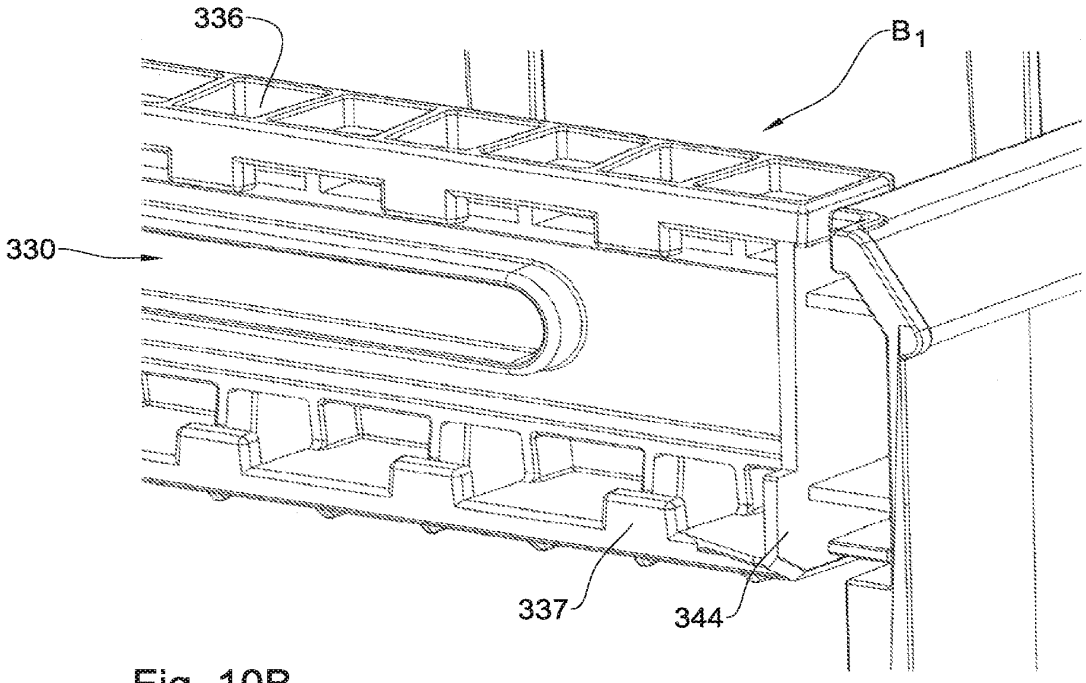


Fig. 10B

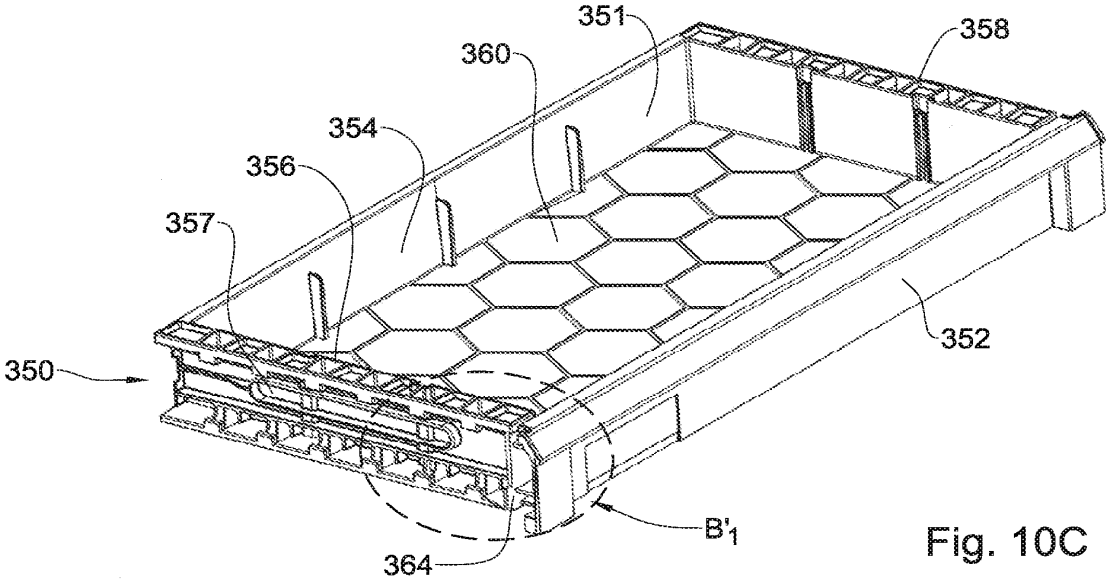


Fig. 10C

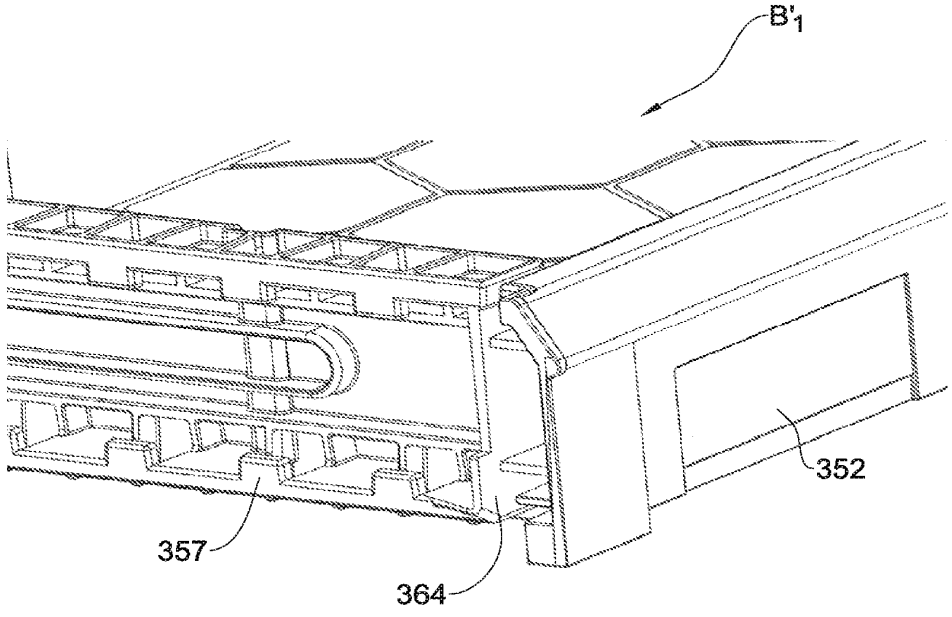


Fig. 10D

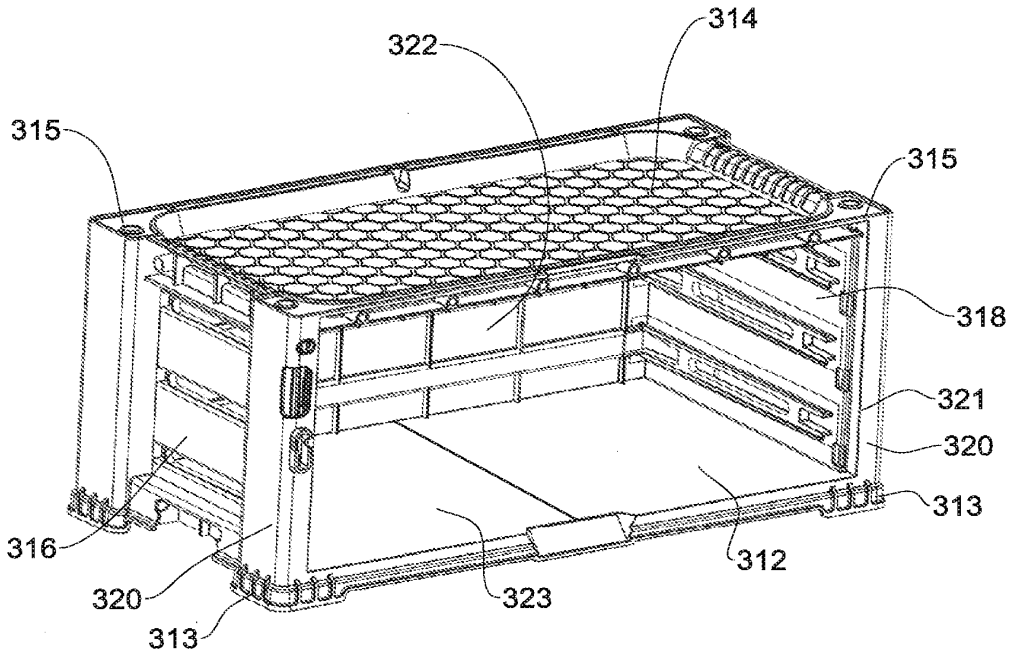


Fig. 10E

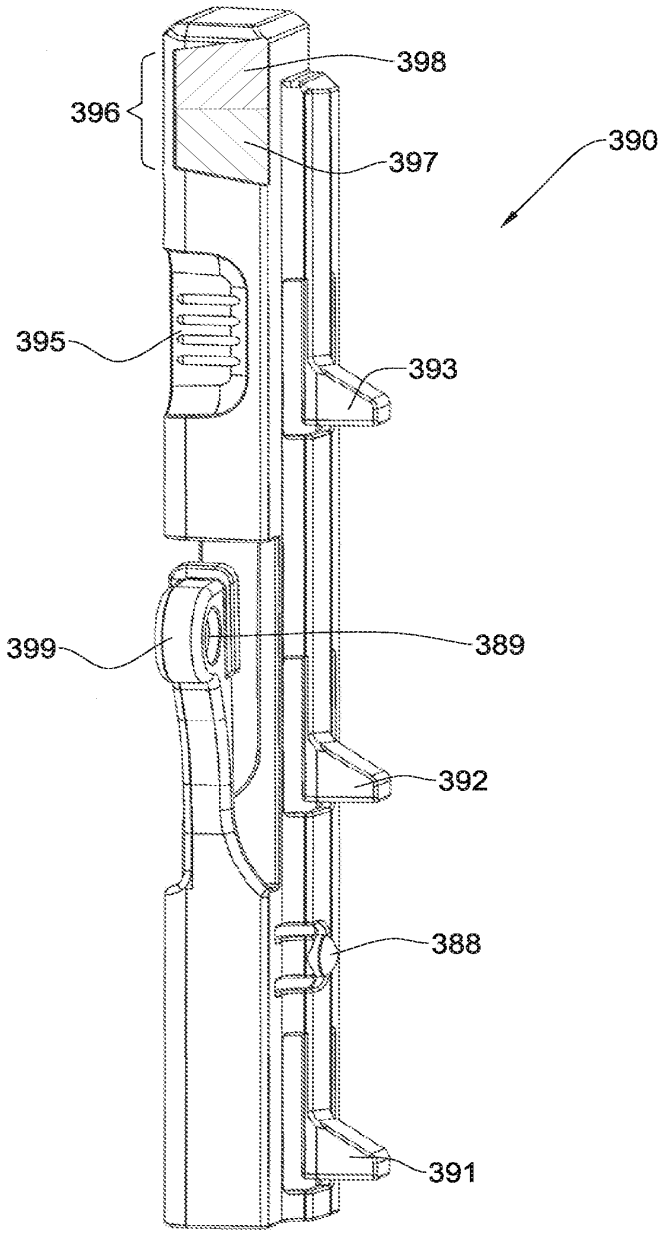


Fig. 11

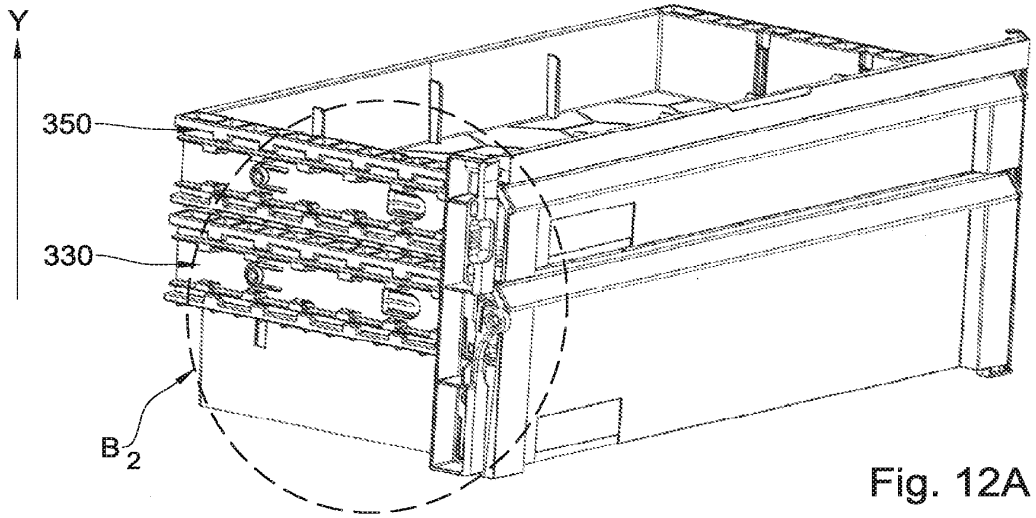


Fig. 12A

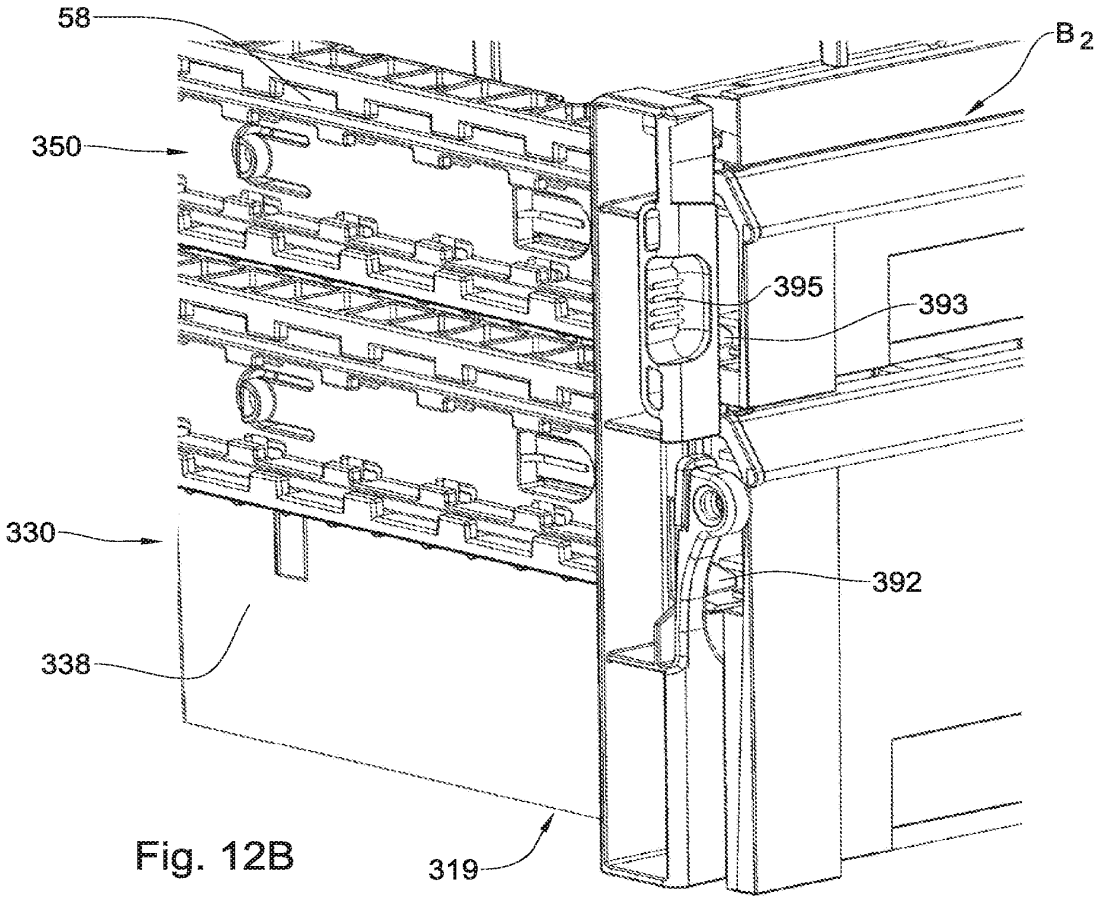


Fig. 12B

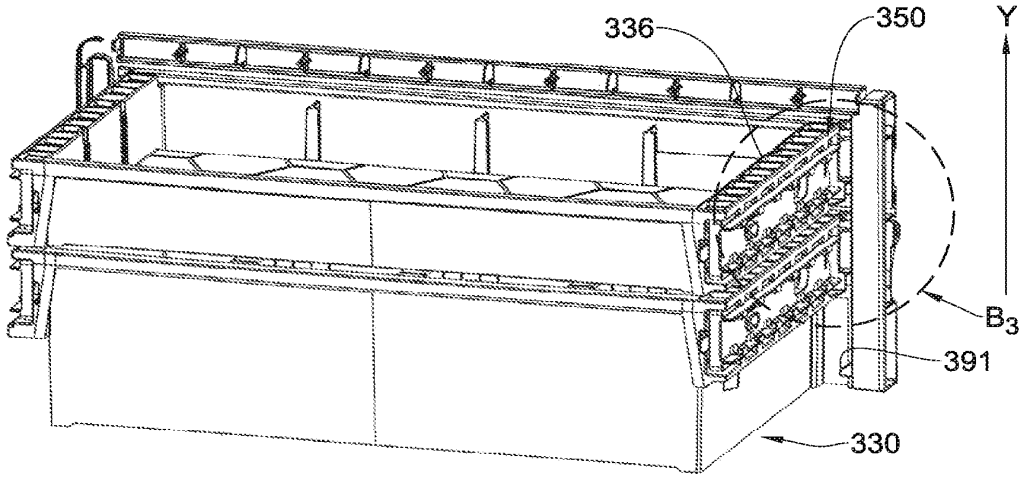


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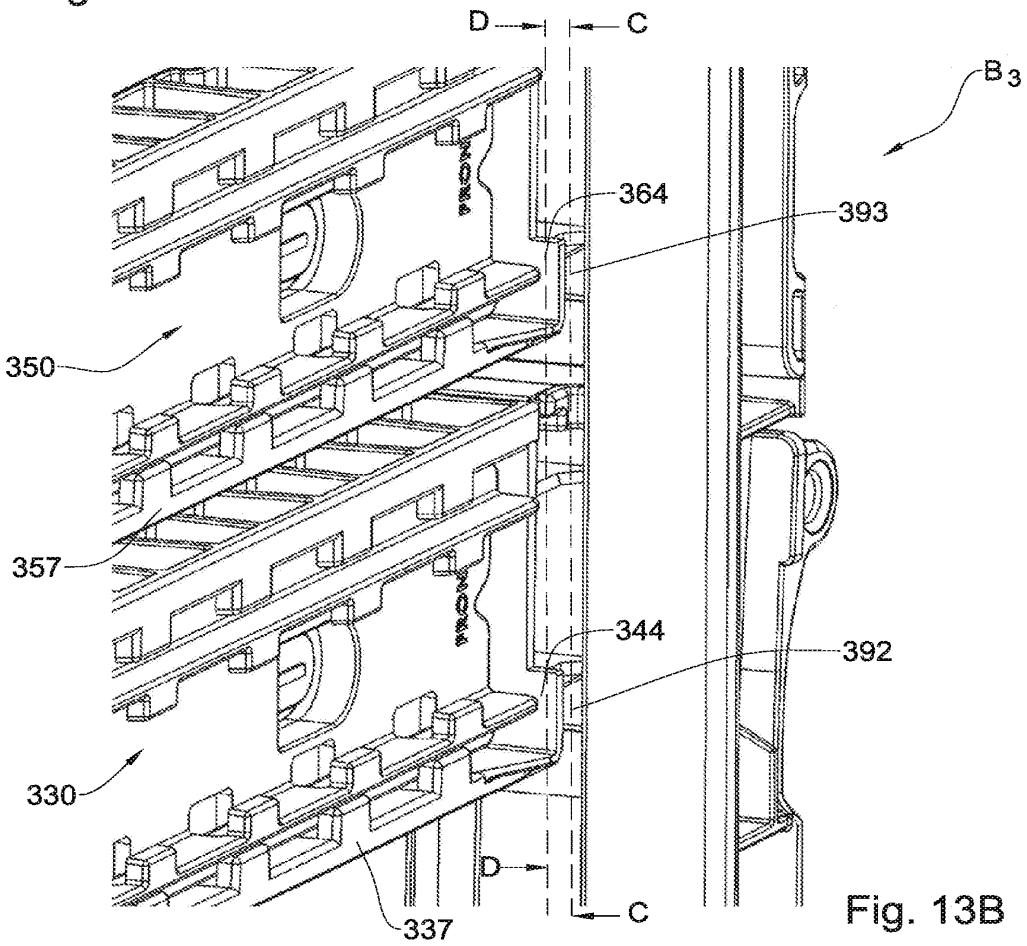


Fig. 13B

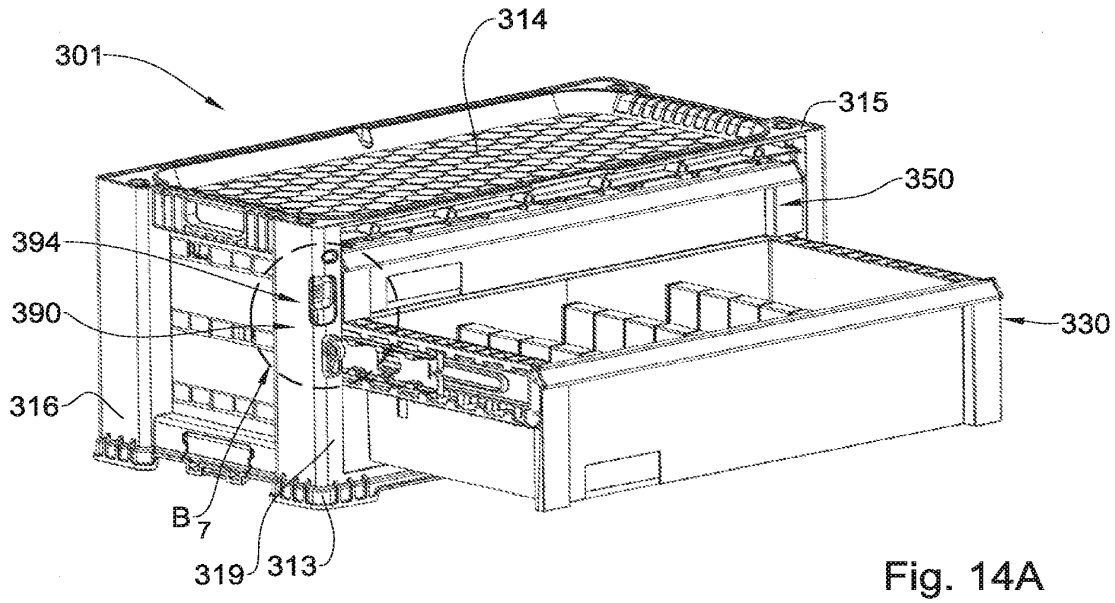


Fig. 14A

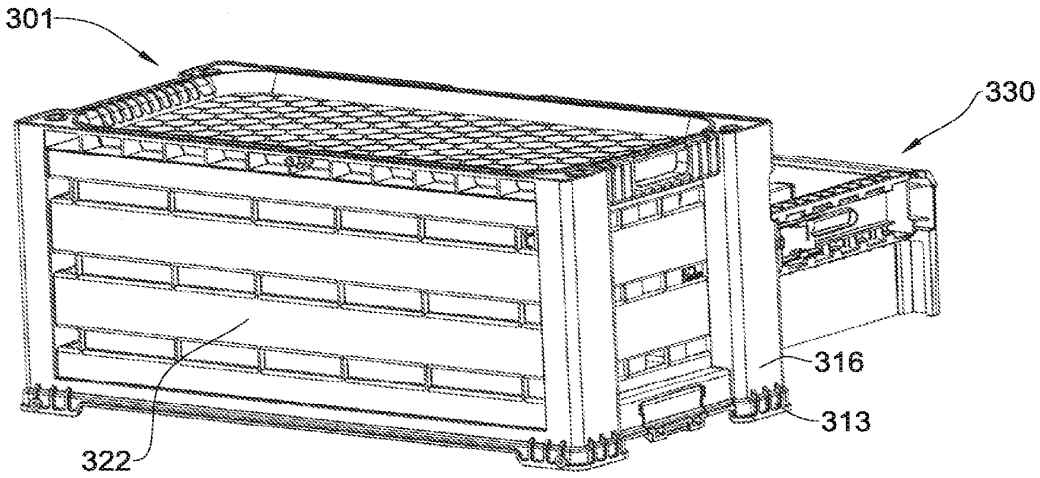


Fig. 14B

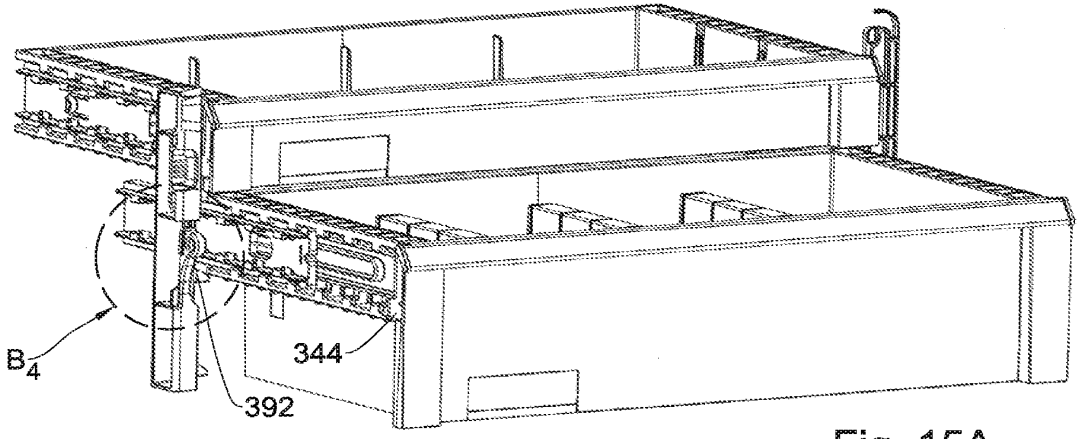


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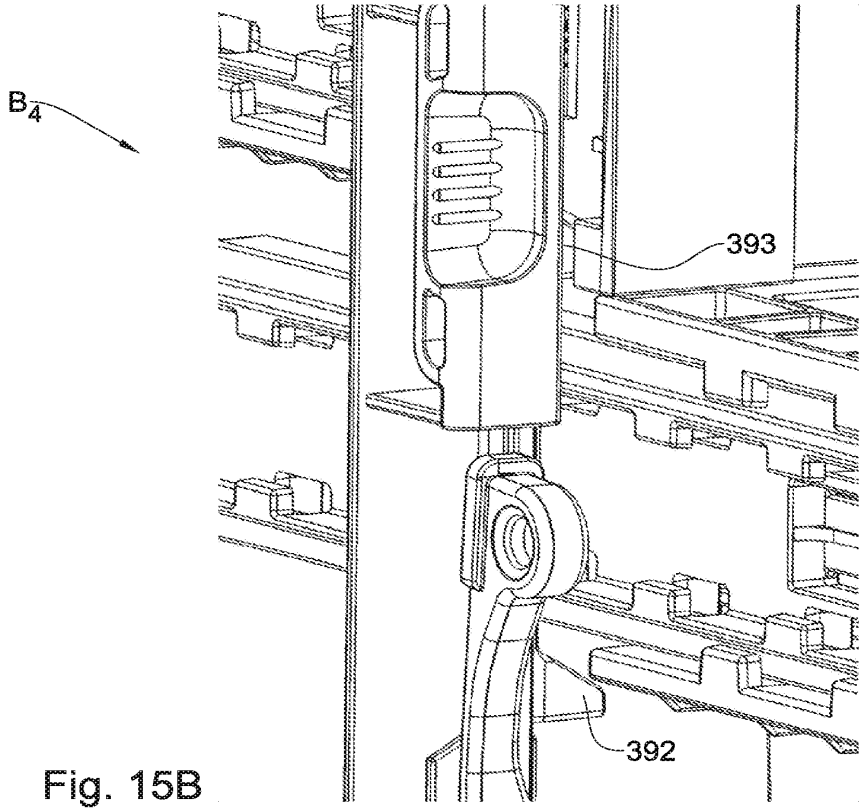


Fig. 15B

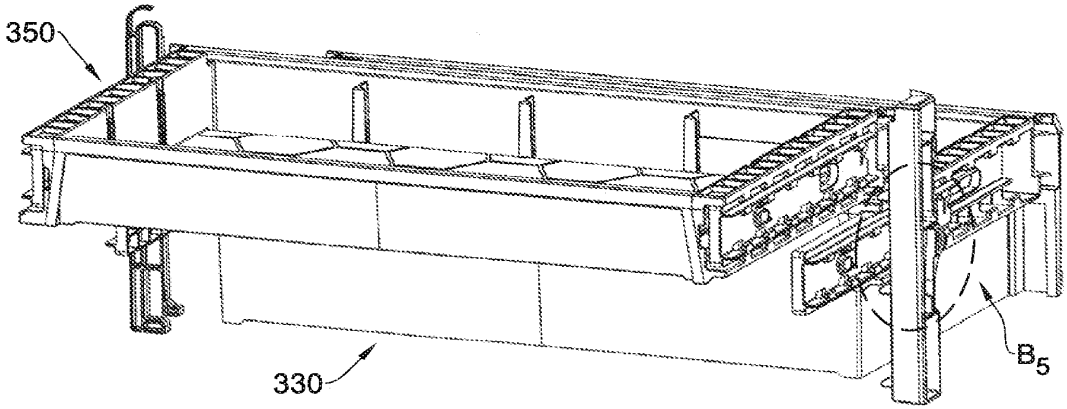


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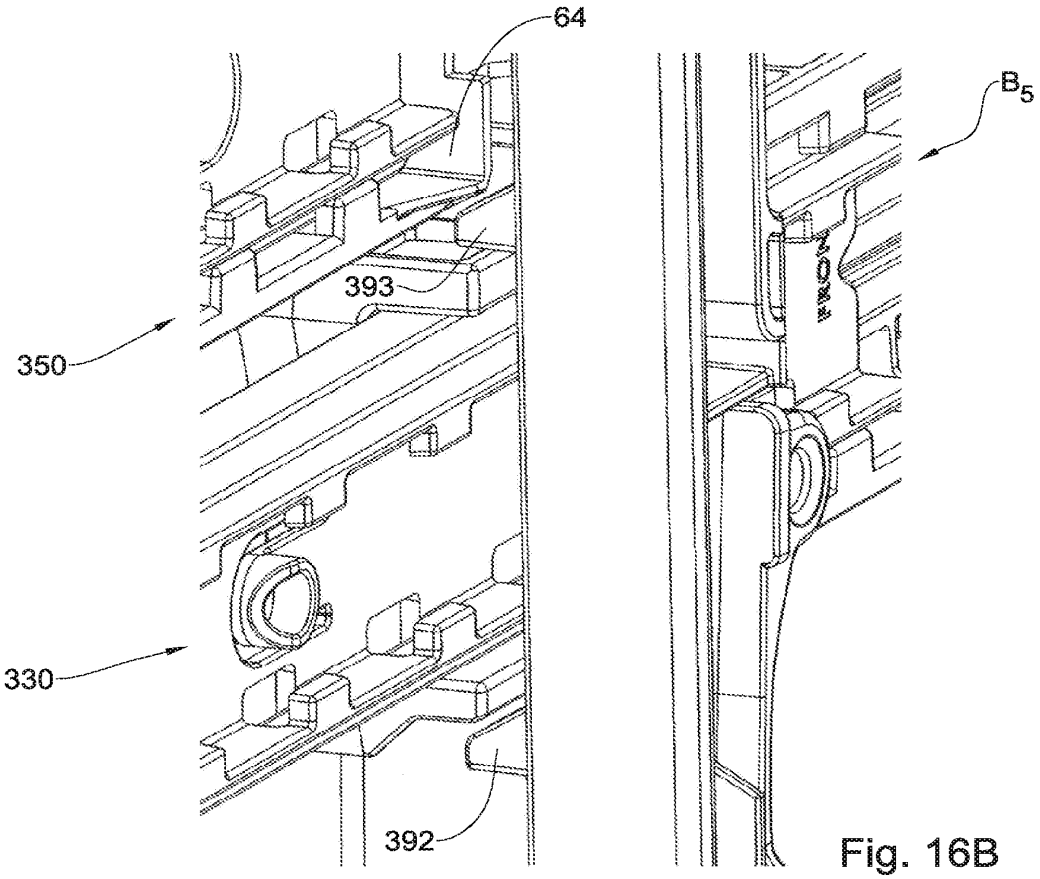


Fig. 16B

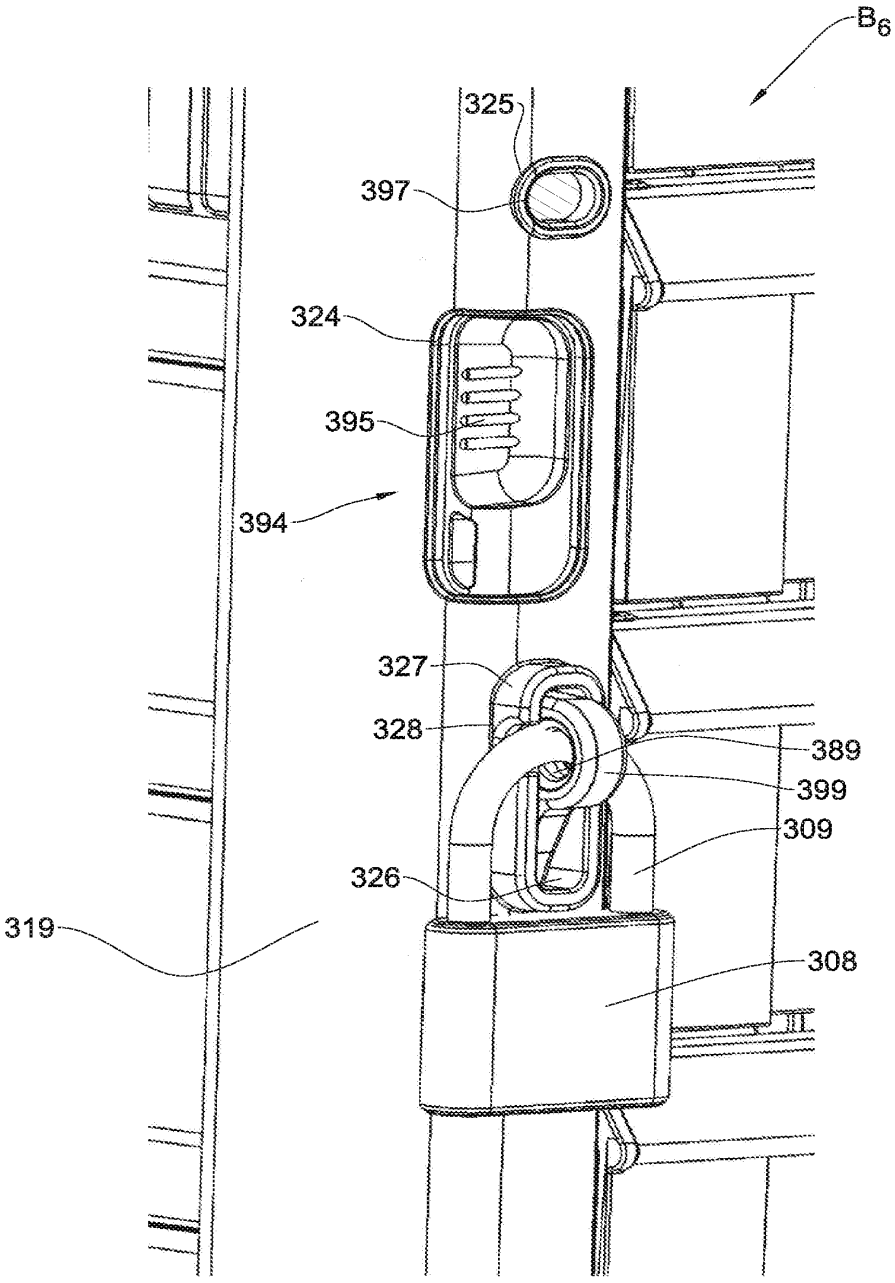


Fig. 17A

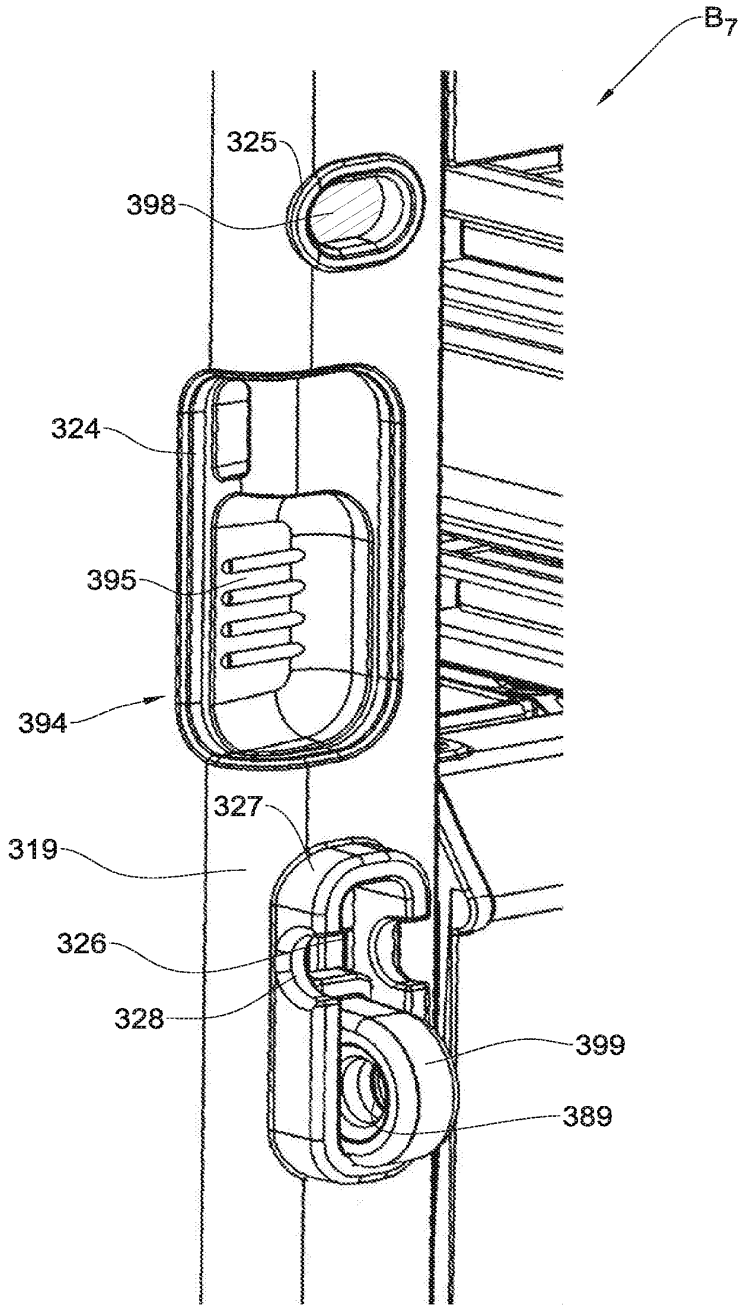


Fig. 17B

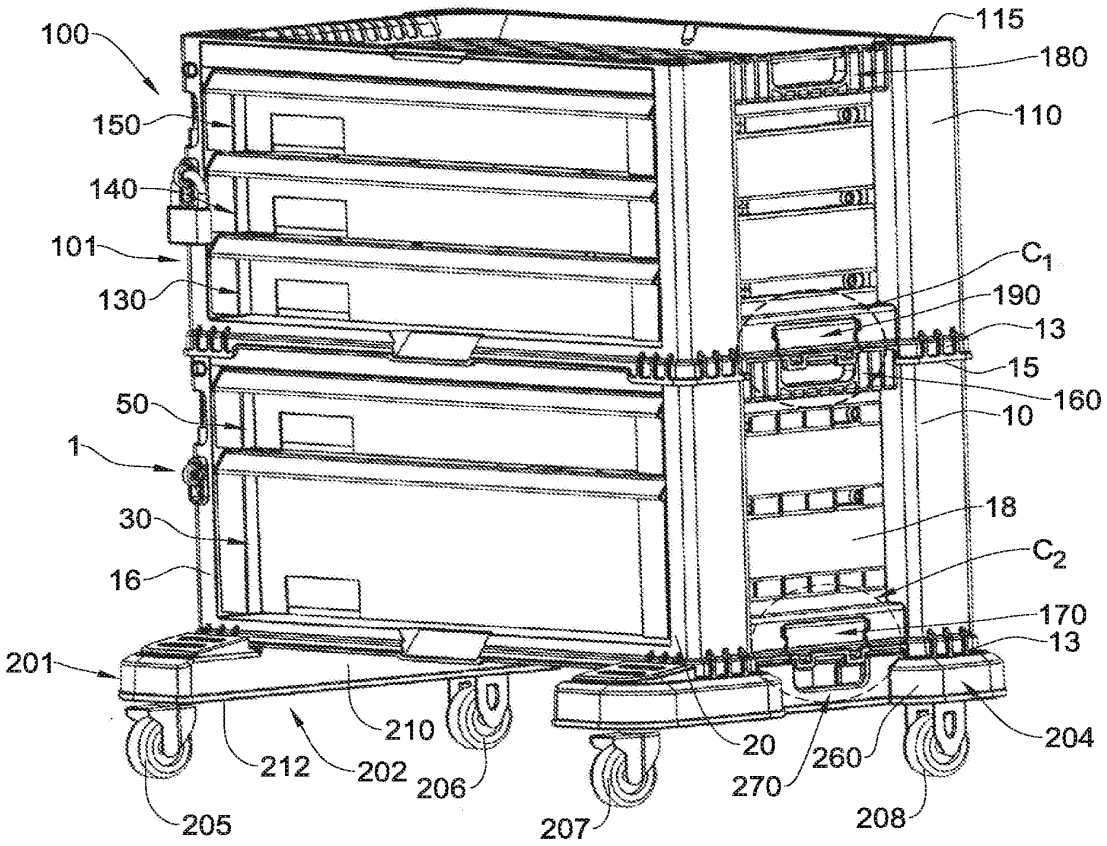

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Fig. 18A

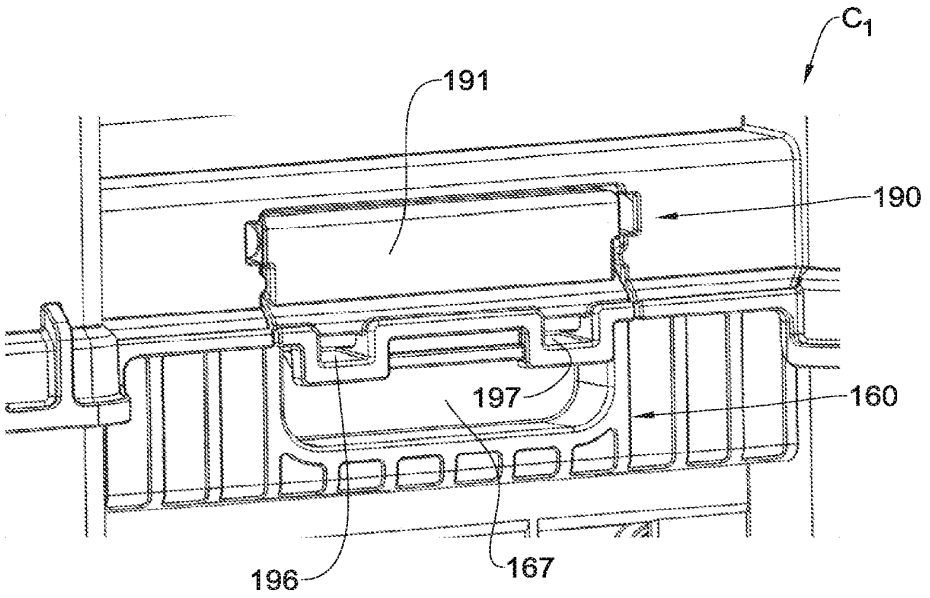


Fig. 18B

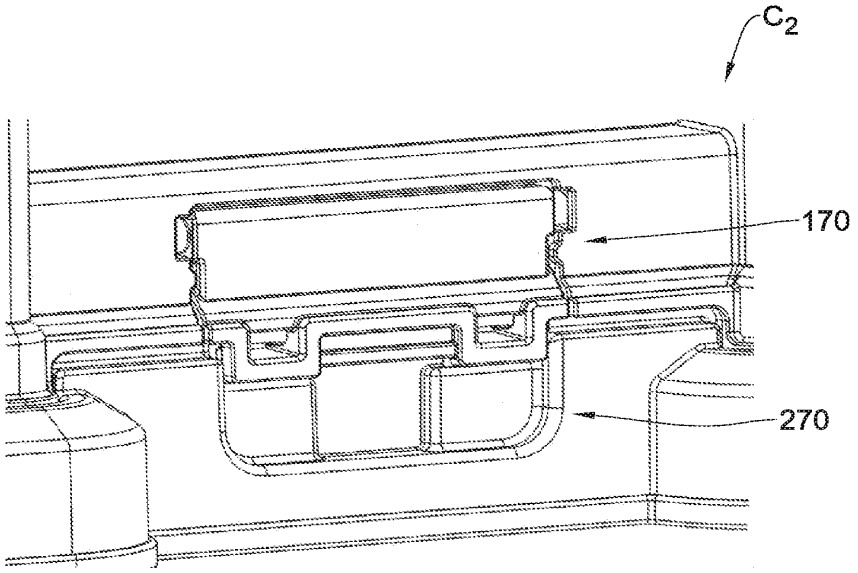


Fig. 18C

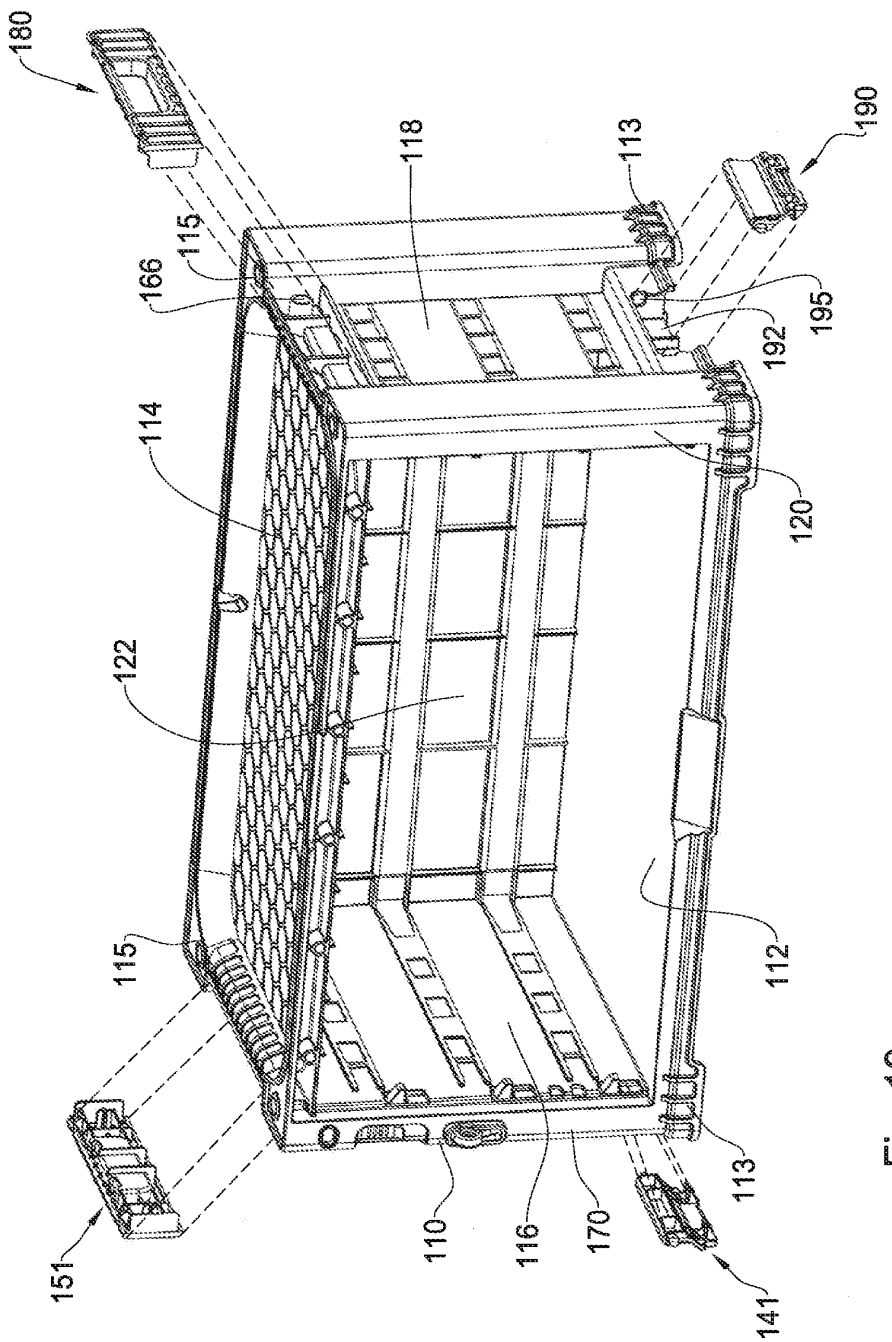

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Fig. 19

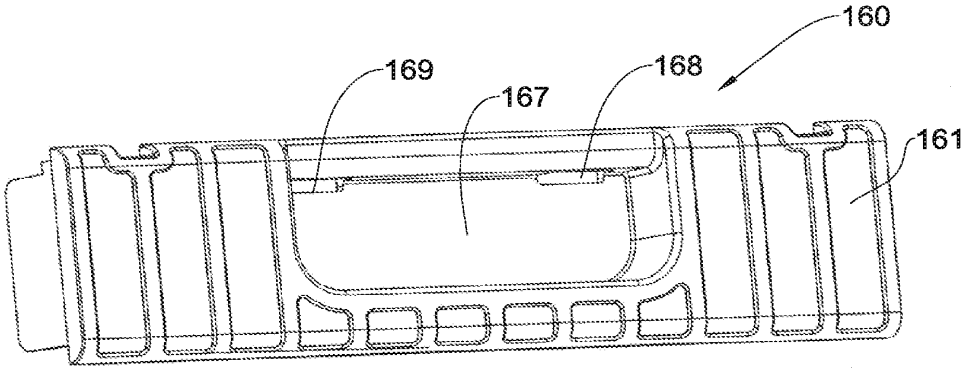


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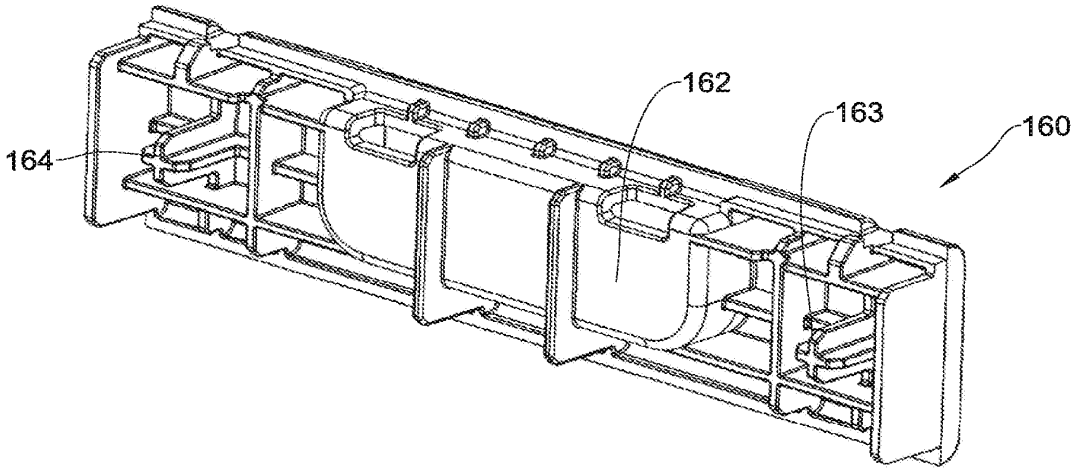


Fig. 20B

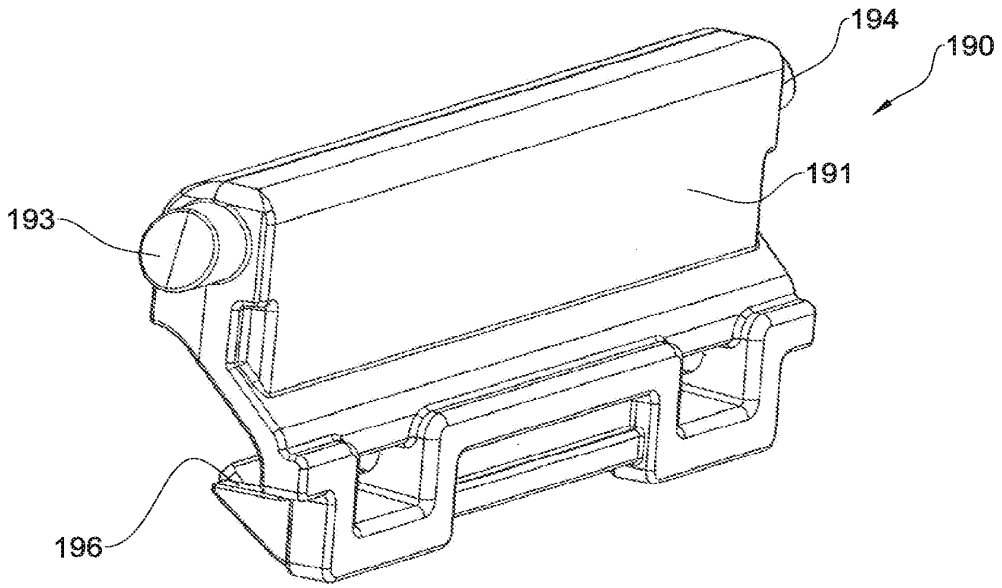


Fig. 21A

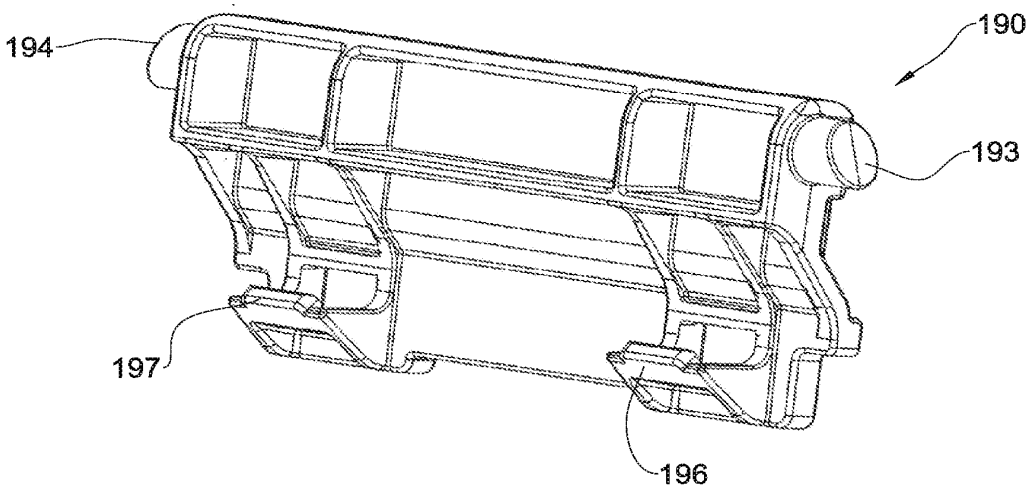


Fig. 21B

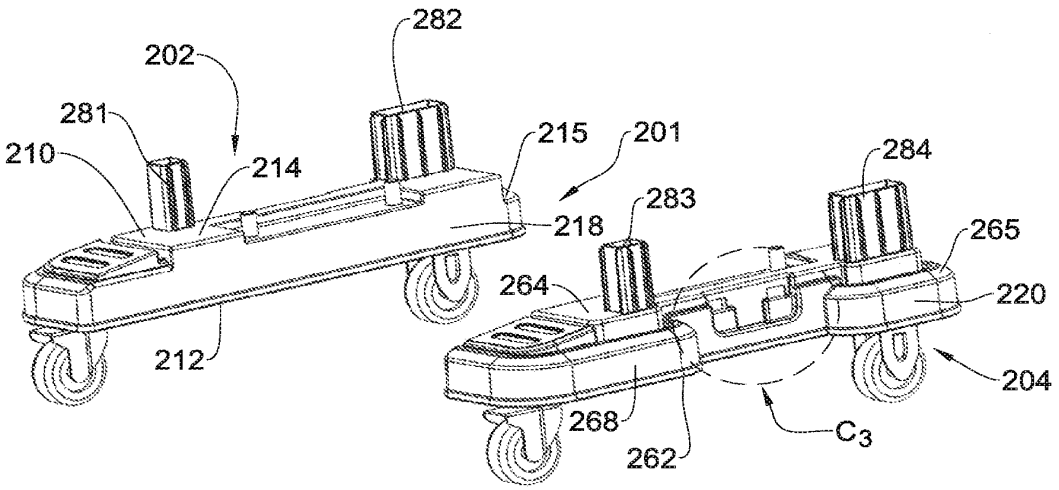


Fig. 22A

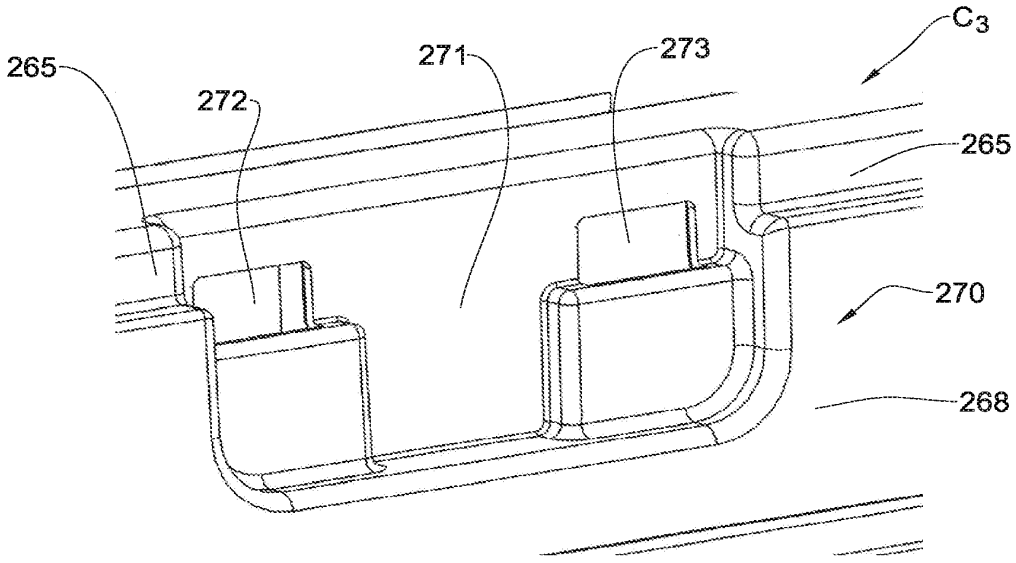


Fig. 22B

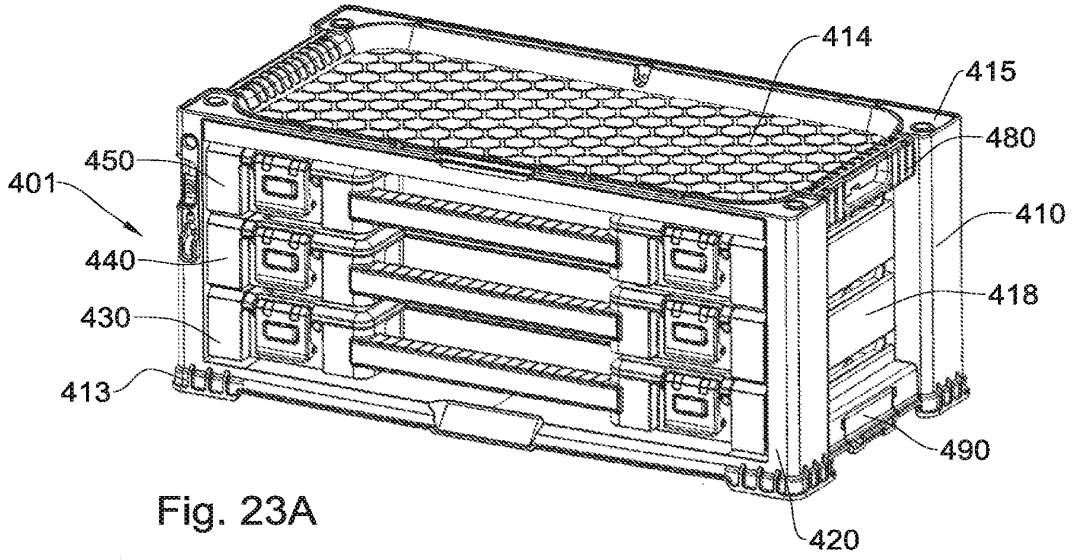


Fig. 23A

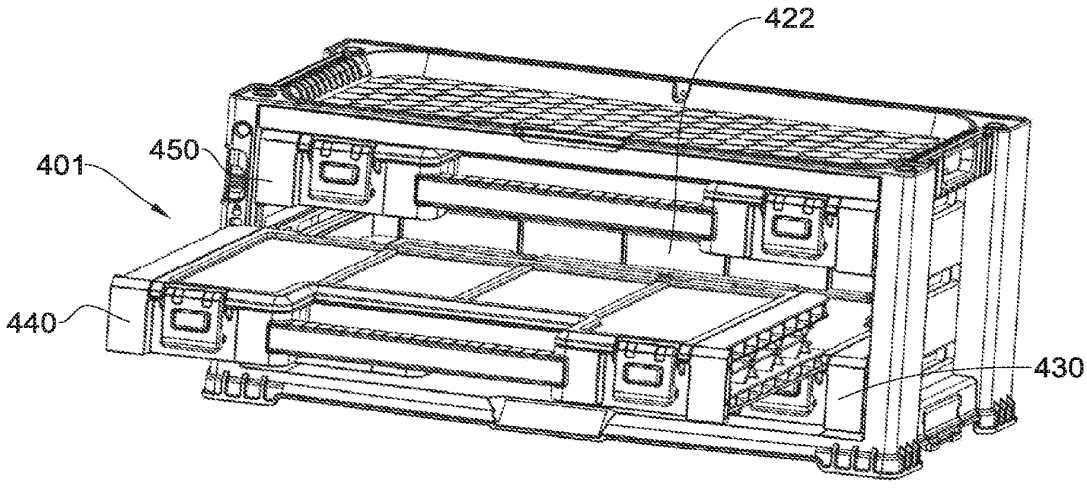


Fig. 23B

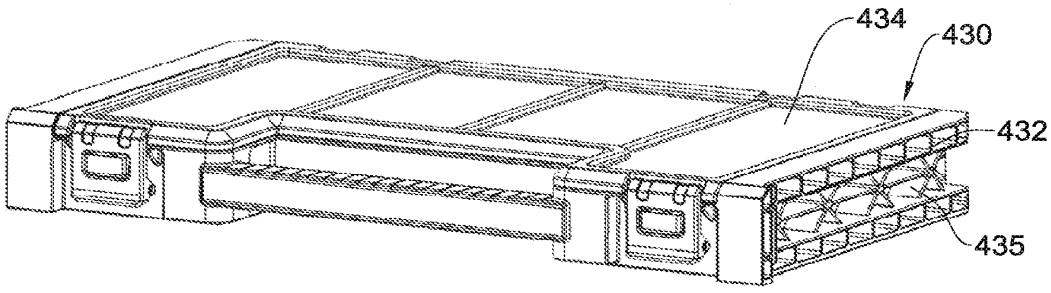


Fig. 24A

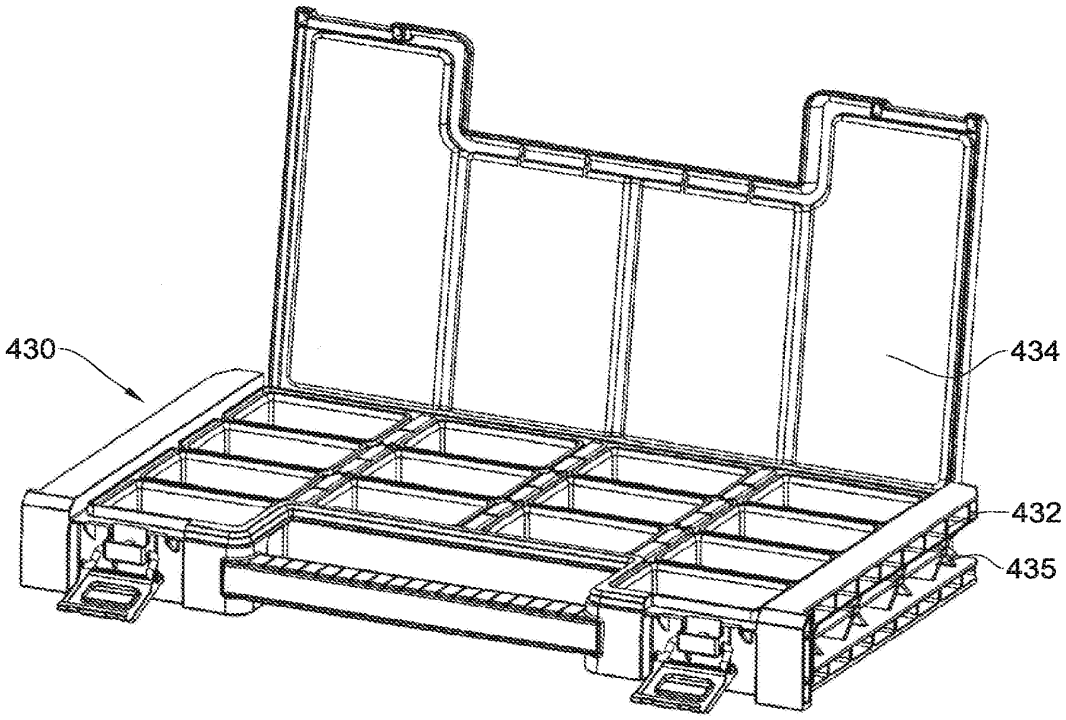


Fig. 24B

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(19) 世界知的所有権機関
国際事務局

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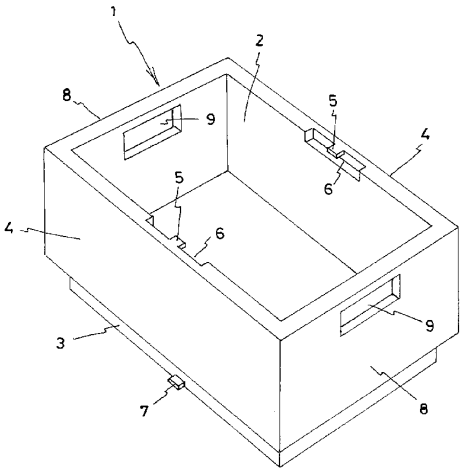
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(54) **Title:** ARTICLE STORAGE CASE

(54) 発明の名称： 物品収納ケース



(57) **Abstract:** This invention addresses the problem of providing an article storage case that can be inexpensively formed, has an excellent workability with regards to performing linking work, and has a high stability when stacked. In order to solve the above problem, there is provided a substantially cubic or cuboid article storage case (1) having an upward opening (2), wherein: a convex part (3) serving also as a leg is formed on the lower surface of a bottom wall so that when cases are stacked, the convex part (3) fits into the upward opening (2) of the lower case; upper tongue pieces (5), (5) projecting inwards or outwards are respectively formed near the center of the upper edge of opposing side walls (4), (4); and lower tongue pieces (7), (7), which project in the opposite direction to the upper tongue pieces (5), (5) and which engage with the upper tongue pieces (5), (5) to link the cases to each other when the cases are stacked, are formed on the lower surface of the bottom wall.

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［続葉有］

SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

添付公開書類：

— 国際調査報告（条約第21条(3)）

(57) 要約：安価に形成できると共に、連結作業性が良好であり、しかも積み重ね状態の安定性の高い物品収納ケースを提供することを課題とする。上記課題を解決するため、上方に開口（２）を有する略立方体形状或いは略直方体形状の物品収納ケース（１）において、底壁下面に脚部を兼ねた凸部（３）を形成し、該凸部（３）を積み重ねた際の下方ケースの上記上方開口（２）に嵌入させる構成とすると共に、対向する側壁（４），（４）の上端中央付近にそれぞれ内方或いは外方に向けて突出する上方舌片（５），（５）を形成し、該上方舌片（５），（５）と積み重ねた際に係合してケース同士を連結する上記上方舌片（５），（５）とは逆方向に向けて突出する下方舌片（７），（７）を底壁下面に形成した物品収納ケースとした。

明　細　書

発明の名称 ： 物品収納ケース

技術分野

[0001] 本発明は、物品収納ケースに関し、詳しくは、積み重ねたケース同士を容易に連結することができる、物品収納ケースに関するものである。

背景技術

[0002] 工場等において、部品を収納して保管・運搬するために、プラスチック等によって型成形された、上方に開口を有する略立方体形状或いは略直方体形状の物品収納ケースが多用されている。

そして、このような物品収納ケースは、積み重ねた際にズレを防止し、積み重ね状態の安定性を高めるために、底壁下面に脚部を兼ねた凸部を形成し、該凸部を積み重ねた際の下方ケースの上方開口に嵌入させるように構成されている（例えば、特許文献１，２）。 また、積み重ね状態の更なる安定性を図るために、積み重ねたケース同士を連結する構成を有する物品収納ケースも開発されている（例えば、特許文献３）。

先行技術文献

特許文献

[0003] 特許文献1：特開２００４－１２３２２１号公報

特許文献1：特開２００４－３２９０３５号公報

特許文献3：特開平９－１６９３３９号公報

発明の概要

発明が解決しようとする課題

[0004] しかしながら、上記した特許文献１，２に開示されたような、単なる凸部の開口への嵌入のみでは、トラックによる輸送時等に受ける、下から突き上げるような衝撃が加わった場合には、容易に嵌入が外れてしまい、積み重ねがズレることから荷崩れが生じ易いものであった。また、積み重ねたケースを持ち上げる際には、例え空の状態のケースであっても、最下段のケースを

持って持ち上げなければならず、腰をかがめる作業が必要となるなど、作業者に負担を強いるものであった。

一方、特許文献３に開示されたような、積み重ねたケース同士を連結する構成を有するものにあっては、上記した問題は生じないものの、該特許文献３に開示された連結構造は、ケースの上部開口縁部に鋼製の連結具を回動自在に取り付け、該連結具を回動させて相手方ケースの上縁及び／又は連結具に係合させるものであるため、連結具による結合動作が必須となり、その作業が煩わしいものであったと共に、連結手段が大掛かりなものであり、構造も複雑になってコスト高となっていた。

[0005] 本発明は、上述した背景技術が有する課題に鑑みなされたものであって、その目的は、安価に形成できると共に、連結作業性が良好であり、しかも積み重ね状態の安定性の高い物品収納ケースを提供することにある。

課題を解決するための手段

[0006] 上記した目的を達成するため、本発明は、次の〔１〕～〔６〕に記載した物品収納ケースとした。

〔１〕上方に開口を有する略立方体形状或いは略直方体形状の物品収納ケースにおいて、底壁下面に脚部を兼ねた凸部を形成し、該凸部を積み重ねた際の下方ケースの上記上方開口に嵌入させる構成とすると共に、対向する側壁の上端中央付近にそれぞれ内方或いは外方に向けて突出する上方舌片を形成し、該上方舌片と積み重ねた際に係合してケース同士を連結する上記上方舌片とは逆方向に向けて突出する下方舌片を底壁下面に形成したことを特徴とする、物品収納ケース。

〔２〕上記上方舌片の周辺に凹部が形成されていることを特徴とする、上記〔１〕に記載の物品収納ケース。

〔３〕上記上方舌片が側壁上端面より突出して形成されていることを特徴とする、上記〔１〕に記載の物品収納ケース。

〔４〕上記上方舌片の下面に係合凹部が形成され、上記下方舌片の上面に前記上方舌片の係合凹部に嵌入する係合凸部が形成されていることを特徴と

する、上記〔１〕に記載の物品収納ケース。

〔５〕上記上方舌片が長辺側の対向する側壁に形成され、上記下方舌片が底壁下面の上記脚部を兼ねた凸部に形成されていることを特徴とする、上記〔１〕に記載の物品収納ケース。

〔６〕上記ケースの上記上方開口を閉塞する矩形の蓋体であり、該蓋体の下面に凸部を形成し、該凸部を上記ケースの上記上方開口に嵌入させる構成とすると共に、該凸部に上記ケースに形成された上方舌片と係合する舌片を形成したことを特徴とする、上記〔１〕に記載の物品収納ケース。

発明の効果

[0007] 上記した本発明に係る物品収納ケースによれば、ケースを互いに連結するための特別な別部品を付加する必要がなく、上方舌片と下方舌片とをケースに型成形等により一体的に形成すればよいので、製造コストの低減が図れると共に、リサイクルが容易な物品収納ケースを提供することができる。

また、上記した本発明に係る物品収納ケースによれば、上方舌片と下方舌片との係合によって積み重ねたケース同士を連結するものであるため、その連結作業性は良好であり、また信頼性の高い連結が可能なものとなる。

図面の簡単な説明

[0008] [図1]本発明に係る物品収納ケースの一実施形態を示した斜視図である。

[図2]図１に示した物品収納ケースを積み重ねる途中の状態を示した一部切り欠き側面図である。

[図3]図１に示した物品収納ケースを２段積み重ねた状態を示した一部切り欠き側面図である。

[図4]図１に示した物品収納ケースを３段積み重ね、最上段の物品収納ケースを持って垂直方向に持ち上げた状態を示した一部切り欠き側面図、および要部を拡大して示した断面図である。

[図5]図１に示した物品収納ケースを３段積み重ね、最下段の物品収納ケースを持って横方向に倒した状態を示した一部切り欠き側面図、および要部を拡大して示した断面図である。

[図6]本発明に係る物品収納ケースの蓋体を下方から観た斜視図である。

[図7]図１に示した物品収納ケースを５段積み重ね、最上段の物品収納ケースに蓋体を装着した状態を示した一部切り欠き側面図、および要部を拡大して示した断面図である。

[図8]本発明に係る物品収納ケースの他の実施形態を示した斜視図である。

[図9]図８に示した物品収納ケースの平面図である。

[図10]図８に示した物品収納ケースの底面図である。

[図11]上方舌片及び下方舌片の変形例を示した要部斜視図である。

[図12]上方舌片及び下方舌片の他の変形例を示した要部斜視図である。

発明を実施するための形態

[0009] 以下、上記した本発明に係る物品収納ケースの実施形態を、図面を参照しながら詳細に説明する。

[0010] 本発明に係る物品収納ケース１は、例えばプラスチックによってその全体が一体成形されたもので、図１に示すように、略直方体形状で、上方に開口２を有している。また、底壁下面に脚部を兼ねた凸部３が形成され、該凸部３が積み重ねた際の下方ケースの上記上方開口２に嵌入し、積み重ね状態の安定性が図られている。

[0011] 物品収納ケース１の長辺側の対向する側壁４，４の上端中央付近には、それぞれ内方に向けて突出する上方舌片５，５が形成され、該上方舌片５の周辺に凹部６がそれぞれ形成されている。また、底壁下面に形成された上記脚部を兼ねた凸部３には、前記上方舌片５，５と積み重ねた際に係合してケース同士を連結する外方に向けて突出する下方舌片７，７が形成されている。また、短辺側の対向する側壁８，８の外面側の上方中央付近には、取っ手９，９が形成されている。

[0012] 上記のように構成された本発明に係る物品収納ケース１は、積み重ねる際に、図２に示したように、下方のケース１Ａの上方舌片５，５の下方に、上方のケース１Ｂの下方舌片７，７がそれぞれ入り込むように上方舌片５の周辺に形成された上記凹部６を利用して挿入することにより、図３に示したよ

うに、下方のケース１Ａの上方舌片５の下方に上方のケース１Ｂの下方舌片７が位置するように積み重ねられ、容易に積み重ねたケース１Ａ，１Ｂ同士を縦方向に抜けないように連結することができる。

[0013] 上記のようにして積み重ねられた物品収納ケース１Ａ，１Ｂ，１Ｃは、例えば持ち上げる際においては、図４に示したように、最上段の物品収納ケース１Ｃを持って持ち上げることにより、その積み重ねられた全ての物品収納ケース１Ａ，１Ｂ，１Ｃを持ち上げることができるものとなる。また、図５に示したように、積み重ねられた物品収納ケース１Ａ，１Ｂ，１Ｃの最下段のケース１Ａを持って横方向に倒した場合においても、下端を支点として上方舌片５と下方舌片７とが当接して抜けが防止されるため、横方向に倒した状態でも積み重ねがバラけず、搬送が可能なものとなる。

上記した作用は、特に空の状態の物品収納ケース１の搬送作業の際に効果的に現れ、作業者の負担を大きく軽減することができるものとなる。

[0014] また、上記のようにして積み重ねられた物品収納ケース１Ａ，１Ｂ、１Ｃ・・は、トラックによる輸送時等において、下から突き上げるような衝撃が加わった場合にも、上方舌片５と下方舌片７とが当接して抜けが防止されるため、物品収納ケースがズレ難いものとなる。

上記した作用は、積み重ねられた物品収納ケース１Ａ，１Ｂ，１Ｃ・・の輸送時において、その荷崩れを効果的に防止することができるものとなる。

[0015] 図６は、本発明に係る物品収納ケースに用いる蓋体を下方から観た斜視図である。この蓋体５０は、例えばプラスチックによってその全体が一体成形された矩形形状のもので、下面に凸部５１を有し、該凸部５１を上記ケース１の上記上方開口２に嵌入させる構成となっている。また、凸部５１には、上記ケース１の側壁上端に設けた上方舌片５，５と係合する外方に向けて突出する舌片５２，５２が形成されている。

[0016] 上記した蓋体５０は、例えば図７に示したように、５段に積み重ねた本発明に係る物品収納ケース１Ａ，１Ｂ，１Ｃ，１Ｄ，１Ｅの最上段のケース１Ｅの開口２を閉塞するのに用いられる。蓋体５０の装着に際しては、上記し

たケース同士の連結と同様に、ケース１Ｅの上方舌片５，５の下方に、蓋体５０の舌片５２，５２がそれぞれ入り込むように上方舌片５の周辺に形成された上記凹部６を利用して挿入することにより、図７に示したように、ケース１Ｅの上方舌片５の下方に蓋体５０の舌片５２が位置するように装着され、容易にケース１Ｅから蓋体５０が外れないように装着することができる。

[0017] 上記のようにして最上段のケース１Ｅの開口２が蓋体５０によって閉塞された積み重ねられた物品収納ケース１Ａ，１Ｂ，１Ｃ，１Ｄ，１Ｅは、トラックによる輸送時等において、下から突き上げるような衝撃が加わった場合にも、上記したようにケース同士の連結により荷崩れが生じないと共に、蓋体５０はケース１から外れないため、収納した物品が跳ね上げられて散乱することもない。

[0018] 図８は、本発明に係る物品収納ケースの他の実施形態を示した斜視図である。

このケース１０は、薄肉のプラスチックによりその全体が形成され、フランジ１１、リブ１２を適所に配することにより、その剛性が図られている。長辺側の対向する側壁１３，１３の上端中央付に形成された上方舌片１４，１４は、側壁上端面より突出して形成され、その周辺には凹部１５がそれぞれ形成されている。これにより、上方舌片１４の肉厚が確保されていると共に、後記する下方舌片１６の挿入を容易なものとしている。

[0019] また、図１０に示したように、底壁下面には脚部を兼ねた凸部１７が形成されている。この凸部１７は、線状に形成されており、コーナー部に形成されたＬ字状凸部１７ａと、長辺側の中央付近に形成されたＩ字状凸部１７ｂとからなる。これらの凸部１７ａ，１７ｂは、積み重ねた際の下方ケースの上方開口１８に内嵌し、積み重ね状態の安定性が図られている。

Ｉ字状凸部１７ｂ，１７ｂには、上記上方舌片１４，１４と積み重ねた際に係合してケース同士を連結する外方に向けて突出する下方舌片１６，１６が設けられている。また、下方のフランジ１１には、図８に示したように、上記した側壁上端面より突出して形成され上方舌片１４，１４を避ける凹み

１９，１９が設けられている。

この実施形態に係る物品収納ケース１０においても、上記したケース１と同様の作用、効果が得られる。

[0020] 以上、本発明に係る物品収納ケースの実施形態を説明したが、本発明は、何ら既述の実施形態に限定されるものではなく、特許請求の範囲に記載した本発明の技術的思想の範囲内において、さらに種々の変形及び変更が可能であることは当然である。

例えば、上記実施形態においては、略直方体形状の物品収納ケース１，１０につき説明したが、略立方体形状の物品収納ケースとしてもよい。また、ケースに形成する上方舌片５或いは１４及び下方舌片７或いは１６は、内方或いは外方に向けて突出する単なる板状のものであってもよいが、図１１、図１２に示したように、上方舌片２０の下面に係合凹部２１が形成され、下方舌片２２の上面に前記上方舌片の係合凹部に嵌入する係合凸部２３が形成されているものとしてもよい。このような係合部２１，２３を形成した舌片２０，２２とした場合には、当接する際にセンタリングが図れ、より積み重ねたケース同士のズレが防止できるものとなる。

[0021] また、上記実施形態においては、上方舌片５或いは１４は、内方に向けて突出するように形成され、下方舌片７或いは１６は、外方に向けて突出するように形成されたものにつき説明したが、両者がそれぞれ逆方向、すなわち上方舌片は外方、下方舌片は内方に向けて、それぞれ突出するように形成してもよい。

なお、上記した下方舌片についての変形は、蓋体５０に形成する舌片５２についても、同様に実施することができる。また、蓋体５０に形成する凸部５１についても、図１０に示した線状の凸部としてもよく、また場合によっては点状に存在する凸部としてもよい。

[0022] 更に、本発明に係る物品収納ケースは、工場等における部品を収納するケースばかりでなく、ビール瓶を収納するケース、更には野菜を収納するケース等、収容する物品の種類は何ら問わない。また、材質も何ら限定されず、

プラスチック製、木製、金属製等の種々の材料を利用して本発明に係る物品収納ケースを製造することができる。更に言えば、本発明に係る物品収納ケースは、全体が一体的に形成されている必要はなく、多部品を組み合わせて構成されていてもよく、また組み立て式の物品収納ケースであってもよい。

産業上の利用可能性

[0023] 以上、説明した本発明に係る物品収納ケースは、安価に形成できると共に、連結作業性が良好であり、しかも段積み状態の安定性の高い物品収納ケースとなるため、工場等における部品を収納するケース、ビール瓶を収納するケース、更には野菜を収納するケース等に、幅広く利用できるケースとなる。

符号の説明

[0024]
１，１Ａ，１Ｂ，１Ｃ，１０　物品収納ケース
２，１８　開口
３，１７　脚部を兼ねた凸部
４，１３　長辺側の側壁
５，１４，２０　上方舌片
６，１５　凹部
７，１６，２２　下方舌片
８　短辺側の側壁
９　取っ手
１１　フランジ
１２　リブ
１７ａ　Ｌ字状凸部
１７ｂ　Ｉ字状凸部
１９　凹み
２１　係合凹部
２３　係合凸部
５０　蓋体

５１　凸部

５２　舌片

請求の範囲

[請求項1] 上方に開口を有する略立方体形状或いは略直方体形状の物品収納ケースにおいて、底壁下面に脚部を兼ねた凸部を形成し、該凸部を積み重ねた際の下方ケースの上記上方開口に嵌入させる構成とすると共に、対向する側壁の上端中央付近にそれぞれ内方或いは外方に向けて突出する上方舌片を形成し、該上方舌片と積み重ねた際に係合してケース同士を連結する上記上方舌片とは逆方向に向けて突出する下方舌片を底壁下面に形成したことを特徴とする、物品収納ケース。

[請求項2] 上記上方舌片の周辺に凹部が形成されていることを特徴とする、請求項１に記載の物品収納ケース。

[請求項3] 上記上方舌片が側壁上端面より突出して形成されていることを特徴とする、請求項１に記載の物品収納ケース。

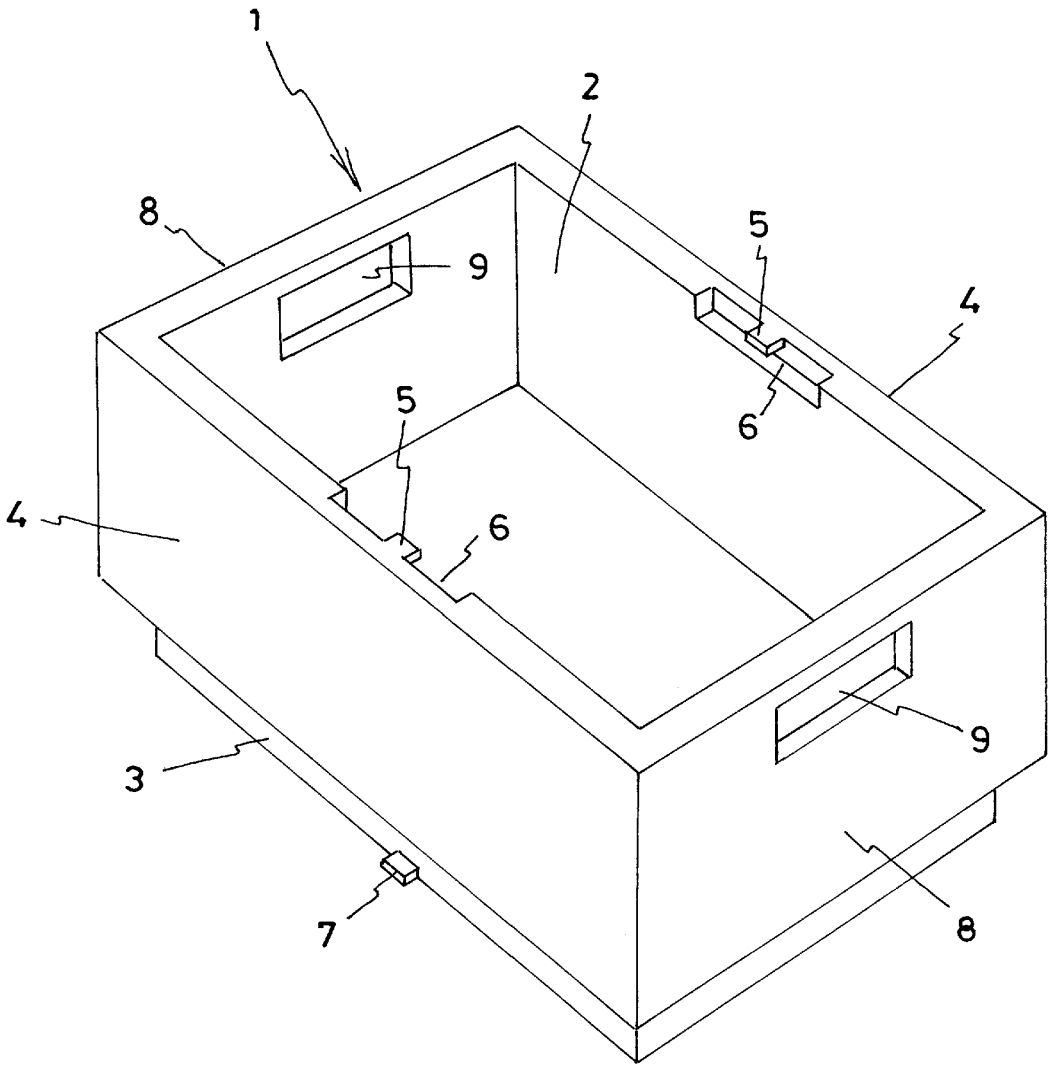
[請求項4] 上記上方舌片の下面に係合凹部が形成され、上記下方舌片の上面に前記上方舌片の係合凹部に嵌入する係合凸部が形成されていることを特徴とする、請求項１に記載の物品収納ケース。

[請求項5] 上記上方舌片が長辺側の対向する側壁に形成され、上記下方舌片が底壁下面の上記脚部を兼ねた凸部に形成されていることを特徴とする、請求項１に記載の物品収納ケース。

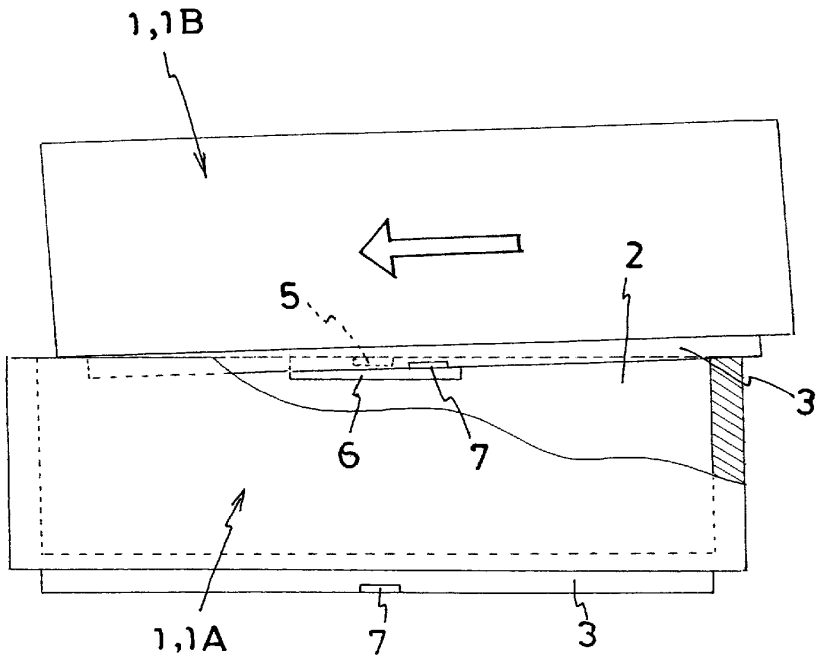
[請求項6] 上記ケースの上記上方開口を閉塞する矩形の蓋体であり、該蓋体の下面に凸部を形成し、該凸部を上記ケースの上記上方開口に嵌入させる構成とすると共に、該凸部に上記ケースに形成された上方舌片と係合する舌片を形成したことを特徴とする、請求項１に記載の物品収納ケース。

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Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

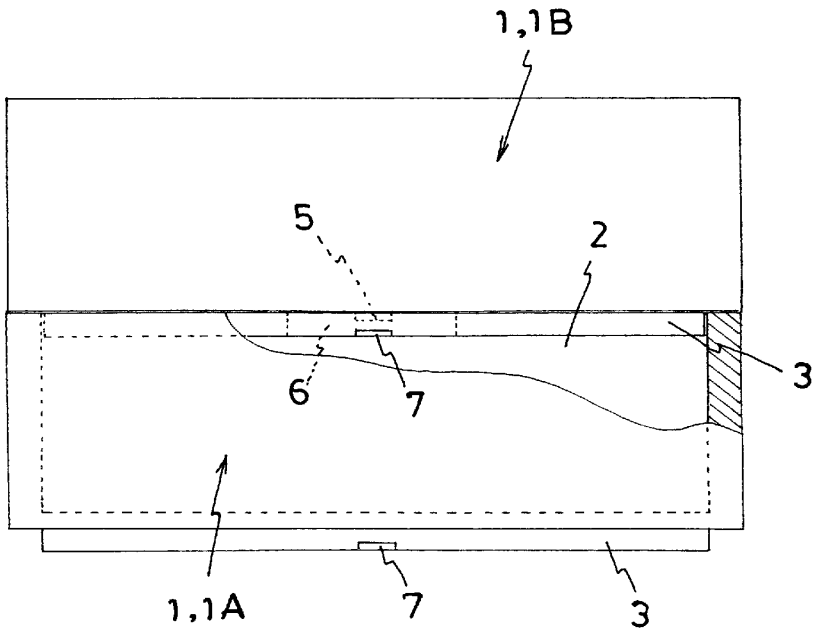
[図1]



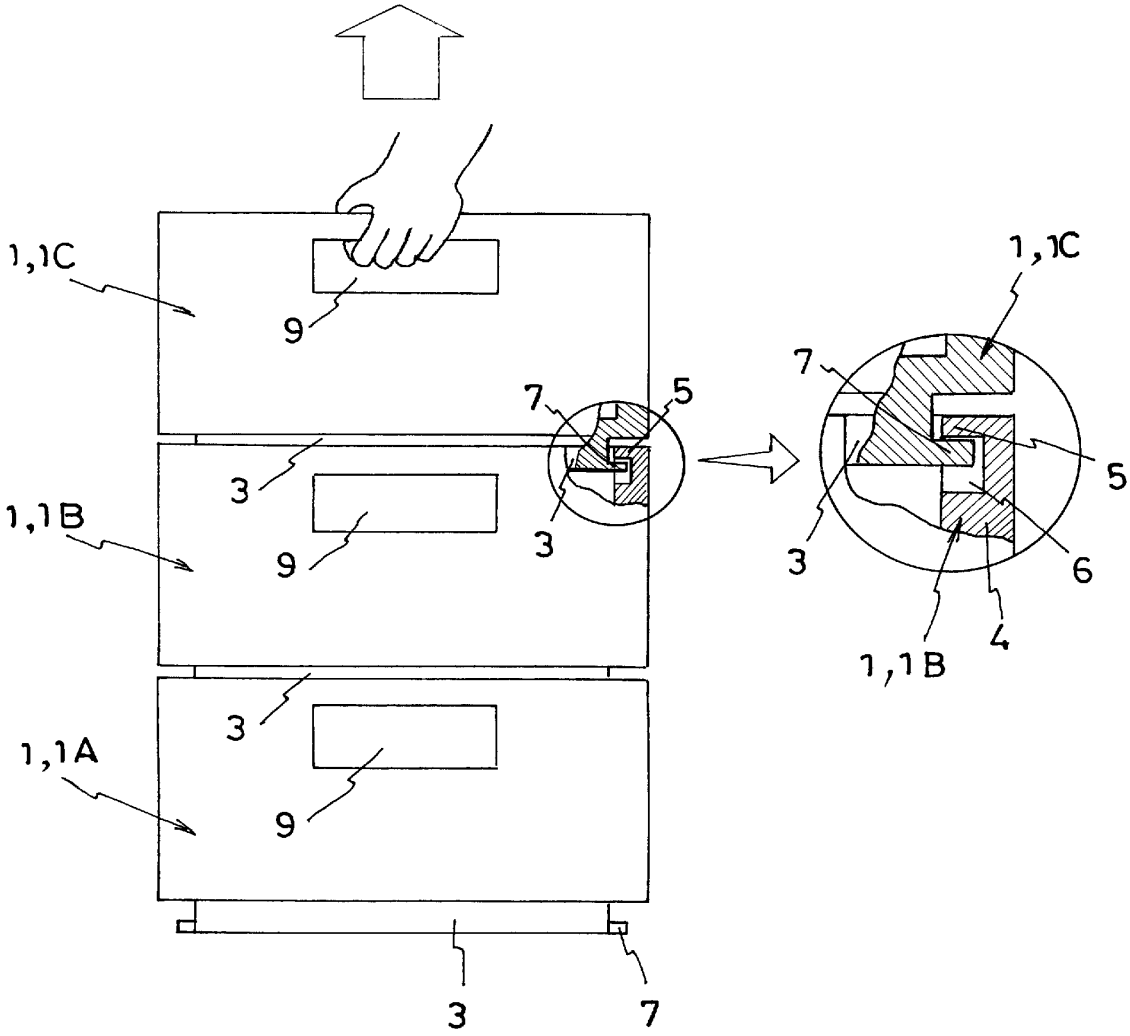
[図2]



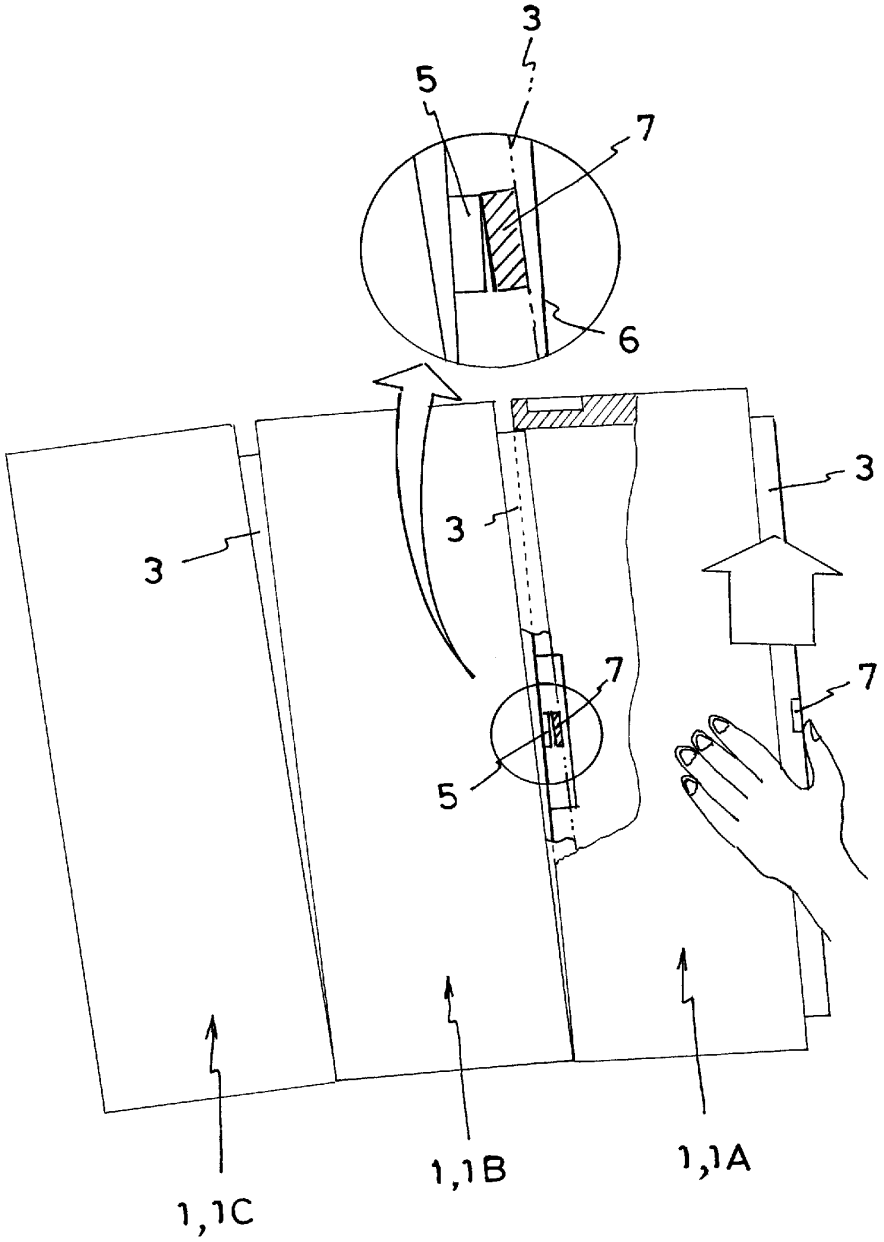
[図3]



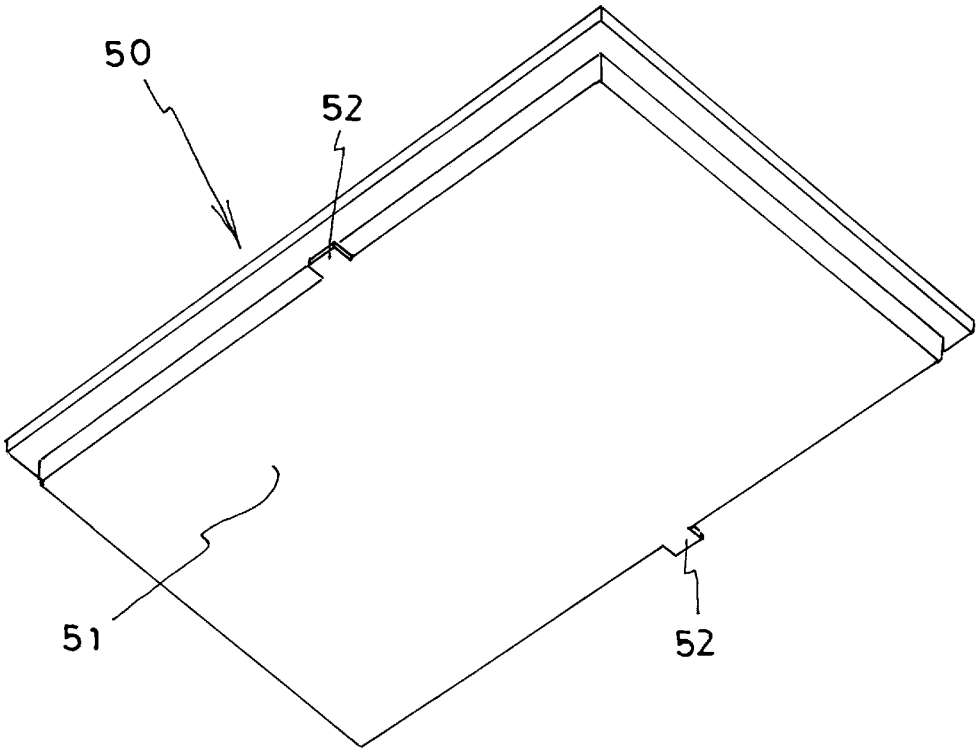
[図4]



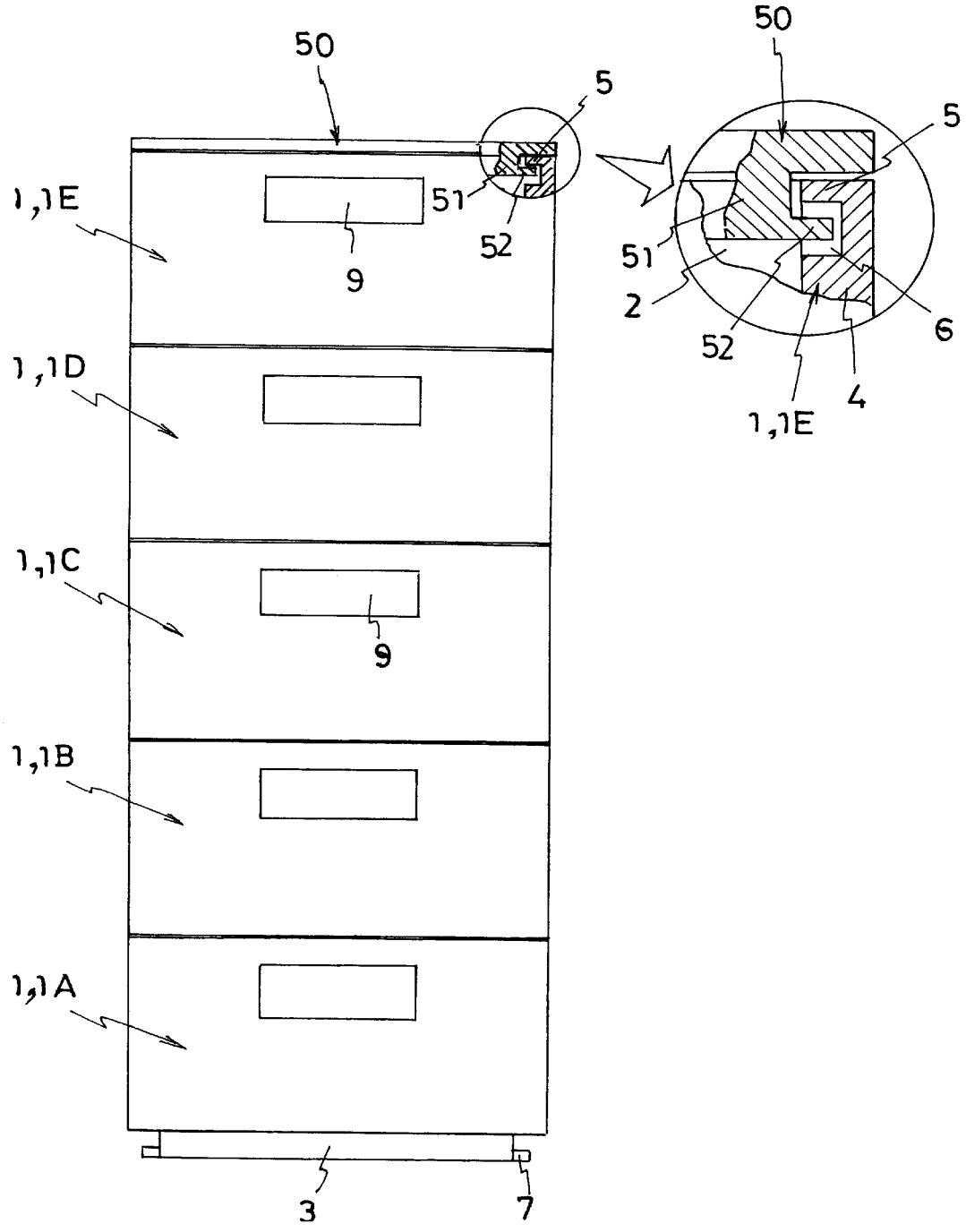
[図5]



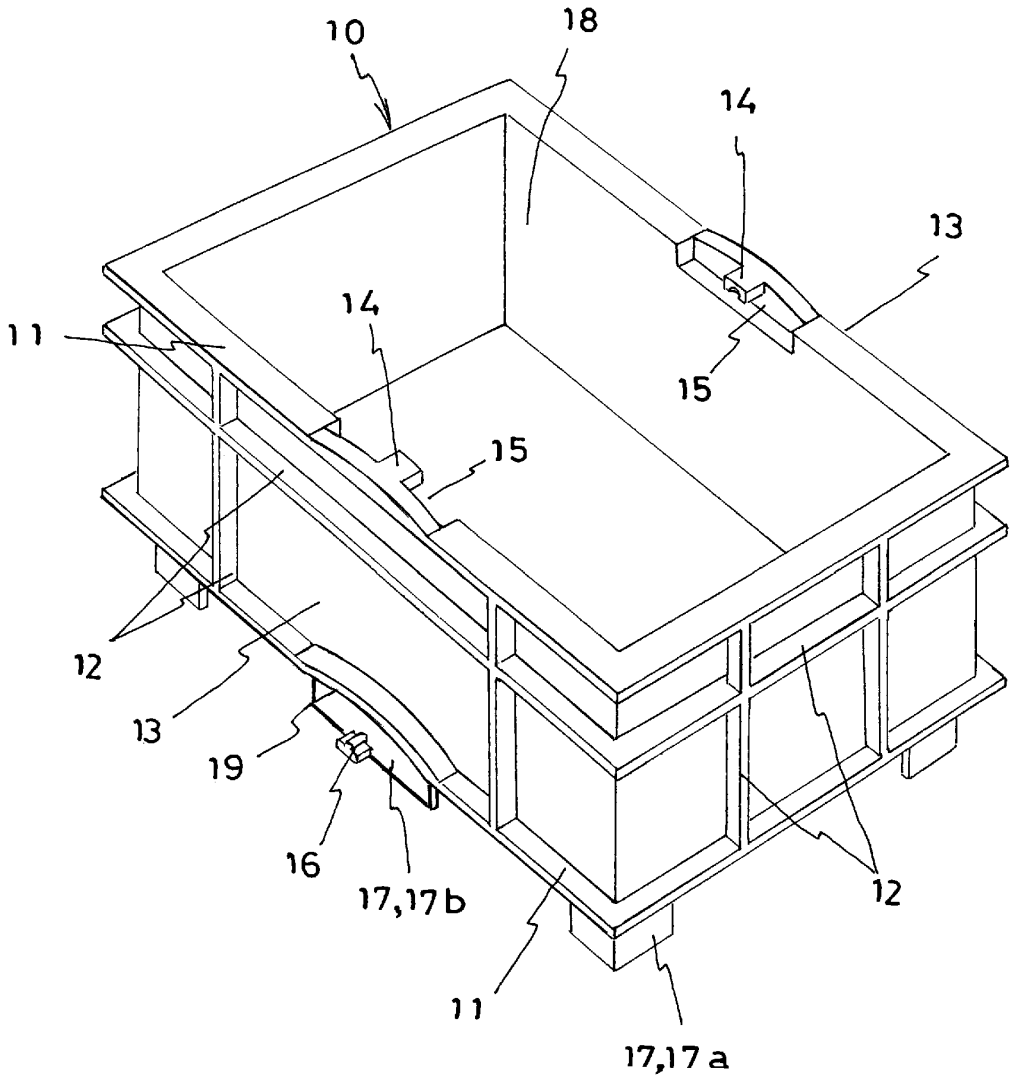
[図6]



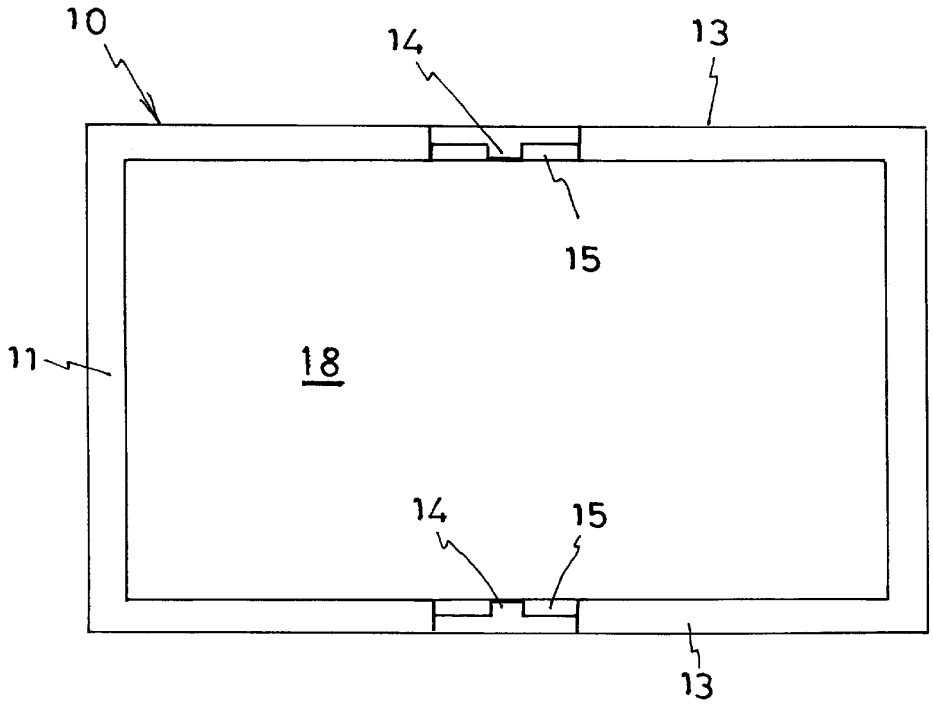
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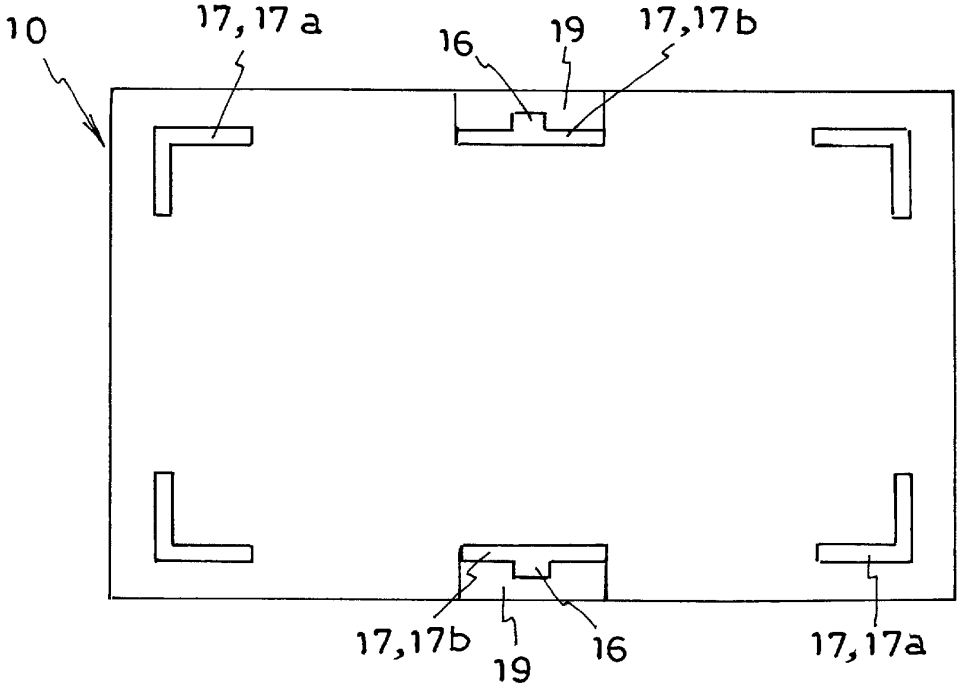
[図8]



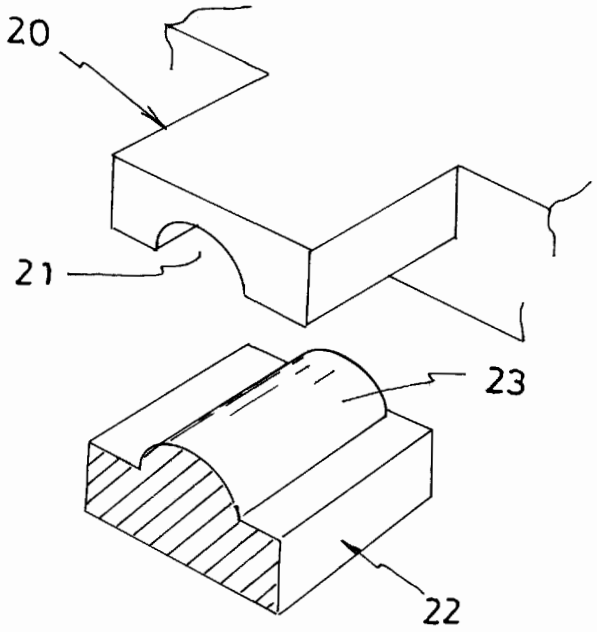
[図9]



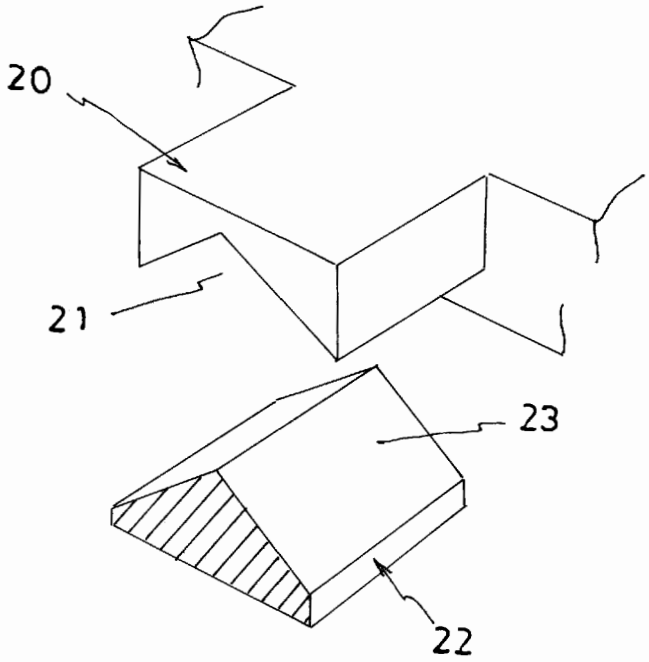
[図10]



[図11]



[図12]



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2017/017322

A. CLASSIFICATION OF SUBJECT MATTER
B65D21/02(2006.01)i, *B65D21/036*(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D21/02, B65D21/036

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2017
Kokai Jitsuyo Shinan Koho	1971-2017	Toroku Jitsuyo Shinan Koho	1994-2017

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 141008/1972(Laid-open No. 096229/1974) (Aiho Kagaku Kabushiki Kaisha), 20 August 1974 (20.08.1974), specification, page 1, line 18 to page 2, line 19; fig. 1 to 3 (Family: none)	1,2,5,6 3,4
A	JP 40-033175 Y1 (Sekisui Chemical Co., Ltd.), 19 November 1965 (19.11.1965), (Family: none)	3

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 June 2017 (13.06.17)	20 June 2017 (20.06.17)
Name and mailing address of the ISA/ Japan Patent Office 3-4-3,Kasumigaseki,Chiyoda-ku, Tokyo 100-8915,Japan	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2017/017322

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 07-136011 A (Gifu Plastic Industry Co., Ltd.), 30 May 1995 (30.05.1995), (Family: none)	3
A	JP 2009-029516 A (Ingenious Designs L.L.C.), 12 February 2009 (12.02.2009), & US 2009/0026158 A1 & EP 2018816 A1 & KR 10-2008-0061347 A & CN 101352283 A	4
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 027142/1975(Laid-open No. 108943/1976) (Katashi AOKI), 31 August 1976 (31.08.1976), (Family: none)	5

Form PCT/ISA/210 (continuation of second sheet) (January 2015)

国際調査報告

国際出願番号　ＰＣＴ／ＪＰ２０１７／０１７３２２

Ａ．　発明の属する分野の分類（国際特許分類（ＩＰＣ））

Int.Cl.　B65D21/02(2006.01)i，B65D21/036(2006.01)i

Ｂ．　調査を行った分野

調査を行った最小限資料（国際特許分類（ＩＰＣ））

Int.Cl.　B65D21/02，B65D21/036

最小限資料以外の資料で調査を行った分野に含まれるもの

日本国実用新案公報	１９２２－１９９６年
日本国公開実用新案公報	１９７１－２０１７年
日本国実用新案登録公報	１９９６－２０１７年
日本国登録実用新案公報	１９９４－２０１７年

国際調査で使用した電子データベース（データベースの名称、調査に使用した用語）

Ｃ．　関連すると認められる文献

引用文献のカテゴリー＊	引用文献名　及び一部の箇所が関連するときは、その関連する箇所の表示	関連する請求項の番号
X	日本国実用新案登録出願47-141008号（日本国実用新案登録出願公開49-096229号）の願書に添付した明細書及び図面の内容を撮影したマイクロフィルム（アイホー化学株式会社）1974.08.20，明細書第１頁第１８行－第２頁第１９行，第１－３図（ファミリーなし）	１，２，５，６
A	JP 40-033175 Y1（積水化学工業株式会社）1965.11.19，（ファミリーなし）	３，４
A	JP 07-136011 A（岐阜プラスチック工業株式会社）1995.05.30，（ファミリーなし）	３
A		３

☑　Ｃ欄の続きにも文献が列挙されている。　　☐　パテントファミリーに関する別紙を参照。

＊　引用文献のカテゴリー
「Ａ」特に関連のある文献ではなく、一般的技術水準を示すもの
「Ｅ」国際出願日前の出願または特許であるが、国際出願日以後に公表されたもの
「Ｌ」優先権主張に疑義を提起する文献又は他の文献の発行日若しくは他の特別な理由を確立するために引用する文献（理由を付す）
「Ｏ」口頭による開示、使用、展示等に言及する文献
「Ｐ」国際出願日前で、かつ優先権の主張の基礎となる出願の日の後に公表された文献
「Ｔ」国際出願日又は優先日後に公表された文献であって出願と矛盾するものではなく、発明の原理又は理論の理解のために引用するもの
「Ｘ」特に関連のある文献であって、当該文献のみで発明の新規性又は進歩性がないと考えられるもの
「Ｙ」特に関連のある文献であって、当該文献と他の１以上の文献との、当業者にとって自明である組合せによって進歩性がないと考えられるもの
「＆」同一パテントファミリー文献

国際調査を完了した日	国際調査報告の発送日
１３．０６．２０１７	２０．０６．２０１７

国際調査機関の名称及びあて先	特許庁審査官（権限のある職員）	３Ｎ	３４８６
日本国特許庁（ＩＳＡ／ＪＰ） 郵便番号１００－８９１５ 東京都千代田区霞が関三丁目４番３号	新田　亮二 電話番号　０３－３５８１－１１０１　内線　３３６１		

様式ＰＣＴ／ＩＳＡ／２１０（第２ページ）（２０１５年１月）

Ｃ（続き）．　関連すると認められる文献

引用文献のカテゴリー＊	引用文献名　及び一部の箇所が関連するときは、その関連する箇所の表示	関連する請求項の番号
Ａ	JP 2009-029516 A（インジニアス　デザインズ　エルエルシー）2009.02.12, & US 2009/0026158 A1 & EP 2018816 A1 & KR 10-2008-0061347 A & CN 101352283 A	4
Ａ	日本国実用新案登録出願50-027142号(日本国実用新案登録出願公開51-108943号)の願書に添付した明細書及び図面の内容を撮影したマイクロフィルム（青木固）1976.08.31,（ファミリーなし）	5

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Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

REPRODUCED BY

PATENT SPECIFICATION

694,707

Date of Application and filing Complete Specification: Dec. 27, 1951.

No. 30242/51.

Complete Specification Published: July 22, 1953.

Index at acceptance:—Class 103(i), E2h(5 : 9a).

COMPLETE SPECIFICATION

Improvements in or relating to Trolleys for Domestic Appliances or Machines

I, GEORGE ARTHUR CHARD, a British Subject, of 32, Popesgrove, Twickenham, Middlesex, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to trolleys for domestic appliances or machines, such as washing machines, refrigerators, and electric cooking stoves, which usually rest directly on the ground, or have fixed foot members, and owing to their weight are not easy to move.

To enable such appliances to be easily moved, either into position for use or for cleaning purposes, it has been proposed to provide a trolley comprising a base frame mounted on small wheels or castors, on which an appliance can be placed, so that it can then be easily moved about. Furthermore, since it is necessary to immobilise some such appliances when moved into a convenient position for use, as in the case of washing machines, it has been proposed to fit the trolley with a pedal operated brake device comprising brake arms which bear on the ground beneath the trolley when operated by the pedal.

Prior to this invention it was necessary to maintain continuous pressure on the brake pedal in order to hold the brake in operative position during operation of the machine.

The object of this invention is to provide a trolley of the above kind with improved means for operating the brake, so that it remains operative after removal of pressure from the operating pedal, and can subsequently be rendered inoperative at will.

According to the invention, therefore, a trolley having a brake shaft carrying a crank arm, adapted to contact the floor or ground when the shaft is rotated, is fitted with a brake pedal independent of the brake shaft, which rocks about a pivot on the trolley frame, and has a depending arm which contacts with the brake arm, so that on applying pressure to one end of the brake pedal, the pedal moves into one end position. During this movement the depending arm travels upwardly along the brake arm and depresses it to make contact with the ground at its free end, whilst on applying pressure to the other end of the brake pedal the pedal is rocked into the opposite end position and its depending arm travels downwardly along the brake arm, thus allowing it to rise under the pull of a return spring. Thus two positive operations of the brake pedal in opposite directions are required to apply and release the brake.

In order that the invention may be clearly understood and readily carried into practice, it is illustrated, by way of example only, by the accompanying drawings, in which:—

Figure 1 is a side elevation of the trolley on the pedal side, with its braking mechanism in operation; and

Figure 2 is a perspective view of the trolley.

The trolley comprises a rectangular base frame 1, made of angle iron, into which the bottom of the washing machine or other domestic appliance is fitted, and supported by the bottom flange. The frame 1 is mounted at its corners on castor wheels 2, and transversely across the frame extends a brake shaft rotatably mounted on the lower flange of frame 1 by means of bearing straps 4. The shaft 3 has a pair of cranks 5, 6 adjacent to opposite side members of frame 1, to one or both of which is or are connected a pull-off spring 7 anchored to the adjacent side members of frame 1. The crank 6 lies just outside the frame 1, and mounted on the web of the frame 1, to one side of the shaft 3, is a pedal 8 which rocks about a

[*Price* 2/8]

Price 4s 6d

Price 33/-

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pivot 9. Depending from the centre of pedal 8 is an arm 10 which can contact with brake arm 6.

At the end of each crank 5, 6 is a braking member or shoe formed by bending the end of crank 5 or 6 at right angles, and on said braking members are fitted non-slip sleeves 11 of rubber, or the like. The ends of pedal 8 are also fitted with non-slip rubber or like sleeves 12, 12.

As will be readily appreciated, when the right hand end of the pedal 8 is depressed with the foot, its arm 10 bears on crank 6 and presses it downwardly, thus pressing its braking member on the ground; at the same time the other crank is similarly operated through cross shaft 3, so that equal braking pressure is applied simultaneously to opposite sides of frame 1.

To release the brake, the left hand end of pedal 8 is depressed, so that the pedal is rocked in the reverse direction, and the arm 10 is moved downwardly and away from the crank arm 6, allowing it to rise under the pull of spring 7; at the same time crank 5 is also raised through brake shaft 3.

It will be appreciated that the brake mechanism is positively operated into either " off " or " on " position, and remains so set until the brake pedal 8 is operated by the foot. Thus it is not necessary to maintain foot pressure on the brake operating pedal, in order to hold the trolley stationary over a prolonged period.

Although the trolley may be used with washing machines to facilitate their movement into position for use, in which they can be held still by the brake mechanism, it is primarily intended for use with refrigerators, electric cooking stoves, or the like, which are mostly stationary when in use (the brake being then applied) but require to be moved out of working position from time to time, in order to permit cleaning of the floor beneath them and of the walls behind them.

It should be understood that although the invention is primarily concerned with a trolley and brake mechanism, removable as a unit, for domestic appliances or machines, it also includes the construction of domestic appliances with the braking mechanism incorporated permanently therein without the intermediary of a trolley, the bottom edge of the appliance or machine taking the place of the trolley frame.

What I claim is:—

1. In a trolley for domestic appliances or machines, floor braking means comprising an angularly movable brake arm adapted to be pressed into contact with the ground, in combination with a pivotally mounted pedal having a part contacting with the side of the brake arm.

2. In a trolley for domestic appliances or machines, floor braking means comprising a base frame mounted on wheels or castors and fitted with a transverse shaft having one or more crank arms adapted to act at the free ends as brake members or shoes, and pivoted to said frame a rocking brake pedal having a part bearing on a crank arm, which it depresses against the action of a pull-off spring when the pedal is rocked into one end position.

3. In a trolley for domestic appliances of the kind hereinbefore indicated, braking mechanism operating on the floor or ground, which is pedal operated into either " off " or " on " position, and remains so set when pressure is removed from the brake pedal.

4. In a trolley for domestic appliances having floor braking means according to claim 3, wherein also the pedal consists of a member adapted to rock about a pivot on the trolley frame between extreme end positions, in which the braking action is either applied or removed, as the case may be.

5. Domestic appliances or machines mounted permanently on wheels or a trolley for such machines without wheels, fitted with braking mechanism comprising an angularly movable brake arm adapted to be pressed into contact with the ground, in combination with a pivotally mounted pedal having a part contacting with the side of the brake arm.

6. An article of domestic furniture fitted at the bottom with castors and also with one or more pressure members adapted to engage with the floor and serve as braking means, in combination with a pivoted lever or pedal adapted to be operated to render the braking means inactive by dis-engagement of the pressure member or members from the floor.

7. Trolleys for use with domestic appliances or machines substantially as herein described with reference to, and as illustrated by the accompanying drawings.

8. The fitting of domestic appliances or machines with braking mechanism substantially as herein described with reference to, and as illustrated by the accompanying drawings.

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IPR2024-01400

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Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press.—1953.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained.

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IPR2024-01400

694,707 COMPLETE SPECIFICATION
1 SHEET
This drawing is a reproduction of the Original on a reduced scale.

FIG. 1.

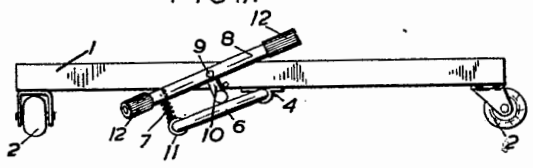
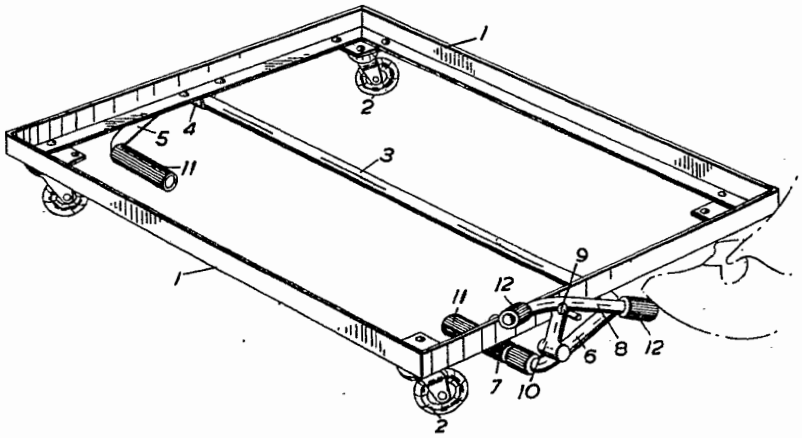


FIG. 2.



(12) UK Patent (19) GB (11) 2 047 181 B

(54) Title of invention

Container for handling or storing articles

(51) INT CL^3; **B62B 3/00**

(21) Application No
8009597

(22) Date of filing
21 Mar 1980

(30) Priority data

(31) **7910789**

(32) **27 Apr 1979**

(33) **France (FR)**

(43) Application published
26 Nov 1980

(45) Patent published
2 Feb 1983

(52) Domestic classification
B7B TN
B8H QG
U1S 1723 1727 B7B B8H

(56) Documents cited
None

(58) Field of search
B7B
B8H
E2A

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LONDON THE PATENT OFFICE

GB 2 047 181 B

Fig:1

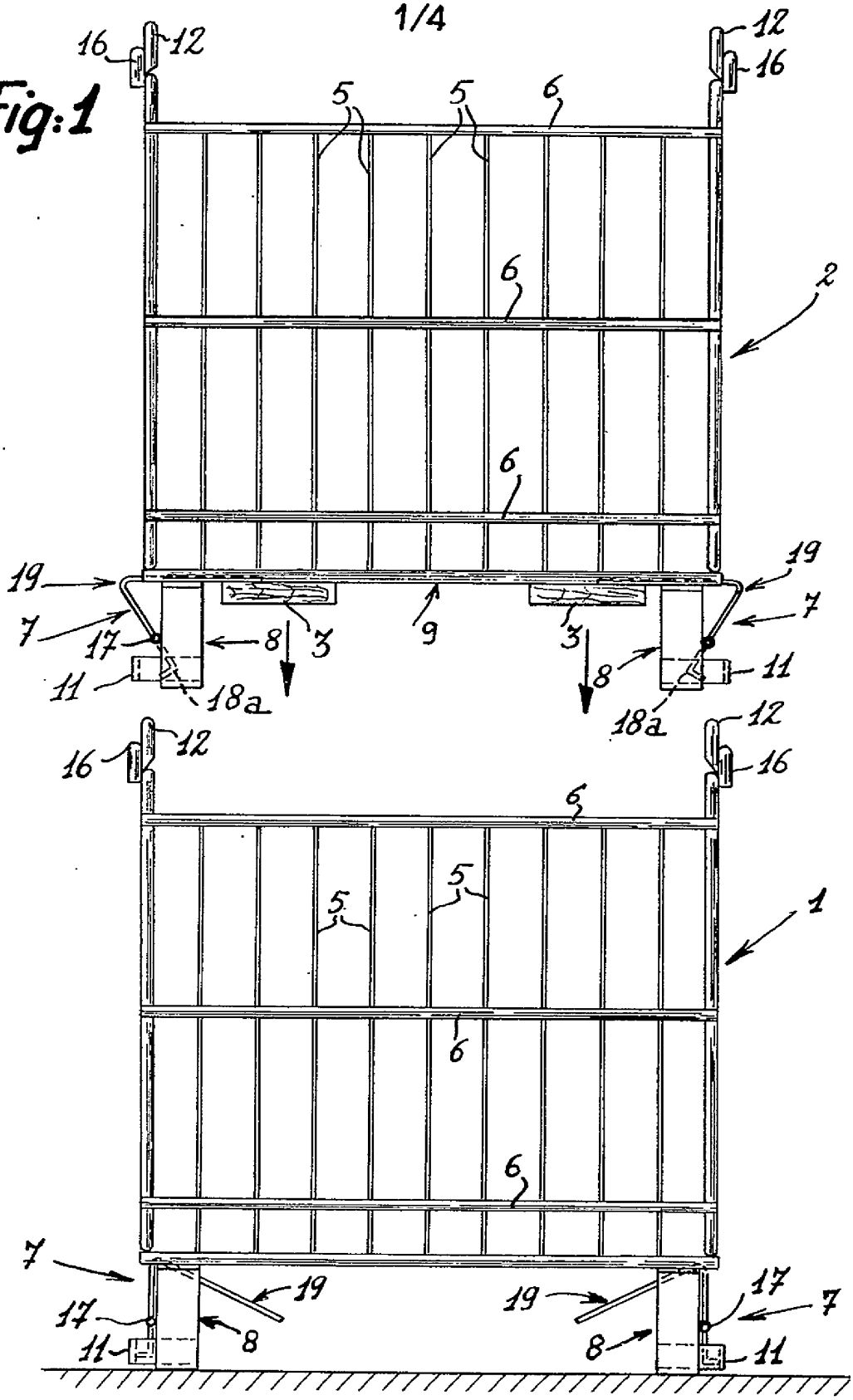
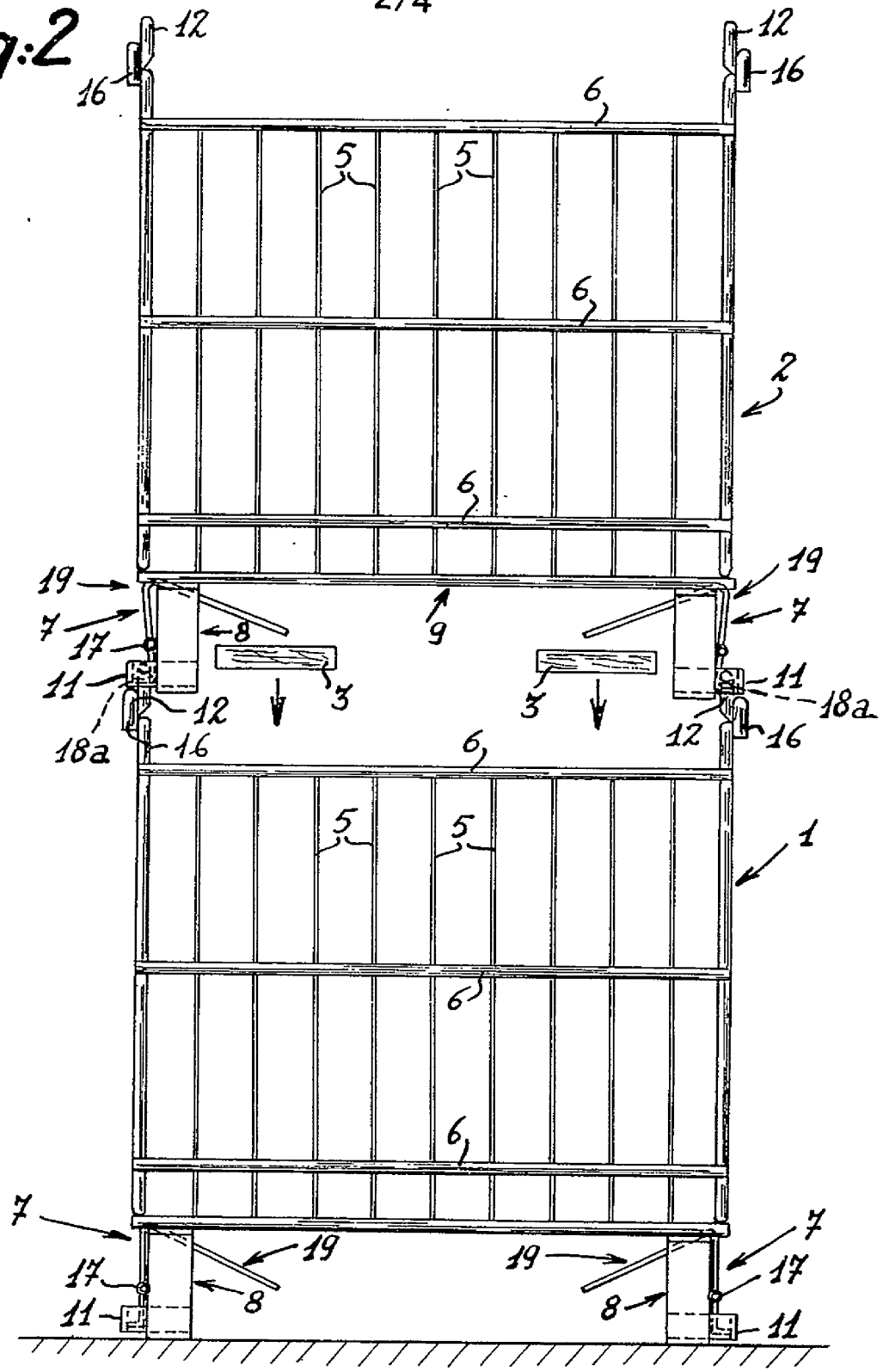

16
12
5
5
6
12
16
6
2
6
19
19
7
7
17
8
3
9
3
8
11
11
18a
18a
12
16
16
12
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5
5
1
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7
19
19
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17
17
8
8
11
11

Fig:2



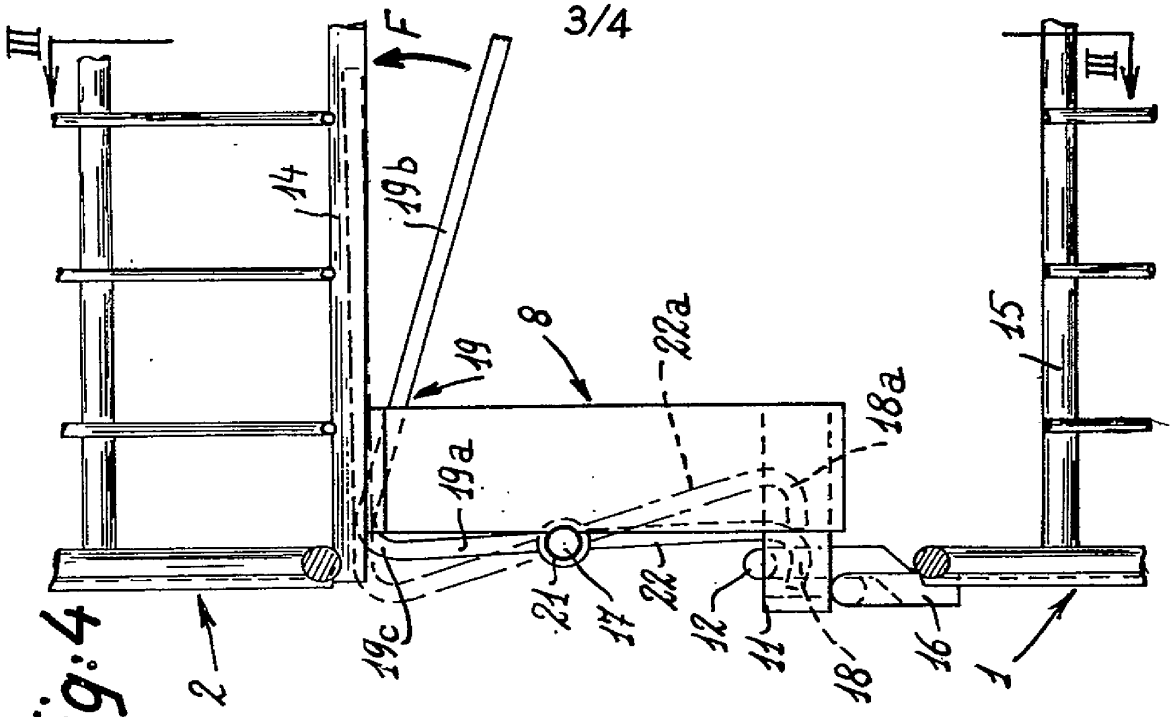

III
F
14
19b
19
8
22a
18a
15
19a
19c
21
17
22
12
11
18
16
1
2

Fig. 4

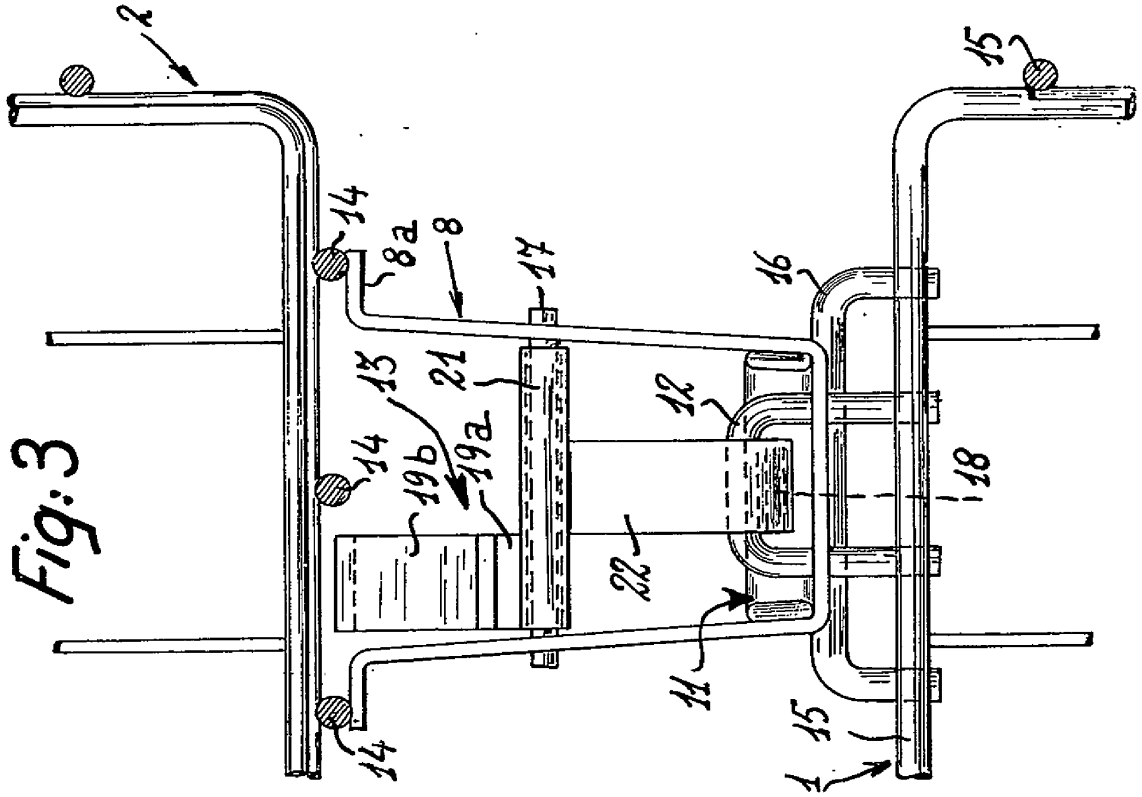
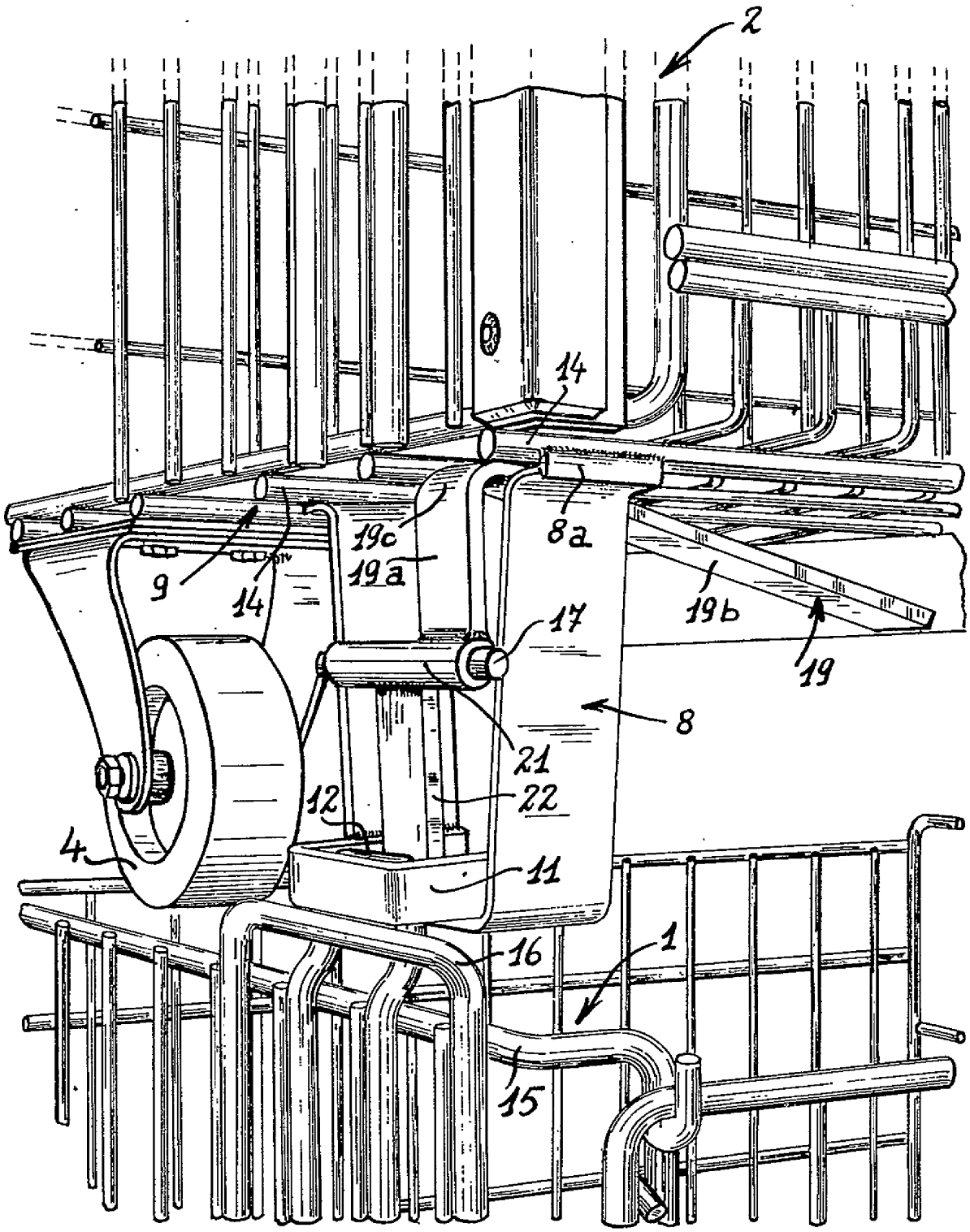

2
15
14
8a
8
17
16
13
21
12
14
19b
19a
18
22
11
15
14
1

Fig. 3

Fig. 5



SPECIFICATION

Container for handling or storing articles

The present invention relates to a container for handling or storing articles such as non-rolling baskets, rolling carts, and the like. It is known that such containers are provided at their bottom with four legs or shoes when these structures (designated hereinafter by the generic term "container") have to be superposed to one another to form vertical piles. The function of these legs is to enable the stacked container to bear upon the underlying supporting container, and furthermore these containers are provided at their top with adequate support means adapted to receive the legs of the next overlying container.

In the case of rolling containers, the legs have a reduced height to permit the movement of the container. This vertical difference between the legs and the wheels of the cart or rolling crate is more or less pronounced according to the floor unevennesses to be encountered in actual use, so as to avoid any detrimental frictional contacts or shocks with obstacles likely to arise on the path of the travelling container. Under static pile-up conditions the essential requirements, consisting simply in properly positioning the stacked containers in relation to one another, are safely met by using these known superposing means.

In contrast thereto, when it is desired to move an assembly comprising at least two stacked containers either by pulling them, if they are provided with casters, or by using a fork-lift truck if they are simply supported by legs, the superposition devices must be capable of reliably holding the assembly to prevent the topmost containers from tipping.

It is therefore the primary object of the present invention to provide means for locking the upper container in its stacked position, thus permitting the safe handling of an assembly of at least two stacked containers while eliminating any risk of tipping the upper-most containers during the transport.

According to the present invention we provide a container for handling or storing articles having means for connecting it to a lower container comprising at least two systems disposed at opposed corners of the container, each locking system comprising a leg rigidly assembled with the bottom of the container, this leg being provided at its lower end with a strap adapted to fit around an anchoring member rigid with the lower container, so as to lock laterally the upper container, and a locking member pivotally mounted to the leg in order to lock automatically, in the vertical direction and by simple gravity, the strap of this leg about the anchoring member of the lower container when the upper container is stacked upon the lower container.

According to a typical form of embodiment of the invention, the shoe has substantially the shape of a vertical "U", and the strap has substantially the shape of a horizontal "U" and is secured to the base of the relevant leg, so that the anchoring member of the lower container can fit into this strap. Furthermore, the locking member is rotatably mounted about a horizontal pivot rod secured across the leg and comprises an end hook adapted to engage the aforesaid anchoring member and to lock the stacked container thereon as a consequence of the free pivotal movement or tipping of the locking member about said pivot rod.

Thus, when the container or cart provided with at least two systems of this character, dsposed at two diagonally opposed corners of the bottom of the container or cart, is piled upon another similar container or car, the straps are caused to fit around the corresponding pivot rod, and the locking member is caused to pivot about the rod, so that its hook portion will penetrate into the anchoring member and into the strap, whereby the upper container is firmly locked in relation to the lower container by means of said locking hooks.

According to a preferred form of embodiment, the locking member comprises above the end hook a bent lever having its lower portion rigid with a transverse socket rotatably mounted about the pivot rod secured to the shoe, and a rocker rigid with the socket and formed at its lower end with the aforesaid locking hook. In this arrangement, the bent lever extends at right angles to the axis of rotation and its length is sufficient for automaically causing the locking member assembly to tilt by gravity about the pivot rod to the locking position in which the end hook fits into the anchoring member and abutes the strap.

Under these conditions, it is evident that during the stacking operation the locking member must be held in its release position, with the hook member retracted in relation to the anchoring member, so that the strap can fit around this member. When the upper container is laid uppon the support means of the lower container, the locking members are allowed to drop and tilted by simple gravity until the corresponding hooks assume their locking positions.

The stacked upper container is thus firmly anchored to the lower or supporting container so that the assembly can safely b moved either by pulling same, in the case of rolling carts, or by hoisting by means of handling forks in the case of non-rollig containers.

Other features and advantages characterizing this invention will appear as the following detailed description proceeds with reference to the accompanying drawings illustrating diagrammatically by way of example a typical form of embodiment of the stacking and interlocking device according to the present invention. In the drawings:

Figure 1 is an elevational view showing two stacked containers, the upper one being shown somewhat spaced above the lower or bottom container by suitable hoisting means such as a fork-lift truck;

Figure 2 is an elevational view similar to Figure 1, showing the upper container supported by, and locked in relation to, the lower container;

Figure 3 is enlarged view taken in the direction of the arrow III-III of Figure 4, showing means for locking the stacking device equipping each container as shown in Figures 1 and 2, this device being shown in its stacking position on a corresponding support

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of the lower container;

Figure 4 is a side elevational view showing the locking device of Figure 3, the locking member being shown in phantom lines in its retracted position, and

Figure 5 is a fragmentary perspective view of adjacent top and bottom corners of stacked containers, the upper container being provided with a locking system of the type illustrated in Figures 1 to 4.

Referring first to Figure 1, overlying the lower container 1 is a similar container 2 to be stacked thereupon, this upper container 2 being held in the position illustrated by the fork arms 3 of a lift truck (not shown). In the example illustrated and described herein, the containers 1 and 2 are of the rolling basket type provided with casters 4 shown in Figure 5 and omitted from the other views in order to avoid any undue complication in the drawing. These containers are of the crate or skeleton type currently used for handling and storing miscellaneous articles in shops, stores or warehouses. In a manner known per se, the walls of these containers or rolling baskets or crates consist of metal wire netting comprising vertical wires 5 to which horizontal wires 6 are welded to constitute the side walls and the bottom of a rectangular parallelipipedic container 1, 2.

Each container 1, 2 is provided with a device permitting the stacking and interlocking thereof on another similar container. This device, as shown in the exemplary form of embodiment shown in the accompanying drawings, comprises four locking systems 7 for locking the stacked or upper container in relation to the underlying container, each system being disposed at one corner of the bottom of the container 1 or 2.

More particularly, each locking system 7 comprises firstly a leg 8 rigidly secured to the bottom wall 9 of container 1, 2 and supporting at its lower end a strap 11 adapted to fit around an anchoring member 12 rigid with the underlying container, and a locking member 13 pivoted to the leg 8 so as to lock automatically the strap 11 about the anchoring member 12 when the upper container 2 is stacked upon the lower container 1.

In the example illustrated, the leg 8 consists of a substantially vertical U-shaped member without outwardly bent upper ends 8*a* welded to a pair of registering transverse horizontal metal wires 14 of the bottom structure 9 (Figure 3).

The strap 11 is a U-shaped member disposed substantially horizontally, with its side arms positioned between the side walls of leg 8 and at the base thereof, the strap 11 being secured to the leg 8 by welding, in this example, and so positioned as to protrude laterally and outwardly from the leg 8, thus permitting the ingress of anchoring member 12 into this strap.

The anchoring member 12 consists of a bridge piece having the shape of an inverted U and its side arms welded to an upper horizontal wire 15 of the lower container 1. In addition, the bridge piece 12 is associated with an elongated support 16 rigid with the same lower container 1 and projecting therefrom above the level of the aforesaid upper horizontal wire 15 thereof, so that the corresponding strap 11 of the upper container can bear directly upon this support 16.

The locking member 13 is fulcrumed about a horizontal pivot rod 17 secured across the leg 8, substantially at mid-height and to the outer edges of the leg sides; this locking member 13 further comprises a lower end hook 18 adapted to engage the anchoring member 12 beneath the transverse horizontal element thereof, thus safely locking the upper stacked container (2, in the example illustrated in the drawing) on its support 16, simply as a consequence of the free tilting movement of locking member 13 about pivot rod 17.

In fact, this locking member 13 comprises, above the upwardly bent end hook 18, an extension in the form of a lever 19 having a relatively short arm 19*a* and an elongated arm 19*b* forming a predetermined angle between them, the shorter arm 19*a* being rigid at its lower end with a transverse horizontal socket 21 rotatably mounted on pivot rod 17. The socket 21 is rigid in turn with a rocker 22 having its lower end bent to constitute said locking or retaining hook 18, said rocker 22 being set off laterally in relation to the bent lever 19, as clearly shown in Figure 3. The lever 19 extends substantially at right angles to the pivot rod 17 and the length of its inwardly directed elongated am 19*b* is sufficient for causing the locking member assembly 13 to tilt automatically by gravity about the pivot rod 17 to the locking position in which the hook portion 18 engages from beneath the horizontal element of the anchoring bridge piece 12, and eventually abutes the strap 11 (Figures 4 and 5).

The angular relationship between the elongated arm 19*b* and the short arm 19*a* is less than 90° and so determined that when the elongated arm 19*b* is moved upwards in the direction of the arrow F of Figure 4 from its locking position, substantially up to the level of the bottom 9 of the corresponding container, the rocker 22 and its hook 18 are pivoted to a retracted position inside the leg 8, as shown in phantom lines at 22*a* and 18*a* in Figure 4. In this retracted position, it will be seen that after having pivoted about the pivot rod 17 through an angle equal to the angular amplitude of the upward movement of said elongated arm 19*b*, the locking hook 18*a* is released from the anchoring member 12 and thus the upper or stacked container 2 can be lifted off the lower or supporting container 1.

In the example described hereinabove it is assumed that the leg 8 consists of a piece of flat iron bent to a U configuration with slightly divaricated side arms, but it will readily occur to those conversant with the art that this leg could be made in any other equivalent or known manner.

Preferably, the bent lever 19 is positioned between a air of adjacent transverse wires 14 of the bottom 9, so that these wires cannot interfere with its tilting movement from one to the other of its end positions, whereby the bent portion 19*c* of lever 19 can be disposed substantially level with the wires 14 (Figure 3).

In the example illustrated in the drawings, each container 1 and 2 is provided at its bottom with four

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locking systems 7 disposed at the four corners thereof, respectively, and at its top with four corresponding pairs of coupled elements, comprising each an anchoring bridge piece 12 and an elongated support 16, adapted to be engaged by and to support the upper stacked container.

The stacking device, comprising the four locking systems 7 and its matching bearing and anchoring members 12 and 16, operates as follows:

Assuming that the lower container 1 lies on the floor, the four locking members 13 of its stacking and interlocking device are held by gravity their lower or locking position (see Figures 1 and 2), due to the weight of their elongated arms 19b holding the end hooks 18 in abutment against the straps 11 in a locking position, as already explained in the foregoing.

To stack another container 2 upon this container 1, the fork arms 3 of a fork-lift truck are inserted under the bottom 9 and the truck is actuated to bring the container 2 to a position in which it overlies the first container 1, as shown in Figure 1, with the four straps 11 disposed just above the corresponding anchoring bridge pieces 12 of lower container 1. Fork means 3 are positioned under the four levers 19 and raised so that the elongated arms 19*b* therof are moved to their upper portion (shown in phantom lines in Figures 1, 2 and 4), and that the four hooks 18 are retracted correlatively between the sides of legs 8, thus permitting of fitting the four straps 11 about the four bridge pieces 12 and bringing said straps into bearing engagement with the elongated support members 16 of the lower container 1.

When the forks 3 are subsequently lowered (Figure 2), the elongated arms 19*b* are allowed to drop by gravity, thus causing the locking members 13 to tilt about their pivot rods 17 to the positions shown in Figures 2 to 5, in which the hooks 18 engage from beneath the horizontal elements of anchoring members 12 until they abute the transverse elements of straps 11, at the end of the rotatonal movement of levers 19 and rockers 22 about said pivot rods 17.

The upper container 2 now superposed to the lower container 1 is thus safely anchored to the latter by virtue of its four locking members 13 cooperating with the four corresponding anchoring members 12 or container 1. Thus, any risk of tipping the upper container 2 during the handling of the two superposed and interlocked containers 1, 2 is safely avoided.

The invention should not be construed as being limited by the specific form of embodiment described hereinabove and illustrated in the accompanying drawings, since various modifications and changes may be brought thereto without departing from the basic principles of the invention. Thus, non-rolling containers provided only withlegs 8 may be equipped with the device of this invention, and the number of locking systems 7 in the stacked position may be reduced to only two disposed diagonally at opposed corners of the base 9. Likewise, the legs 8 may be secured to the metal wires of the base 9, or more generally to the base of the container, by using any suitable and known means, such as screws, rivets or by welding (as in the example illustrated). The straps 11 may also be fastened to the legs 8 by using any other suitable means, in lieu of welding, for example by means of screws or rivets.

CLAIMS

1. A container for handling or storing articles having means for connecting it to a lower container comprising at least two locking systems disposed at opposed corners of the container, each locking system comprising a leg rigidly assembled with the bottom of the container, this leg being provided at its lower end with a strap adapted to fit around an anchoring member rigid with the lower container, so as to lock laterally the upper container, and a locking member pivotally mounted to the leg in order to lock automatically, in the vertical direction and by simple gravity, the strap of this leg about the anchoring member of the lower container when the upper container is stacked upon the lower container.

2. A container according to claim 1, wherein the leg has substantially the shape of a vertical "U" and the strap has substantially the shape of a horizonatl "U" so secured to the base of the leg that the anchoring member of the lower container can penetrate into this strap, the locking member, pivotally mounted above a horizontal pivot rod secured transversally to the leg, being provided with an end hook adapted to engage the anchoring member so as to lock the upper container to its support as a consequence of the simple gravity-controlled tilting movement of the locking member about the pivot rod.

3. A container according to claim 2, wherein the upper end of the container has an anchoring member consisting of a bridge piece of which the transverse element can be engaged from underneath by the corresponding locking hook of the locking system of an upper container.

4. A container according to any of claims 2 or 3, characterized in that the locking member comprises above its end hook a bent lever of which the lower portion is rigid with a transverse socket rotatably mounted about the pivot rod secured to the leg, and an rocker rigid with the socket and terminating at its lower end with a locking hook, the bent lever extending at right angles to the pivot axis and having a length sufficient to cause the locking member assembly to tilt about the pivot rod by gravity to its locking position in which the hook penetrates into the anchoring member and abuts the strap.

5. A container according to claim 4, wherein the bent lever is comprised or a relatively short arm rigid with the socket and of an elongated arm, set in a predetermined angular relationships, whereby raising the elongated arm substantially to the level of the bottom of the container will cause the rocker to tilt and its end hook to assume a retracted position inside the leg, in which the hook is released from the anchoring member and the container can be lifted off the lower container.

6. A container according to any of claims 3 to 5, wherein the anchoring member is associated with a support rigid with, and projecting upwardly from the

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container, whereby the strap of the corresponding system for locking an upper container can bear upon this support.

7. A container according to any of claims 1 to 6, wherein the leg consists of a flat iron bent to a "U" shape and has its upper ends rigidly assembled with the base of the container, for example by welding, and the corresponding strap consists of a separate element fastened to the leg by welding, screwing or riveting.

8. Device for stacking up and interlocking handling containers substantially as described with reference to the accompanying drawings.

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Stackable container

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Abstract of EP1428764 (A1)

Stacking box comprises a base plate, angled longitudinal and transverse side walls (2), hinged covers, and an upper peripheral edge region. The covers consist of two symmetrically complementary lids (4), which can be exchanged for each other. When closed the two lids mesh together and lie against each other in an approximately seamless manner. The lids have webs (22) with recesses (24) on the longitudinal outer edges, which when the lid is closed engage with lugs (23) on the upper edge of the box wall. Preferred Features: The lids have on one side open hinge bushings (7) which are placed on hinge bolts (8) molded in one piece on the container wall.

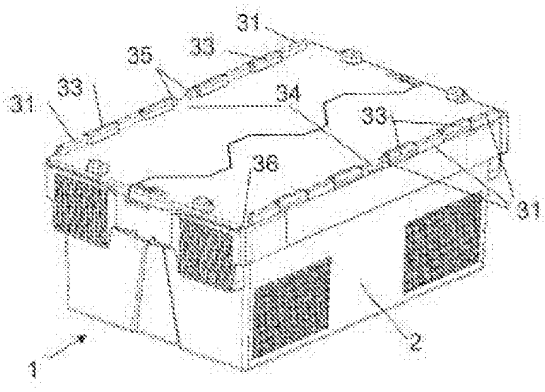


FIG. 4

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DESCRIPTION EP1428764

[0001]

The invention relates to a stacking container according to the preamble of patent claim 1. Such made of plastic stackable storage and transport containers are known and are suitable for storage or transportation of various items. The cover of the stacking container consists of two lids, which are each firmly hinged to the longitudinal side walls of the stacking container. The filled containers closed with the two lids can be stacked on top of each other for transport. When transporting the empties, the container can be stacked after the side folding away the lid due to their conical design to save space.

[0002]

When stacking the containers closed with the lids, the covers of the stack containers are often loaded with great weight depending on the type of filling. After all, each cover carries the entire load of the containers stacked above and transfers them to the side walls of the container. The cover lies with their shorter sides plan on the corresponding transverse side walls of the container. At the longitudinal side edges, the load on the cover is taken up by the hinges and transmitted via the hinge pins to the side walls. In addition, the cover is slightly deformed by the load of the containers stacked above, resulting in a tensile load on the hinges. In the case of frequent, excessive loading of the covers, the hinges are damaged as a result, ie the hinge pins or the hinge sleeves are too weak to withstand the constant load. In the known stacking containers with hinged lids, the hinges are in several parts and consist of molded on the lid hinge sleeves and molded on the container hinge pin mounts, as well as made of plastic or metal hinge pin.

When assembling the containers, the hinge pins are inserted into the hinge sleeves and inserted into the hinge pin holders. The disadvantage of these containers is that the load on stacking on the one hand deforms and damages the covers and, on the other hand, that the hinges are damaged by the load and the deformation of the cover.

[0003]

The present invention is based on the object of specifying a stacking container of the aforementioned type, the cover can be loaded without overstressing the hinges and is easy and inexpensive to manufacture.

[0004]

This object is achieved by a stacking container having the features of patent claim 1.

[0005]

The invention has the great advantage that the cover withstands a greater load, without the lids being excessively deformed or the hinges being torn out, and that the assembly of the stacking container is simple and unproblematic.

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This simplifies the final assembly and reduces the manufacturing costs.

[0006]

Further advantages and embodiments of the invention follow from the dependent claims and from the following description in which the invention is explained in more detail with reference to the exemplary embodiments of a stacking container according to the invention shown in the drawings.

[0007]

FIG. 1 shows a partial view of a stacking container in perspective view; FIG. 2: a detail of the stacking container lid with hinge, centering rib and centering cam; Figure 3: a detail of the unfolded lid in the region of a hinge and a longitudinal centering rib from below; Figure 4: a further embodiment of a stacking container in a perspective view; Figure 5: a detail of an upper corner portion of a stacking container with a hinge sleeve and inserted hinge rod; FIG. 6 shows a detail of the stacking container lid with hinge sleeve and inserted hinge rod; Figure 7: a detail of an upper corner portion of a stacking container with lid, a hinge sleeve and inserted but not yet engaged hinge rod; FIG. 8a shows a detail of an upper corner region as shown in FIG. 7, in a further exemplary embodiment; FIG. 8b shows a detail of an upper corner region as shown in FIG. 8a, but with the hinge rod inserted and engaged; FIG. 9 shows a detailed view of the stacking container with the lid opened in the region of the snap-in part on the container wall; FIG. 10: three stacked containers stacked on top of each other in a perspective view, the middle stacking container being shown partially cut away.

[0008]

In the figures, the same reference numerals have been used for the same elements and first explanations apply to all figures, unless expressly stated otherwise.

[0009]

1 shows a partial view of a stacking container in a perspective view.

The stacking container 1 consists of a bottom plate and slightly oblique, upwardly issued longitudinal and transverse side walls 2, 3, as well as outwardly hinged to hinged lid 4, 5.

At its upper end, the container forms a peripheral edge region 6.

This edge region 6 is double-walled and comprises, as inner wall, the side wall 2 of the container and, as the outer wall, a reinforcing wall 11.

Between the side wall 2 and the reinforcing wall 11, ribs extend. These ribs are perpendicular and reinforce the edge region 6. The covers 4, 5 have along their longitudinal side on one side open hinge sleeves 7, which are snap-in on integrally formed on the container longitudinal wall 2 hinge pin 8. Between the hinges 9 extend integrally along the lid edges, downwardly hollow centering ribs 10th Both the hinge sleeves 7 as well as the centering ribs 10 are formed on the longitudinal sides of the cover 4, 5 protruding over the longitudinal side walls 2. Furthermore, the covers 4, 5 in the region of the shorter side wall 3 cams 12. This cam 12 is used with the centering ribs 10 arranged on the center of a stacked on the container 1 further container. The container 1 are slightly conical down, so that the bottom of a resting on the cover 4, 5 container 1 centered between the longitudinally arranged centering ribs 10 and arranged in the transverse direction cam 12 and is held non-slip.

For fastening the unfolded cover 4, 5 on the side walls 2, a snap element 13 is provided on the cam 12, which engages with completely unfolded lids 4, 5 on the latching element 16 on the reinforcing wall 11. This snap element 13 is shown in Figure 8 in detail. The covers 4, 5 have in the edge region of the transverse sides recesses 14, which come to rest with closed lids 4, 5 over a recess 15 in the side wall 3. Through these recesses 14, 15, the container can be sealed on the two transverse sides. The recesses are designed such that the container can be sealed with both a sealing strip, a sealing cord or a plug-in seal, and that when a plug-in seal is torn off, the lower part of the seal falls into the interior of the container.

[0010]

The two covers 4, 5 are shown in Figure 1 in a slightly open state. On their inner longitudinal sides, the complementary trapezoidal serrated edges 16 can be seen. These trapezoidal overlapping surface parts of the cover 4, 5 have on their facing

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surfaces ribs 17 which engage in the closed state meshed with each other and so give the cover increased stability. The two covers 4, 5 must be opened and closed at the same time, so that they engage correctly. Due to their symmetry and complementary design, the two covers 4, 5 are interchangeable. This means that only one tool is needed to make the cover halves.

[0011]

FIG. 2 shows a partial region of a lid 4 with a hinge 9, a centering rib 10 and a centering cam 12. The number of hinges 9 depends on the size of the stacking container. The example container 1 has five hinges per longitudinal side, of which only one in the figure 2 is completely shown. The hinge 9 may consist of one or more sections. In the illustrated embodiment, the hinge 9 has two longitudinally extending hinge pin sections. The hinge pin 8 is made by means of perpendicular thereto hinge pin webs 20 in one piece by injection molding with the side wall 2 of the container 1. The unilaterally open hinge sleeves 7 are injection-molded on the cover top 19 and also made in one piece by injection molding with the covers 4, 5. The hinge sleeves 7 can be with their longitudinal openings (not visible here) snap on the hinge pin 8. At the top of the hinge sleeves 7, an opening 21 is recessed, which is provided for insertion of a mounting tool.

[0012]

FIG. 3 shows a detailed view of an unfolded cover 4, 5 from below in the region of a hinge 9 with the hinge pins 8, the hinge pin webs 20 standing perpendicular thereto and the hinge sleeves 7 which are open on one side and are formed on the cover 4, 5. Between the two hinges 9, a centering rib 10 can be seen. In the cavity of this centering rib a ridge 22 is arranged approximately in the middle parallel to the transverse side walls, which has a recess 24 at the upper front end. In the underlying region of the upper edge of the container side wall 2, a nose 23 is molded, which extends along the side wall 2. In the closed state of the lid 4, 5, the nose 23 engages in the recess 24 of the web 22 a. As a result, the cover 4, 5 rests with the web 22 on the nose 23 and thus on the side wall 2, and on the other hand, the lid 4, 5 laterally stabilized by the nose 23. This means that when the cover 4, 5 is loaded, the load on the longitudinal sides is absorbed not only by the hinges 9, but also by the centering ribs 10 with the webs 22 and the tabs 23.

[0013]

In another embodiment variant of the stacking container 1 according to the invention, the centering ribs 10 on the lid longitudinal sides and web-shaped upwardly projecting formations on the longitudinal side walls of the container 1 serve as hinge sleeves. These hinge sleeves on the cover 4,5 and on the side walls 2 form with a hinge rod 32, the hinges. A hinge formed in this way can extend over a section or over the entire side length 2 of the container 1.

[0014]

FIG. 4 shows a stack container 1 with two hinges along the longitudinal side walls 2. In this example, in each case three hinge sleeves 31 at the upper edge of the container wall 2 and two hinge sleeves 33 on the lid 4.5 with a hinge rod 32 which extends in this case over less than half the length of the side wall 2 of the container 1, form the hinges. The two arranged in the middle of the container hinge sleeves 35 are spaced from each other, so that thereby a U-shaped recess 34 is formed. The stack container 1 can be closed with a strapping, which then rests flat on the covers 4, 5, and is not a hindrance when stacking the container 1.

[0015]

FIG. 5 shows a section of an upper corner region of a stacking container 1 with a hinge sleeve 31. The hinge sleeve is formed on the upper edge of the container and the hinge rod 32 is mounted in the sleeve 31. FIG. 6 shows a partial view of a stack container lid 4, 5 with a hinge sleeve 33 and a hinged rod 32 inserted. The hinge sleeve 33 is essentially formed by the centering rib 10, whose side walls each have a hole-shaped opening through which passes the hinge rod. The webs 22 arranged in the interior of this centering ribs 10 have a cylindrical reinforcement extending along the hinge axis, which form the actual hinge sleeves 33 on the cover 4, 5. Further, in this illustration, a formation 36 on the outer longitudinal side of the lid 4, 5 can be seen. This formation 36 is in the closed state of the lid 4, 5 in the corner on the peripheral edge region 6 of the container. This corner region is shown in Figure 7 in a perspective view.

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The hinge rod 32 is partially inserted into the formed on the container wall 2 hinge sleeve 31. At the end of the hinge rod 32, a snapper 37 is formed, which engages in the hinge sleeve 31 into a recess 38 in the hinge sleeve 31 upon complete insertion of the hinge rod 32. The lid 4 is opened by about 270 ° to the outside and the formation 36 protrudes upward. As soon as the covers 4, 5 are swung closed, the formation 36 of the cover 4, 5 conceals the recess 38 in the hinge sleeve 31 and thus also the snapper 37. The snapper 37 is concealed in this position by the molding 36 from the lid 4, 5 and the hinge rod 32 can not be pulled out of the hinge sleeve 31. Each of the four hinges has such a snap closure at the outer end. None of the hinge bars 32 can be pulled out of the hinge sleeves with the lids 4, 5 closed. This hinge rod fuse together with the container seal described a tamper evidence for the stack container. 1

[0016]

FIGS. 8A and 8B show a section of the upper corner region-as shown in FIG. 7-in a further exemplary embodiment of the stacking container 1. In FIG. 8A, the hinge rod 32 is partially inserted into the hinge sleeve 43 formed on the cover 4 and into the hinge sleeve 31 of the container. Two conical thickenings 41, 42 in the end of the hinge bar 32 form a snapper, which is intended that when fully inserted hinge rod 32, the two conical thickenings 41, 42 engage in the recesses 39, 40 in the hinge sleeve and the hinge rod 32 in this end position hold and impossible to pull out of the hull sleeves. The thickenings 41, 42 on the hinge rod 32 act much like barbs that can be inserted into the recesses 39, 40 and can not be withdrawn. This final state of the inserted hinge rod 32 is shown in FIG. 8B. The recesses 39, 40 are arranged in the hinge sleeve such that the end of the hinge rod 32 comes to lie within the hinge sleeve 43.

As a result, the hinge is secured and the lid 4.5 of the stacking container 1 can not be opened by pulling out the hinge rod 32. The described hinge pin security is applicable both in a hinge with only one hinge rod as well as in hinges with two hinge bars along a cover page.

[0017]

FIG. 9 shows a detail of the stacking container 1 with the cover 4 unfolded in the region of the cam 12 and the upper edge region 6 with the outer reinforcing wall 11. As soon as the covers 4, 5 are completely unfolded, the pins or tongues 13 engage the cams 12 on the latching parts 16 in the edge region 6, which in the example shown are formed by the lower edge of the outer reinforcing edge 11. Thus, the lid 4, 5 are fixed in the open state, so that the lid 4, 5 does not fall down when the container 1, for example, must be reversed in a car wash for cleaning. In addition, you save space on the conveyor belt of a car wash, so that the utilization of the system is improved.

[0018]

FIG. 10 illustrates three stacked stacked containers in a perspective view. The lowermost and the uppermost stack container 30 are of identical design and the middle one shows a stacking container 1 according to the invention with closed lids, wherein the middle stack container 1 is partially cut open. The known per se stack container 30 are provided with two projecting into the free opening support struts 25. The middle, inventive stacking container 1 now has a bottom 26, in which two longitudinal grooves 27 are provided parallel to the shorter sides 3. The bottom 26 is internally provided in the container with ribs 28 which are arranged in a square grid 29. The ribs 28 are at least as high as the increased by the groove 27 portion of the bottom 26th By the ribs 28 thus creates a flat bearing surface on which flat objects such as cardboard boxes or the like can be stacked easily and in optimal packing density.

[0019]

Of course, a bottom plate with the above-described ribbing for a stacking container 1 can also be provided for stacking container 30 with support struts 25. Also, the ribs 28 may be arranged in a diamond-shaped instead of a square grid.

Numbers directory:

[0020]

1.

: Stacking container 2.: Longitudinal side wall 3.: Transverse side wall 4.: Cover 1 5.: Cover 2 6.: Top peripheral edge 7.: Hinge sleeve 8.: Hinge pin 9.: Hinge 10.: Centering rib 11.: Outer Reinforcement wall 12.: cams on cover 13.: pin = snap-in element

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14.: recess in lids 15.: recess in container 16.: snap-in part in reinforcement 11 17.: ribs in cover 18.: trapezoidal toothing of the overlapping region of the cover 19.: Hinge sleeve formed on the lid 20.: Hinge pin ridge 21.: Opening in hinge sleeve 22.: Ridge in centering rib 23.: Nose on the longitudinal side wall 24.: Recess 25.: Support struts 26.: Ground 27.: Grooves in the floor 28. : Ribs in the bottom 29.: Grid 30.: Open stacking container 31.: Forming on the container (hinge sleeve) 32.: Hinge rod 33.: Hinge sleeve on the lid (in the area of centering rib 10) 34.: U-shaped distance in the center of the container 35.: Hinge sleeves in d he middle 36.: Shaping on the lid 37.: Schnapper 38.: recess for snapper 39.: first recess in the shape of the lid 40.: second recess in the shape of the lid 41.: tapered outward rod end 42.: conical (conical) Thickening in the hinge rod 43.: Forming on the cover (hinge sleeve) 44.: Hole for inserting the hinge rod into the hinge sleeve45.

46.

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CLAIMS EP1428764

1.

Stacking container (1) with a bottom plate, with oblique, upwardly issued longitudinal and transverse side walls (2, 3), and with outwardly hinged to hinges covers (4, 5) and an upper peripheral edge region (6), characterized in that the covers consist of two symmetrically complementary lids (4, 5), such that the two lids (4, 5) are interchangeable and that the two lids (4, 5) mesh with one another in the folded-together state and mesh with each other in an interlocking manner in that the lids (4, 5) on the longitudinal outer edges have webs (22) with recesses (24) which, in the closed state of the lids (4, 5), have lugs (23) formed on the upper edge of the container wall (2)) are engageable.

2.

Stacking container according to claim 1, characterized in that the covers (4, 5) have hinges (7) which are open on one side and can be plugged onto hinge pins (8) formed integrally on the container longitudinal wall (2).

3.

Stacking container according to claim 1, characterized in that the lids (4, 5) and side walls (2) comprise hinge sleeves (31, 33, 43) forming a hinge with a hinge rod (32), the hinge rod (32) extending over the Whole length of the side wall (2) of the container (1) extends, and the hinge rod (32) at one end a Schnapper (37; 41, 42) which is intended in a recess (38; 39, 40)) a hinge sleeve (31; 43) of the container (1) or the lid (4, 5) snap.

4.

Stacking container according to Claim 1, characterized in that the lids (4, 5) and side walls (2) have hinge sleeves (31, 33; 43) which, with two hinge rods (32) per longitudinal side, form hinges, each of the hinge rods (32) extends less than half the length of the side wall (2) of the container (1), and that each of the hinge rods (32) at one end a Schnapper (37; 41, 42) intended to be in a recess (38 39, 40) of a hinge sleeve (31; 43) of the container or the lid (4, 5) snap.

5.

Stacking container according to claim 3 or 4, characterized in that the container lid (4, 5) on their outer longitudinal sides have moldings (36) which rest in the closed state of the lid (4, 5) on the peripheral edge region in the corner region, and cover the latch (37) of the hinge rod (32), such that the hinge rod (32) can not be pulled out of the hinge sleeves (31, 33).

6.

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Stacking container according to one of the preceding claims, characterized in that the covers (4, 5) are provided at their facing ends complementary with a trapezoidal serrated edge (18).

7.

Stacking container according to one of the preceding claims, characterized in that on the covers (4, 5) cams (12) are provided, which in the unfolded state of the lid (4, 5) with a latching part (16) on the reinforcing wall (11) Container wall (2) can be brought into engagement.

8.

Stacking container according to claim 7, characterized in that the Einschnappteil (16) of the wall reinforcement 11 of the edge (6) of the container (1) is formed.

9.

Stacking container according to one of the preceding claims, characterized in that the lids (4, 5) have recesses (14) which, when the lids (4, 5) are closed, come to lie above a recess (15) in the side wall (3), and in that these recesses (14, 15) are intended to receive a plug-in seal, a sealing cord or a sealing strip.

10.

Stack container according to one of the preceding claims, characterized in that in the bottom plate an outer groove (27) is provided, which is intended to receive a support strut (25) of an open stack container (30), and that the bottom plate (26) within the Container is provided with ribs (28) which are at least as high as the projecting into the container groove (27).

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(54) **Stapelbehälter**

Stackable container

Conteneur empilable

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Beschreibung

[0001] Die Erfindung betrifft einen Stapelbehälter nach dem Oberbegriff des Patentanspruchs 1. Derartige aus Kunststoff hergestellte stapelbare Lager- und Transportbehälter sind bekannt und eignen sich zur Aufbewahrung oder Beförderung verschiedenster Artikel. Die Abdekkung der Stapelbehälter besteht aus zwei Deckeln, die je an den Längsseitenwänden der Stapelbehälter fest anscharniert sind. Die befüllten, mit den beiden Deckeln verschlossenen Behälter lassen sich zum Transport übereinander stapeln. Beim Transport des Leerguts können die Behälter nach dem seitlichen Wegklappen der Deckel aufgrund ihrer konischen Bauweise platzsparend ineinander gestapelt werden.

Die Veröffentlichung US A-6,041,931 zeigt einen derartigen Kunststoffbehälter mit zwei an den Längsseiten angescharnierten und aufklappbaren Deckeln. Der Behälter ist für den Transport von lebenden Hummern oder Fischen gedacht und derart konzipiert, dass er Eis aufnehmen ünd Schmelzwasser abgeben kann. Zu diesem Zweck weist der Behälter an den Seitenwänden und in den Deckeln zahlreiche Schlitze auf. Der Behälter ist mit gleichartigen Behältern schachtel- und stapelbar. An den Oberkanten der Querseitenwänden sind Stopper angeordnet, die ein seitliches Verrutschen übereinander gestapelter Behälter verhindern.

Im Dokument EP-A-0 372 508 wird ein Behälter mit einem abnehmbaren zweiteiligen Deckel offenbart. Die abgenommenen Deckelhälften werden mit zwei im Deckel angeordneten Bügeln zusammengehalten. Weiter sind Scharniere an den Deckelhälften vorgesehen, die ein anschamieren mittels der im Deckel integrierten und verschiebbaren Bügel an den Behälter erlauben.

Das Dokument US-A-4,161,261 lehrt einen stapel- und schachtelbaren Sicherheitsbehälter mit integrierten, angescharnierten und verriegelbaren Deckelabschnitten. Die Deckelabschnitte sind an gegenüberliegenden Seiten der Behälterwand angeordnet und nach aussen abklappbar sowie, nach innen in eine zum Abdecken des Behälters horizontale Position schwenkbar. Der mit den Dekkelhälften geschlossene Behälter kann mit Bändern gesichert werden, die flach auf den Deckelhälften aufliegen.

[0002] Beim Stapeln der mit den Deckeln verschlossenen Behälter werden die Abdeckungen der Stapelbehälter je nach Art der Befüllung oft mit grossem Gewicht belastet. Jede Abdeckung trägt ja die gesamte Last der darüber gestapelten Behälter und überträgt diese auf die Seitenwände des Behälters. Dabei liegt die Abdeckung mit ihren kürzren Seiten plan auf den entsprechenden Querseitenwänden des Behälters auf. An den Längsseitenrändern wird je nach Ausführung die Belastung der Abdeckung direkt auf die Seitenwände, wie beispielsweise in US A-6,041,931 offenbart, übertragen, oder von den Scharnieren aufgenommen und über die Scharnierbolzen auf die Seitenwände übertragen. Ausserdem wird die Abdeckung durch die Belastung der darüber gestapelten Behälter leicht deformiert, was zu einer Zugbelastung an den Scharnieren führt. Bei häufiger, zu grosser Belastung der Abdeckungen kommt es in der Folge zur Beschädigung der Scharniere, das heisst, dass die Scharnierbolzen oder die Scharnierhülsen zu schwach sind, um der ständigen Belastung Stand zu halten. Bei den bekannten Stapelbehältern mit anscharnierten Dekkeln sind die Scharniere mehrteilig und bestehen aus am Deckel angeformten Scharnierhülsen und am Behälter angespritzten Scharnierbolzenhalterungen, sowie aus den aus Kunststoff oder aus Metall gefertigten Scharnierbolzen. Beim Zusammenbau der Behälter werden die Scharnierbolzen in die Scharnierhülsen eingeschoben und in die Scharnierbolzenhalterungen eingesteckt. Der Nachteil dieser Behälter ist, dass durch die Belastung beim Stapeln einerseits die Deckel deformiert und beschädigt werden und dass andererseits durch die Belastung und die Deformation der Deckel die Scharniere Schaden nehmen.

[0003] Der vorliegenden Erfindung liegt nun die Aufgabe zugrunde, einen Stapelbehälter der vorgenannten Art anzugeben, dessen Abdeckung belastbar ist, ohne die Scharniere übermässig zu beanspruchen und der einfach und kostengünstig zu fertigen ist.

[0004] Diese Aufgabe wird durch einen Stapelbehälter mit den Merkmalen des Patentanspruchs 1 gelöst.

[0005] Die Erfindung hat den grossen Vorteil, dass die Abdeckung einer grösseren Belastung Stand hält, ohne dass die Deckel übermässig deformiert werden oder die Scharniere ausreissen, und dass der Zusammenbau des Stapelbehälters einfach und unproblematisch ist. Dies vereinfacht die Endmontage und reduziert die Herstellungskosten.

[0006] Weitere Vorteile und Ausführungsformen der Erfindung folgen aus den abhängigen Patentansprüchen und aus der nachfolgenden Beschreibung, in welcher die Erfindung anhand der in den Zeichnungen dargestellten beispielsweisen Ausführungsformen eines erfindungsgemässen Stapelbehälters näher erläutert wird.

[0007] Es zeigt:

- Figur 1 eine Teilansicht eines Stapelbehälters in perspektivischer Darstellung;
- Figur 2 ein Detail des Stapelbehälter-Deckels mit Scharnier, Zentrierrippe und Zentriernokken;
- Figur 3 ein Detail des aufgeklappten Deckels im Bereich eines Scharniers und einer längsseitigen Zentrierrippe von unten;
- Figur 4 eine weitere Ausführungsvariante eines Stapelbehälters in perspektivischer Darstellung;
- Figur 5 ein Detail eines oberen Eckbereichs eines Stapelbehälters mit einer Scharnierhülse und eingesetztem Scharnierstab;

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Figur 6 ein Detail des Stapelbehälter-Deckels mit Scharnierhülse und eingesetztem Scharnierstab;

Figur 7 ein Detail eines oberen Eckbereichs eines Stapelbehälters mit Deckel, einer Scharnierhülse und eingesetztem aber noch nicht eingerasteten Scharnierstab;

Figur 8a ein Detail eines oberen Eckbereichs wie in Figur 7 dargestellt, in einem weiteren Ausführungsbeispiel;

Figur 8b ein Detail eines oberen Eckbereichs wie in Figur 8a dargestellt, jedoch mit eingestecktem und eingerastetem Scharnierstab;

Figur 9 eine Detailansicht des Stapelbehälters mit aufgeklapptem Deckel im Bereich des Einschnappteils an der Behälterwand;

Figur 10 drei aufeinander gestapelte Stapelbehälter in perspektivischer Darstellung, wobei der mittlere Stapelbehälter teilweise aufgeschnitten abgebildet ist.

[0008] In den Figuren sind für dieselben Elemente jeweils dieselben Bezugszeichen verwendet worden und erstmalige Erklärungen betreffen alle Figuren, wenn nicht ausdrücklich anders erwähnt.

[0009] Die Figur 1 zeigt eine Teilansicht eines Stapelbehälters in perspektivischer Darstellung. Der Stapelbehälter 1 besteht aus einer Bodenplatte und leicht schrägen, nach oben ausgestellten Längs- und Querseitenwänden 2, 3, sowie nach aussen um Scharniere wegklappbare Deckel 4, 5. An seinem oberen Abschluss bildet der Behälter einen umlaufenden Randbereich 6. Dieser Randbereich 6 ist doppelwandig ausgeführt und umfasst als Innenwand die Seitenwand 2 des Behälters und als Aussenwand eine Verstärkungswand 11. Zwischen der Seitenwand 2 und der Verstärkungswand 11 erstrekken sich Rippen. Diese Rippen stehen senkrecht und verstärken den Randbereich 6. Die Deckel 4, 5 weisen entlang ihrer Längsseite mehrere einseitig offene Scharnierhülsen 7 auf, die auf einstückig an der Behälterlängswand 2 ausgeformte Scharnierbolzen 8 aufschnappbar sind. Zwischen den Scharnieren 9 erstrecken sich längs der Deckelränder einstückige, nach unten hohle Zentrierrippen 10. Sowohl die Scharnierhülsen 7 wie auch die Zentrierrippen 10 sind gegenüber den Längsseitenwänden 2 nach oben hervorkragend an den Längsseiten der Deckel 4, 5 angeformt. Ferner weisen die Deckel 4, 5 im Bereich der kürzeren Seitenwand 3 Nocken 12 auf. Dieser Nocken 12 dient mit den längsseitig angeordneten Zentrierrippen 10 der Zentrierung eines auf dem Behälter 1 gestapelten weiteren Behälters. Die Behälter 1 sind nach unten leicht konisch ausgebildet, so dass der Boden eines auf der Abdeckung 4, 5 aufliegenden Behälters 1 zwischen den in Längsrichtung angeordneten Zentrierrippen 10 und den in Querrichtung angeordneten Nocken 12 zentriert und rutschsicher gehalten wird. Zur Befestigung der aufgeklappten Deckel 4, 5 an den Seitenwänden 2 ist an den Nocken 12 ein Schnappelement 13 vorgesehen, das bei vollständig aufgeklappten Deckeln 4, 5 am Einrastelement 16 an der Verstärkungswand 11 einrastet. Dieses Schnappelement 13 ist in Figur 8 im Detail dargestellt. Die Deckel 4, 5 weisen im Randbereich der Querseiten Ausnehmungen 14 auf, die bei zugeklappten Deckeln 4, 5 über einer Ausnehmung 15 in der Seitenwand 3 zu liegen kommen. Durch diese Ausnehmungen 14, 15 lässt sich der Behälter an den beiden Querseiten verplomben. Die Ausnehmungen sind derart gestaltet, dass der Behälter sowohl mit einem Plombenband, einer Plombenschnur oder einer Steckplombe versiegelbar ist, und dass beim Abreissen einer Steckplombe der untere Teil der Plombe in das Innere des Behälters fällt.

[0010] Die beiden Deckel 4, 5 sind in der Figur 1 in leicht geöffnetem Zustand dargestellt. An ihren inneren Längsseiten sind die komplementär trapezförmig gezackten Ränder 18 zu erkennen. Diese trapezförmig überlappenden Flächenteile der Deckel 4, 5 weisen an ihren zugewandten Flächen Rippen 17 auf, die im zugeklappten Zustand verzahnt ineinander greifen und so der Abdeckung eine erhöhte Stabilität verleihen. Die beiden Deckel 4, 5 müssen gleichzeitig geöffnet und geschlossen werden, damit sie richtig ineinander greifen. Aufgrund ihrer Symmetrie und komplementären Bauweise sind die beiden Deckel 4, 5 gegeneinander austauschbar. Das bedeutet, dass für die Herstellung der Abdekkungshälften nur ein Werkzeug benötigt wird.

[0011] In Figur 2 ist ein Teilbereich eines Deckels 4 mit einem Scharnier 9, einer Zentrierrippe 10 und einem Zentriernocken 12 gezeigt. Die Anzahl der Scharniere 9 richtet sich nach der Grösse des Stapelbehälters. Der beispielsweise Behälter 1 weist pro Längsseite fünf Scharniere auf, von denen jedoch nur eines in der Figur 2 vollständig dargestellt ist. Das Scharnier 9 kann aus einem oder mehreren Abschnitten bestehen. Im gezeigten Ausführungsbeispiel weist das Scharnier 9 zwei längsseitig verlaufenden Scharnierbolzenabschnitte auf. Der Scharnierbolzen 8 ist mittels senkrecht dazu stehenden Scharnierbolzenstegen 20 einstückig im Spritzgussverfahren mit der Seitenwand 2 des Behälters 1 hergestellt. Die einseitig offenen Scharnierhülsen 7 sind an der Deckeloberseite 19 angespritzt und ebenfalls einstückig im Spritzgussverfahren mit den Deckeln 4, 5 hergestellt. Die Scharnierhülsen 7 lassen sich mit ihren Längsöffnungen (hier nicht ersichtlich) auf die Scharnierbolzen 8 aufschnappen. An der Oberseite der Scharnierhülsen 7 ist eine Öffnung 21 ausgespart, die zum Einsetzen eines Montagewerkzeuges vorgesehen ist.

[0012] Die Figur 3 zeigt eine Detailansicht eines aufgeklappten Deckels 4, 5 von unten im Bereich eines Scharniers 9 mit den Scharnierbolzen 8, den dazu senkrecht stehenden Scharnierbolzenstegen 20 und den ein-

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seitig offenen Scharnierhülsen 7, die am Deckel 4, 5 angeformt sind. Zwischen den beiden Scharnieren 9 ist eine Zentrierrippe 10 zu sehen. Im Hohlraum dieser Zentrierrippe ist etwa in der Mitte parallel zu den Querseitenwänden ein Steg 22 angeordnet, der am oberen vorderen Ende eine Aussparung 24 aufweist. Im darunter liegendem Bereich der Oberkante der Behälterseitenwand 2 ist eine Nase 23 angespritzt, die längs der Seitenwand 2 verläuft. Im zugeklappten Zustand der Deckel 4, 5 greift die Nase 23 in die Aussparung 24 des Steges 22 ein. Dadurch liegt der Deckel 4, 5 mit dem Steg 22 auf der Nase 23 und somit auf der Seitenwand 2 auf, und andererseits wird der Deckel 4, 5 von der Nase 23 seitlich stabilisiert. Das bedeutet, dass bei einer Belastung des Deckels 4, 5 die Last an den Längsseiten nicht nur von den Scharnieren 9 aufgenommen wird, sondern auch von den Zentrierrippen 10 mit den Stegen 22 und den Nasen 23.

[0013] In einer anderen Ausführungsvariante des erfindungsgemässen Stapelbehälters 1 dienen die Zentrierrippen 10 an den Deckel-Längsseiten und stegförmige nach oben ausragende Ausformungen an den Längsseitenwänden des Behälters 1 als Scharnierhülsen. Diese Scharnierhülsen am Deckel 4,5 und an den Seitenwänden 2 bilden mit einem Scharnierstab 32 die Scharniere. Ein derart gebildetes Scharnier kann sich über einen Abschnitt oder über die gesamte Seitenlänge 2 des Behälters 1 erstrecken.

[0014] Die Figur 4 zeigt einen Stapelbehälter 1 mit je zwei Scharnieren längs der Längsseitenwände 2. In diesem Beispiel bilden jeweils drei Scharnierhülsen 31 am oberen Rand der Behälterwand 2 und zwei Scharnierhülsen 33 am Deckel 4,5 mit einem Scharnierstab 32, der sich in diesem Fall über weniger als die halbe Länge der Seitenwand 2 des Behälters 1 erstreckt, die Scharniere. Die beiden in der Mitte des Behälters angeordneten Scharnierhülsen 35 sind voneinander beabstandet, so dass dadurch eine U-förmige Ausnehmung 34 gebildet ist. Die Stapelbehälter 1 können so mit einer Umreifung verschlossen werden, die dann flach auf den Dekkeln 4, 5 aufliegt, und beim Stapeln der Behälter 1 nicht hinderlich ist.

[0015] In Figur 5 ist ein Ausschnitt eines oberen Eckbereichs eines Stapelbehälters 1 mit einer Scharnierhülse 31 gezeigt. Die Scharnierhülse ist am oberen Behälterrand ausgeformt und der Scharnierstab 32 ist in der Hülse 31 gelagert. Die Figur 6 zeigt eine Teilansicht eines Stapelbehälter-Deckels 4, 5 mit einer Scharnierhülse 33 und einem eingesetzten Scharnierstab 32. Die Scharnierhülse 33 wird im Wesentlichen durch die Zentrierrippe 10 gebildet, deren Seitenwände je eine lochförmige Öffnung aufweist, durch welche der Scharnierstab verläuft. Die im Inneren dieser Zentrierrippen 10 angeordneten Stege 22 weisen eine längs der Scharnierachse verlaufende zylindrische Verstärkungen auf, welche die eigentlichen Scharnierhülsen 33 am Deckel 4, 5 bilden. Weiter ist in dieser Darstellung eine Ausformung 36 an der äusseren Längsseite der Deckel 4, 5 zu erkennen. Diese Ausformung 36 liegt im geschlossenen Zustand der Deckel 4, 5 im Eckbereich auf dem umlaufenden Randbereich 6 des Behälters auf. Dieser Eckbereich ist in Figur 7 in einer perspektivischen Darstellung gezeigt. Der Scharnierstab 32 ist in die an der Behälterwand 2 angeformte Scharnierhülse 31 teilweise eingeschoben. Am Ende des Scharnierstabes 32 ist ein Schnapper 37 angeformt, der beim vollständigen Einführen des Scharnierstabes 32 in die Scharnierhülse 31 in eine Ausnehmung 38 in der Scharnierhülse 31 einrastet. Der Deckel 4 ist um etwa 270° nach aussen aufgeklappt und die Ausformung 36 ragt nach oben. Sobald die Deckel 4, 5 zugeschwenkt sind verdeckt die Ausformung 36 des Dekkels 4, 5 die Ausnehmung 38 in der Scharnierhülse 31 und somit auch den Schnapper 37. Der Schnapper 37 ist in dieser Position von der Ausformung 36 vom Deckel 4, 5 verdeckt und der Scharnierstab 32 kann nicht aus der Scharnierhülse 31 herausgezogen werden. Jeder der vier Scharniere weist am äusseren Ende einen derartigen Schnappverschluss auf. Keiner der Scharnierstäbe 32 kann bei zugeklappten Deckeln 4, 5 aus den Scharnierhülsen gezogen werden. Diese Scharnierstab-Sicherung bildet zusammen mit der beschriebenen Behälterplombierung eine Originalitätssicherung für den Stapelbehälter 1.

[0016] Die Figuren 8A und 8B zeigen einen Ausschnitt des oberen Eckbereichs - wie in der Figur 7 dargestellt - in einem weiteren Ausführungsbeispiel des Stapelbehälters 1. In der Figur 8A ist der Scharnierstab 32 in die am Deckel 4 angeformte Scharnierhülse 43 und in die Scharnierhülse 31 des Behälters teilweise eingeschoben. Zwei kegelförmige Verdickungen 41, 42 im Endbereich des Scharnierstabes 32 bilden einen Schnapper, der dazu bestimmt ist, dass bei vollständig eingeführtem Scharnierstab 32 die beiden kegelförmigen Verdickungen 41, 42 in die Ausnehmungen 39, 40 in der Scharnierhülse einrasten und den Scharnierstab 32 in dieser Endposition halten und ein Herausziehen aus den Scharnierhülsen verunmöglichen. Die Verdickungen 41, 42 am Scharnierstab 32 wirken ähnlich wie Widerhaken, die in die Ausnehmungen 39, 40 eingesteckt und nicht mehr zurückgezogen werden können. Dieser Endzustand des eingeschobenen Scharnierstabes 32 ist in der Figur 8B gezeigt. Die Ausnehmungen 39, 40 sind in der Scharnierhülse derart angeordnet, dass das Ende des Scharnierstabes 32 innerhalb der Scharnierhülse 43 zu liegen kommt. Dadurch ist das Scharnier gesichert und der Dekkel 4,5 des Stapelbehälters 1 kann nicht durch Herausziehen des Scharnierstabes 32 geöffnet werden. Die beschriebene Scharnierstabsicherung ist sowohl bei einem Scharnier mit nur einem Scharnierstab wie auch bei Scharnieren mit zwei Scharnierstäben längs einer Dekkelseite anwendbar.

[0017] In Figur 9 ist ein Detail des Stapelbehälters 1 mit aufgeklappten Deckel 4 im Bereich des Nockens 12 und dem oberen Randbereich 6 mit der äusseren Verstärkungswand 11 gezeigt. Sobald die Deckel 4, 5 ganz aufgeklappt sind, rasten die Stifte oder Zungen 13 an

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den Nocken 12 an den Einrastteilen 16 im Randbereich 6 ein, die im gezeigten Beispiel vom unteren Rand des äusseren Verstärkungsrandes 11 gebildet sind. Damit sind die Deckel 4, 5 im geöffneten Zustand fixiert, so dass die Deckel 4, 5 nicht nach unten fallen, wenn der Behälter 1 beispielsweise in einer Waschanlage zum Reinigen umgekehrt werden muss. Ausserdem spart man Platz auf dem Förderband einer Waschanlage, so dass die Auslastung der Anlage verbessert wird.

[0018] In Figur 10 sind drei aufeinander gestapelte Stapelbehälter in perspektivischer Darstellung abgebildet. Der unterste und der oberste Stapelbehälter 30 sind gleich ausgebildet und der mittlere zeigt einen erfindungsgemässen Stapelbehälter 1 mit zugeklappten Dekeln, wobei der mittlere Stapelbehälter 1 teilweise aufgeschnitten ist. Die an sich bekannten Stapelbehälter 30 sind mit zwei in die freie Öffnung hineinragenden Stützstreben 25 versehen. Der mittlere, erfindungsgemässe Stapelbehälter 1 weist nun einen Boden 26 auf, in dem zwei Längsnuten 27 parallel zu den kürzeren Seiten 3 vorgesehen sind. Der Boden 26 ist innen im Behälter mit Rippen 28 versehen, die in einem viereckigem Raster 29 angeordnet sind. Die Rippen 28 sind dabei mindestens gleich hoch wie der durch die Nute 27 erhöhte Bereich des Bodens 26. Durch die Rippen 28 entsteht somit eine ebene Tragfläche, auf welche ebene Gegenstände wie Kartonschachteln oder dergleichen problemlos und in optimaler Packungsdichte gestapelt werden können.

[0019] Selbstverständlich kann auch eine Bodenplatte mit der obenbeschriebenen Verrippung für einen Stapelbehälter 1 auch für Stapelbehälter 30 mit Stützstreben 25 vorgesehen sein. Auch können die Rippen 28 in einem rautenförmigen statt einem viereckigen Raster angeordnet sein.

Ziffernverzeichnis:

[0020]

1. Stapelbehälter
2. Längs-Seitenwand
3. Quer-Seitenwand
4. Abdeckung 1
5. Abdeckung 2
6. oben umlaufender Randbereich
7. Scharnierhülse
8. Scharnierbolzen
9. Scharnier
10. Zentrierrippe
11. äussere Verstärkungswand
12. Nocken am Deckel
13. Stift = Einschnappelement
14. Ausnehmung in den Deckeln
15. Ausnehmung im Behälter
16. Einrastteil in der Verstärkung 11
17. Rippen im Deckel
18. trapezförmige Zahnung des überlappenden Bereichs der Deckel
19. Scharnierhülse am Deckel angeformt
20. Scharnierbolzensteg
21. Öffnung in Scharnierhülse
22. Steg in Zentrierrippe
23. Nase an der Längsseitenwand
24. Aussparung
25. Stützstreben
26. Boden
27. Nuten im Boden
28. Rippen im Boden
29. Raster
30. Offener Stapelbehälter
31. Ausformung am Behälter (Scharnierhülse)
32. Scharnierstab
33. Scharnierhülse am Deckel (im Bereich Zentrierrippe 10)
34. U-förmiger Abstand in der Mitte des Behälters
35. Scharnierhülsen in der Mitte
36. Ausformung am Deckel
37. Schnapper
38. Ausnehmung für Schnapper
39. erste Ausnehmung in der Ausformung am Deckel
40. zweite Ausnehmung in der Ausformung am Dekkel
41. konisch nach aussen verlaufendes Stabende
42. konische (kegelförmige) Verdickung im Scharnierstab
43. Ausformung am Deckel (Scharnierhülse)
44. Loch zum Einstecken des Scharnierstabes in die Scharnierhülse

Patentansprüche

1. Stapelbehälter (1) mit einer Bodenplatte, mit schrägen, nach oben ausgestellten Längs- und Querseitenwänden (2, 3), sowie mit nach aussen um Scharniere wegklappbaren Abdeckungen (4, 5) und einem oberen umlaufenden Randbereich (6), wobei die Abdeckungen (4, 5) aus zwei symmetrisch komplementären Deckeln (4, 5) bestehen, die gegeneinander austauschbar sind, und die im geschlossenen Zustand mit ihren kürzeren Seiten plan auf den entsprechenden Querseitenwänden des Behälters (1) aufliegen und bei welchen die Scharniere die Belastung durch darüber gestapelte Behälter an den Längsseiten des Behälters aufnehmen,
***dadurch gekennzeichnet,* dass** die beiden Deckel (4, 5) in zugeklapptem Zustand rippenverstärkt verzahnt ineinander greifen und annähernd nahtlos gegeneinander liegen, und dass weiter die Deckel (4, 5) an den längsseitigen Aussenrändern parallel zu den Querseitenwänden verlaufende Stege (22) mit Aussparungen (24) aufweisen, die im zugeklappten Zustand der Deckel (4, 5) mit an der Oberkante der Behälterwand (2) ausgeformten Nasen (23) in Eingriff bringbar sind, derart, dass die Dekkel (4, 5) mit dem Steg (22) auf den Nasen (23) aufliegen.

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2. Stapelbehälter nach Anspruch 1, ***dadurch gekennzeichnet*, dass** die Deckel (4, 5) einseitig offene Scharnierhülsen (7) aufweisen, die auf einstückig an der Behälterlängswand (2) ausgeformte Scharnierbolzen (8) aufsteckbar sind.

3. Stapelbehälter nach Anspruch 1, ***dadurch gekennzeichnet*, dass** die Deckel (4, 5) und Seitenwände (2) Scharnierhülsen (31, 33; 43) aufweisen die mit einem Scharnierstab (32) ein Scharnier bilden, wobei der Scharnierstab (32) sich über die ganze Länge der Seitenwand (2) des Behälters (1) erstreckt, und der Scharnierstab (32) an einem Ende einen Schnapper (37; 41, 42) aufweist, der dazu bestimmt ist, in eine Ausnehmung (38; 39, 40)) einer Scharnierhülse (31; 43) des Behälters (1) beziehungsweise des Deckels (4, 5) einzuschnappen.

4. Stapelbehälter nach Anspruch 1, ***dadurch gekennzeichnet*, dass** die Deckel (4, 5) und Seitenwände (2) Scharnierhülsen (31, 33; 43) aufweisen die mit je zwei Scharnierstäben (32) pro Längsseite Scharniere bilden, wobei jeder der Scharnierstäbe (32) sich weniger als die halbe Länge der Seitenwand (2) des Behälters (1) erstreckt, und dass jeder der Scharnierstäbe (32) an einem Ende einen Schnapper (37; 41, 42) aufweist, der dazu bestimmt ist, in eine Ausnehmung (38; 39, 40) einer Scharnierhülse (31; 43) des Behälters beziehungsweise des Deckels (4, 5) einzuschnappen.

5. Stapelbehälter nach Anspruch 3 oder 4 ***dadurch gekennzeichnet*, dass** die Behälter-Deckel (4, 5) an ihren äusseren Längsseiten Ausformungen (36) aufweisen, welche im geschlossenen Zustand der Dekkel (4, 5) auf dem umlaufenden Randbereich im Eckbereich aufliegen, und die den Schnapper (37) des Scharnierstabes (32) abdecken, derart, dass der Scharnierstab (32) nicht aus den Scharnierhülsen (31, 33) ziehbar ist.

6. Stapelbehälter nach einem der vorhergehenden Ansprüche, ***dadurch gekennzeichnet*, dass** die Dekkel (4, 5) an ihren zugewandten Enden komplementär mit einem trapezförmig gezackten Rand (18) versehen sind.

7. Stapelbehälter nach einem der vorhergehenden Ansprüche, ***dadurch gekennzeichnet*, dass** auf den Deckeln (4, 5) Nocken (12) vorgesehen sind, die beim aufgeklappten Zustand der Deckel (4, 5) mit einem Einrastteil (16) an der Verstärkungswand (11) der Behälterwand (2) in Eingriff bringbar sind.

8. Stapelbehälter nach Anspruch 7, ***dadurch gekennzeichnet*, dass** der Einschnappteil (16) von der Wandverstärkung 11 des Randes (6) des Behälters (1) gebildet ist.

9. Stapelbehälter nach einem der vorhergehenden Ansprüche, ***dadurch gekennzeichnet*, dass** die Dekkel (4, 5) Ausnehmungen (14) aufweisen, die bei zugeklappten Deckeln (4, 5) über einer Ausnehmung (15) in der Seitenwand (3) zu liegen kommen, und dass diese Ausnehmungen (14, 15) dazu bestimmt sind, eine Steckplombe, eine Plombenschnur oder ein Plombenband aufzunehmen.

10. Stapelbehälter nach einem der vorhergehenden Ansprüche, ***dadurch gekennzeichnet*, dass** in der Bodenplatte eine aussenliegende Nut (27) vorgesehen ist, die dazu bestimmt ist, eine Stützstrebe (25) eines offenen Stapelbehälters (30) aufzunehmen, und dass die Bodenplatte (26) innerhalb des Behälters mit Rippen (28) versehen ist, die mindestens gleich hoch sind wie die in den Behälter hineinragende Nut (27).

Claims

1. A stacking container (1) with a floor plate, with inclined, upwardly facing longitudinal and transversal side walls (2, 3) and with covers (4, 5) which can be flipped away outwardly about hinges and an upper circumferential boundary region (6), with the covers (4, 5) consisting of two symmetrically complementary lids (4, 5) which are mutually interchangeable and which in the closed state rest with their shorter sides in a planar manner on the respective transversal side walls of the container (1) and in which the load by the containers stacked above one another are absorbed on the longitudinal sides of the container by the hinges,
characterized in that the two lids (4, 5) engage into each other in the closed state in a toothed manner reinforced by ribs and rest opposite of each other in a virtually seamless manner, and that further the lids (4, 5) comprise webs (22) with recesses (24) on the outer edges on the longitudinal side, which webs extend parallel to the transversal side walls and which in the closed state of the lids (4, 5) can be brought into engagement with noses (23) formed on the upper edge of the container wall (2), such that the lids (4, 5) rest with the web (22) on the noses (23).

2. A stacking container according to claim 1, **characterized in that** the lids (4, 5) comprise hinge sleeves (7) which are open on one side and which can be inserted into hinge pins (8) formed in an integral manner on the longitudinal wall (2) of the container.

3. A stacking container according to claim 1, **characterized in that** the lids (4, 5) and the side walls (2) comprise hinge sleeves (31, 33) which together with a hinge rod (32) form a hinge, with the hinge rod (32) extending over the entire length of the side wall (2)

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of the container (1) and with the hinge rod (32) comprising a catch (37; 41; 42) at one end which is intended to latch into a recess (38; 39; 40) of a hinge sleeve (31; 43) of the container (1) or the lid (4,5).

4. A stacking container according to claim 1, **characterized in that** the lids (4, 5) and the side walls (2) comprise hinge sleeves (31, 33; 43) which form hinges with two hinge rods (32) each per longitudinal side, with each of the hinge rods (32) extending over less than half the length of the side wall (2) of the container (1), and that each of the hinge rods (32) comprises a catch (37; 41, 42) at one end which is intended to latch into a recess (38; 39; 40) of a hinge sleeve (31; 43) of the container (1) or the lid (4,5).

5. A stacking container according to claim 3 or 4, **characterized in that** container lids (4, 5) comprise formed parts (36) on their outer longitudinal sides which in the closed state of the lids (4, 5) rest on the circumferential boundary region in the corner region and cover the catch (37) of the hinge rod (32), such that the hinge rod (32) cannot be withdrawn from the hinge sleeves (31, 33).

6. A stacking container according to one of the preceding claims, **characterized in that** the lids (4, 5) are provided at their facing ends with a trapezoid jagged edge (18).

7. A stacking container according to one of the preceding claims, **characterized in that** cams (12) are provided on the lids (4, 5), which cams can be brought into engagement in the opened state of the lids (4, 5) with a snap-on part (16) on the reinforcing wall (11) of the container wall (2).

8. A stacking container according to claim 7, **characterized in that** the snap-on part (16) is formed by the wall reinforcement (11) of the edge (6) of the container (1).

9. A stacking container according to one of the preceding claims, **characterized in that** the lids (4, 5) comprise recesses (14) which come to lie above a recess (15) in the side wall (3) when the lids (4, 5) are closed, and that said recesses (14, 15) are intended to receive a plug-in seal, a seal string or a seal tape.

10. A stacking container according to one of the preceding claims, **characterized in that** an outside groove (27) is provided in the floor plate, which groove is designated to receive a supporting strut (25) of an open stacking container (30), and that the floor plate (26) is provided within the container with ribs (28) which have at least the same height as the groove (27) projecting into the container.

Revendications

1. Récipient empilable (1) avec une plaque de fond, avec des parois longitudinales et transversales (2, 3) obliques évasées vers le haut et avec des couvertures pouvant être rabattues vers l'extérieur autour de charnières (4, 5) et une zone de bord supérieur circonférentielle (6), dans lequel les couvertures (4, 5) se composent de deux couvercles (4, 5) symétriques et complémentaires qui sont interchangeables l'un avec l'autre et qui reposent dans l'état fermé par leurs côtés transversaux à plat sur les parois transversales correspondantes du récipient (1) et dans lequel la charge exercée par les récipients empilés par-dessus sur les faces longitudinales du récipient est absorbée par les charnières, ***caractérisé en ce que*** les deux couvercles (4, 5) sont en prise l'un avec l'autre dans l'état fermé par une denture avec renfort par des nervures et reposent l'un contre l'autre quasiment sans former de joint, et **en ce que** les couvercles (4, 5) présentent sur les bords extérieurs longitudinaux des barrettes parallèles aux parois transversales (22) avec des évidements (24) qui peuvent être mis en prise, lorsque les couvercles (4, 5) sont fermés, avec des ergots (23) formés sur l'arête supérieure de la paroi (2) du récipient, de sorte que les couvercles (4, 5) reposent par la barrette (22) sur les ergots (23).

2. Récipient empilable selon la revendication 1, ***caractérisé en ce que*** les couvercles (4, 5) possèdent des douilles de charnière (7) ouvertes d'un côté, qui peuvent être enfilées sur des goujons de charnière (8) formés d'un seul tenant sur la paroi longitudinale (2) du récipient.

3. Récipient empilable selon la revendication 1, ***caractérisé en ce que*** les couvercles (4, 5) et les parois latérales (2) possèdent des douilles de charnière (31, 33) qui forment une charnière avec une tige de charnière (32), laquelle tige de charnière (32) s'étend sur toute la longueur de la paroi latérale (2) du récipient (1), et laquelle tige de charnière (32) possède à une extrémité un cliquet (37 ; 41 ; 42) destiné à s'emboîter dans un creux (38 ; 39 ; 40) d'une douille de charnière (31 ; 43) du récipient (1) ou du couvercle (4, 5).

4. Récipient empilable selon la revendication 1, ***caractérisé en ce que*** les couvercles (4, 5) et les parois latérales (2) possèdent des douilles de charnière (31, 33 ; 43) qui forment des charnières avec deux tiges de charnière (32) par côté longitudinal, chacune des tiges de charnière (32) s'étendant sur moins de la moitié de la longueur de la paroi latérale (2) du récipient (1), et **en ce que** chacune des tiges de charnière (32) possède à une extrémité un cliquet (37 ; 41, 42) destiné à s'emboîter dans un creux (38 ;

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39, 40) d'une douille de charnière (31 ; 43) du récipient ou du couvercle (4, 5).

5. Récipient empilable selon la revendication 3 ou 4, ***caractérisé en ce que*** les couvercles (4, 5) du récipient présentent sur leurs côtés longitudinaux extérieurs des reliefs (36) qui reposent, lorsque les couvercles (4, 5) sont fermés, sur la zone de bord circonférentielle dans la zone d'angle, et qui recouvrent le cliquet (37) de la tige de charnière (32), de telle sorte que la tige de charnière (32) ne puisse pas être retirée des douilles de charnière (31, 33).

6. Récipient empilable selon l'une quelconque des revendications précédentes, ***caractérisé en ce que*** les couvercles (4, 5) sont pourvus à leurs extrémités tournées l'une vers l'autre d'un bord (18) échancré en trapèzes complémentaires.

7. Récipient empilable selon l'une quelconque des revendications précédentes, ***caractérisé en ce*** **qu'**il est prévu sur les couvercles (4, 5) des cames (12) qui peuvent être mises en prise, lorsque les couvercles (4, 5) sont ouverts, avec une partie d'emboîtement (16) sur la paroi de renfort (11) de la paroi (2) du récipient.

8. Récipient empilable selon la revendication 7, ***caractérisé en ce que*** la partie d'emboîtement (16) est formée par le renfort de paroi (11) du bord (6) du récipient (1).

9. Récipient empilable selon l'une quelconque des revendications précédentes, ***caractérisé en ce que*** les couvercles (4, 5) possèdent des creux (14) qui reposent, lorsque les couvercles (4, 5) sont fermés, par-dessus un creux (15) de la paroi latérale (3), et **en ce que** ces creux (14, 15) sont destinés à recevoir un scellé, un cordon plombé ou un ruban plombé.

10. Récipient empilable selon l'une quelconque des revendications précédentes, ***caractérisé en*** **ce qu'**il est prévu dans la plaque de fond une gorge (27) située à l'extérieur, destinée à recevoir une barre d'appui (25) d'un récipient empilable ouvert (30) et **en ce que** la plaque de fond (26) est pourvue à l'intérieur du récipient de nervures (28) qui ont au moins la même hauteur que la gorge (27) dépassant dans le récipient.

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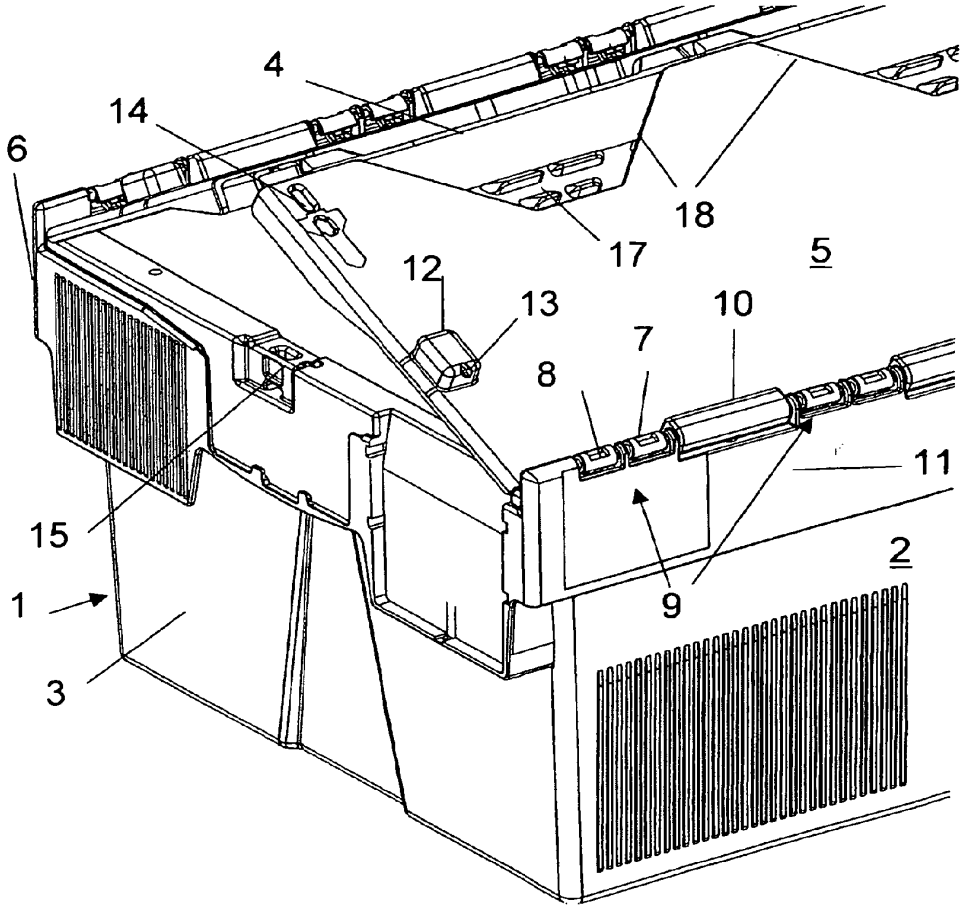


Fig. 1

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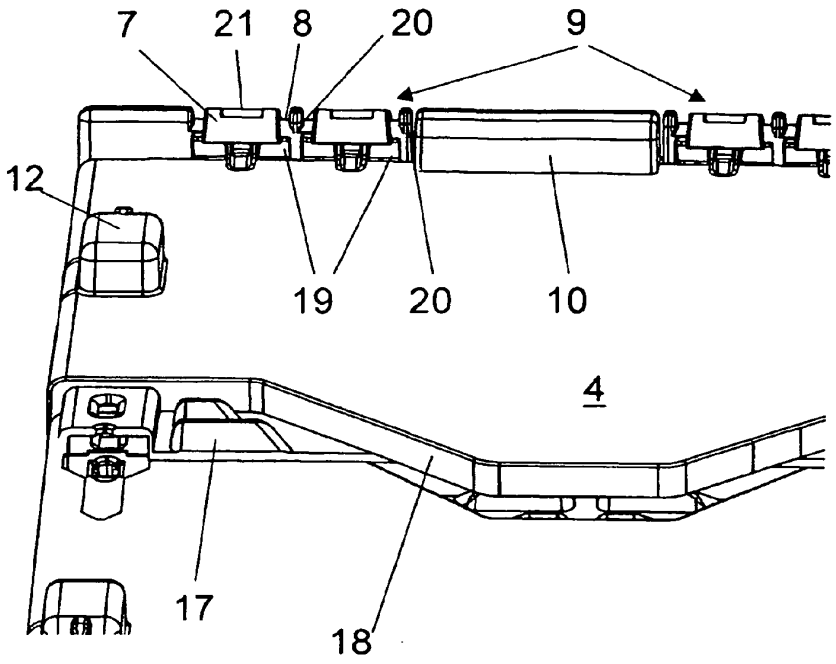


Fig. 2

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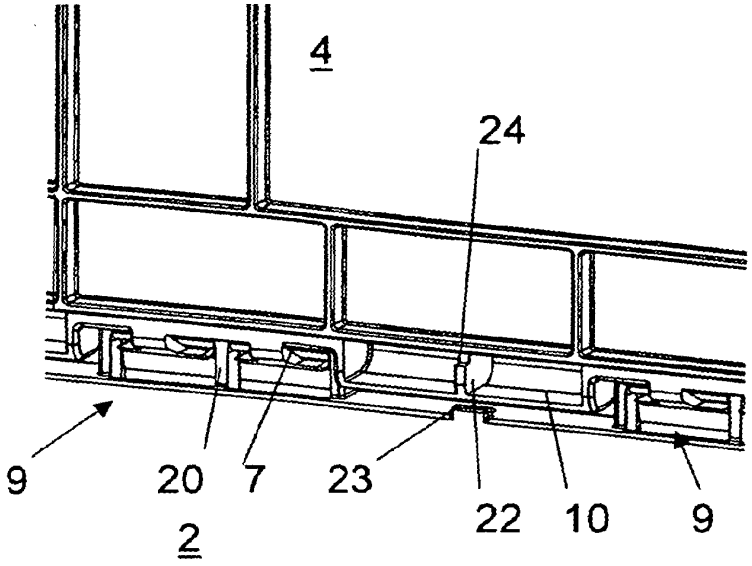


Fig. 3

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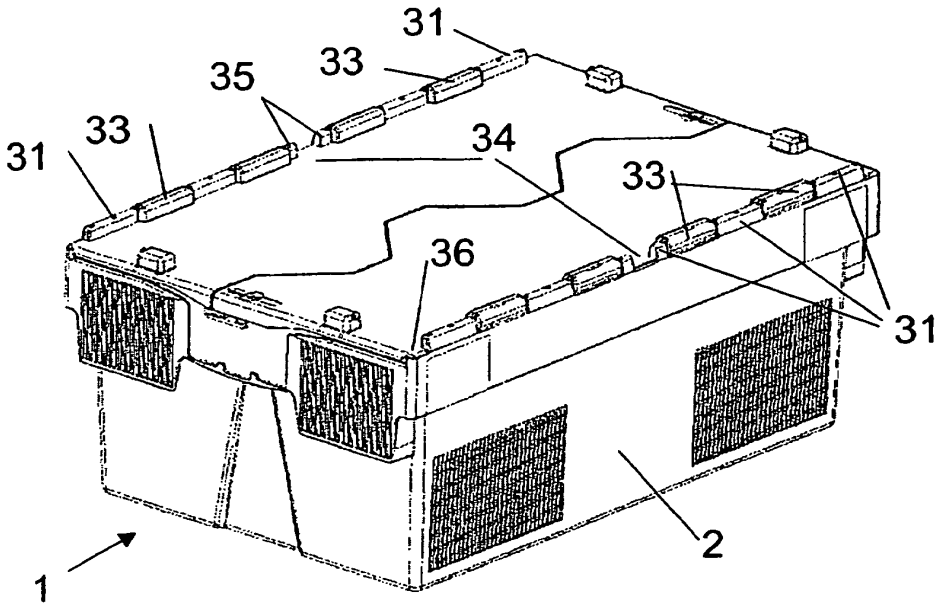


FIG. 4

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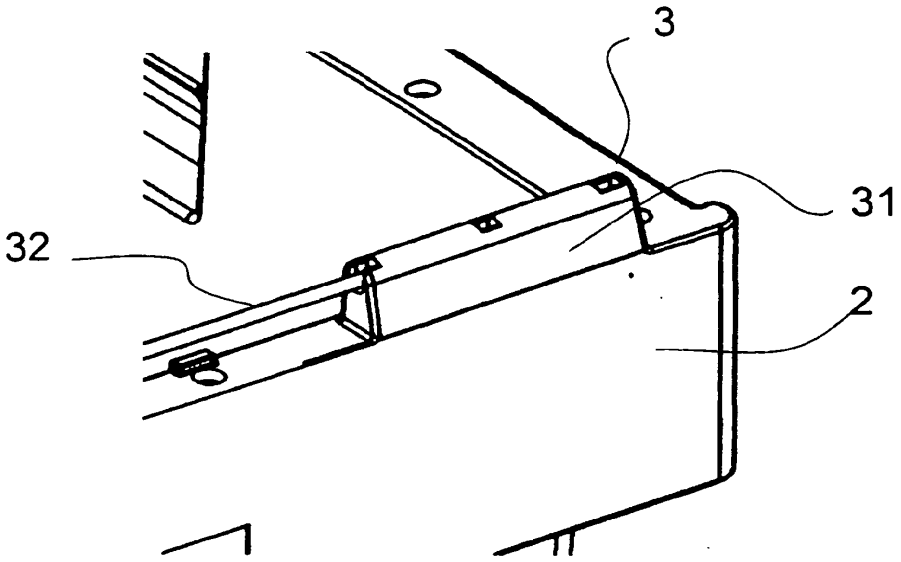


Fig. 5

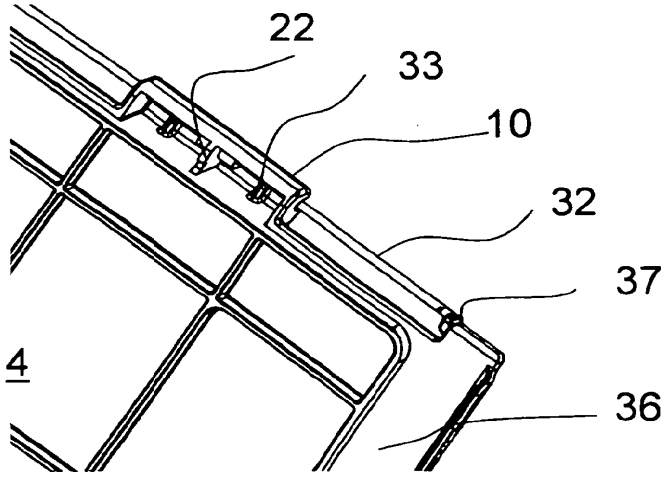


Fig. 6

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Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
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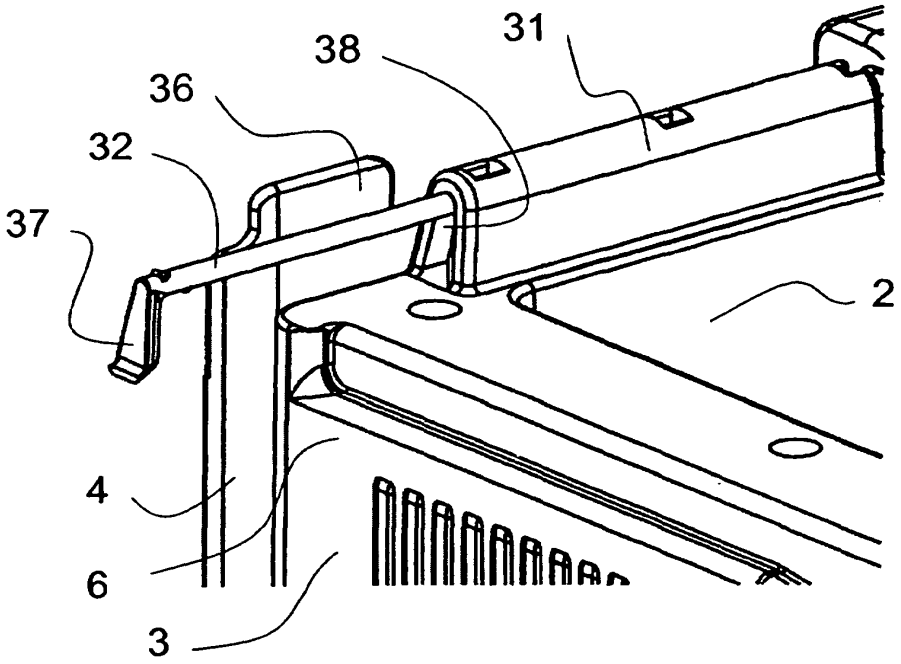


Fig. 7

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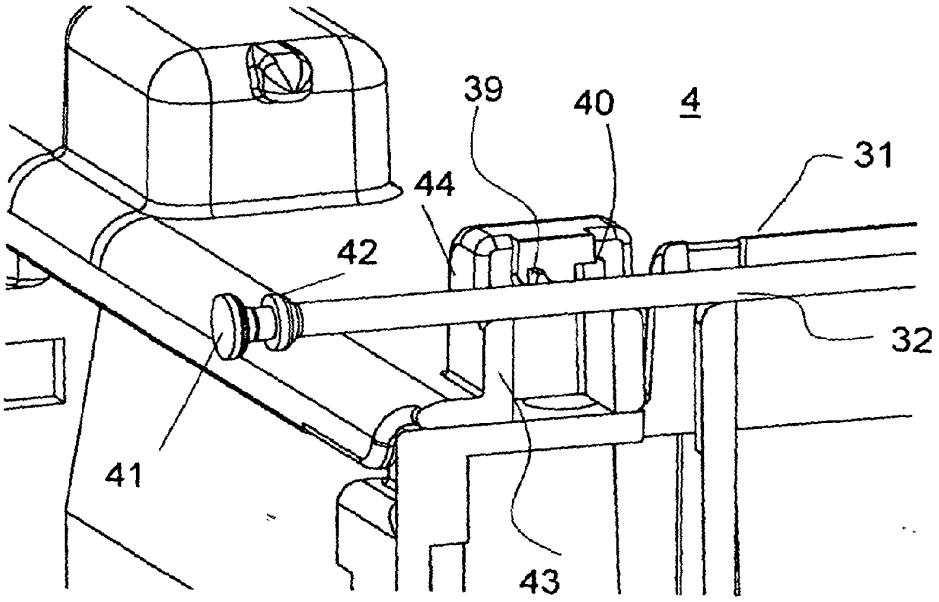


Fig. 8A

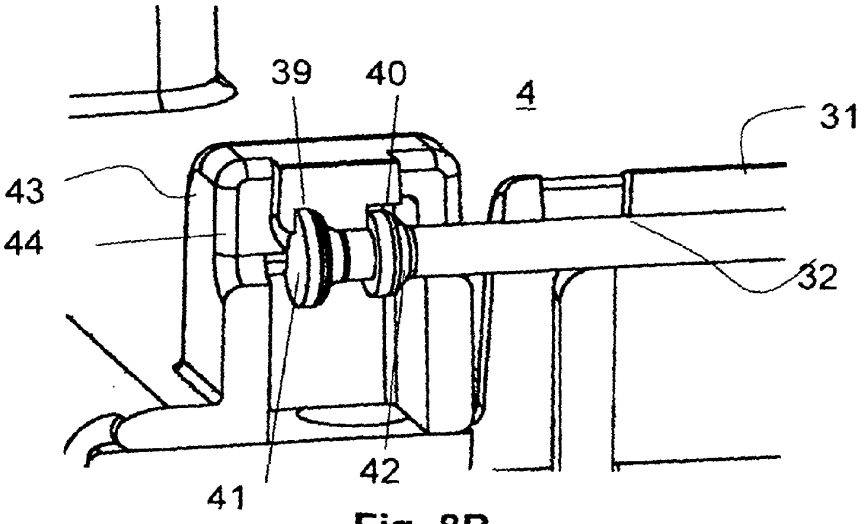


Fig. 8B

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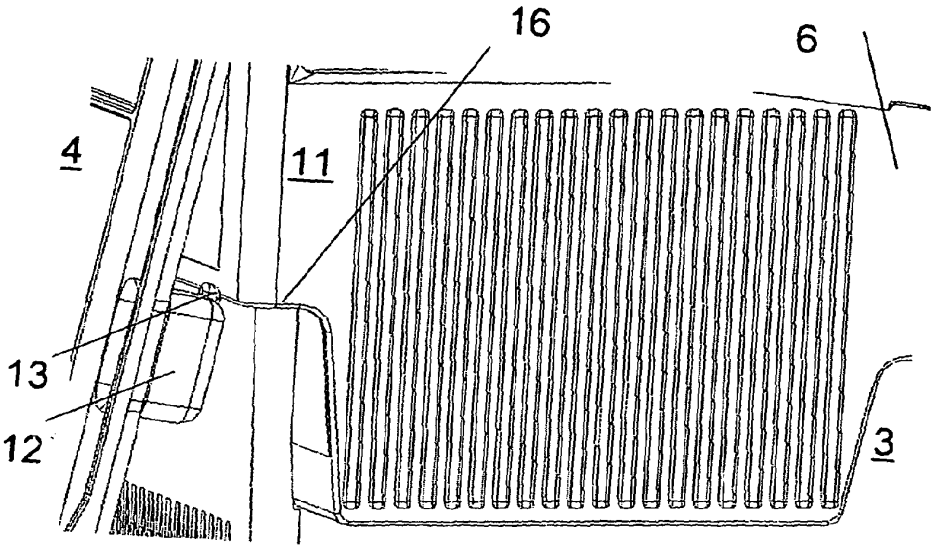


Fig. 9

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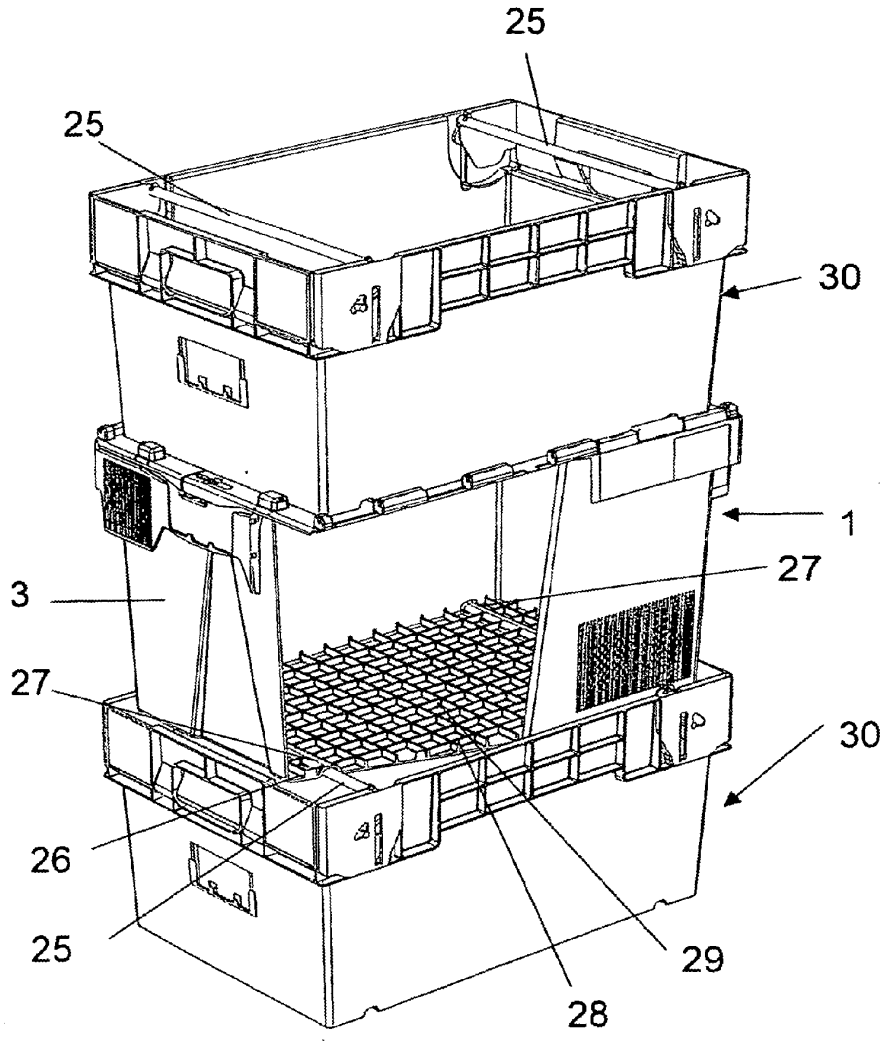


Fig. 10

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Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

1) Family number: 49723497 (CN102248523A) © PatBase

Title: TOOLBOX ASSEMBLY

Priority: CN201110095467 20110416 CN201120112226U 20110416

Family:

Publication number	Publication date	Application number	Application date
CN102248523 A	20111123	CN201110095467	20110416
CN102248523 B	20130821	CN201110095467	20110416
CN201998162 U	20111005	CN201120112226U	20110416

Probable Assignee: ZHEJIANG PRULDE ELECTRIC APPLIANCE CO LTD

Assignee(s):(std): ZHEJIANG PRULDE ELECTRIC APPLIANCE CO LTD

Assignee(s): ZHEJIANG PRULDE ELECTRIC APPLIANCE CO

Inventor(s):(std): CHANGHONG HAN ; HAN CHANGHONG ; WEIMING YANG ; YANG WEIMING

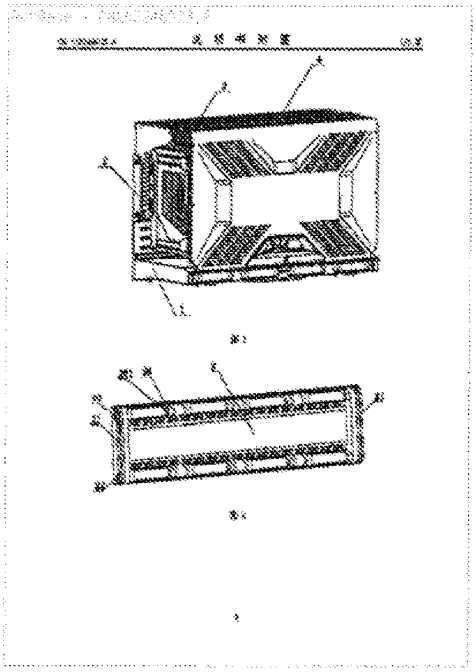
International class (IPC 8-8): B25H3/02 (Advanced/Invention)

Classification Explorer

Cited documents: US4303158 A, US4266835 A, FR2740373 A1, CN2794765 Y, CN201998162 U, CN201677314 U, CN201565944 U, CN201399779 Y,

Forward Citations: CN102248523,

Abstract:
The invention provides a toolbox assembly, which comprises a base, a hanging plate arranged on the base and a box body which is arranged on the base and corresponds to the hanging plate, wherein an upper cover is arranged on the hanging plate. The toolbox assembly has a simple structure, is convenient to assemble and disassemble, can make various tools conveniently arranged, makes the tools in a toolbox diversified, and can make the tools arranged in a positioned way to prevent the tools from being damaged.



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(19)中华人民共和国国家知识产权局

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代理人 韩洪

(51)Int.Cl.
B25H 3/02(2006.01)

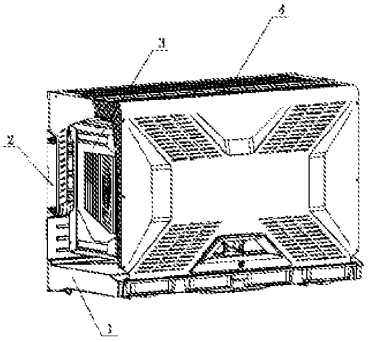
权利要求书 2 页 说明书 5 页 附图 5 页

(54)发明名称

工具箱组合

(57)摘要

本发明提供工具箱组合，包括底座、设在底座上的挂板、设在底座上与挂板对应的箱体，所述挂板上设有上盖。结构简单，组装拆装方便，能够方便放置各种工具，实现工具箱内工具的多样化，并且能够使得工具定位放置，防止损坏。



CN 102248523 A

1. 工具箱组合，其特征在于：包括底座 (1)、设在底座 (1) 上的挂板 (2)、设在底座 (1) 上与挂板 (2) 对应的箱体 (3)，所述挂板 (2) 上设有上盖 (4)。

2. 根据权利要求 1 所述的工具箱组合，其特征在于：所述挂板 (2) 两端各设一个侧板 (21)，两侧板 (21) 上均设有两个挂接孔 (22)，所述挂接孔 (22) 内设有挂接头 (23)，两侧对应的挂接头 (23) 之间设有挂杆 (24)，所述挂板 (2) 上设有上下两排安装孔 (25)，所述挂板 (2) 上设有若干加强筋 (26)，所述加强筋 (26) 上设有第一通孔 (261)，所述挂杆 (24) 穿过所述第一通孔 (261)。

3. 根据权利要求 2 所述的工具箱组合，其特征在于：所述挂接头 (23) 包括安装盘 (231)，所述安装盘 (231) 的两侧各设有一个连接柱 (232)，所述连接柱 (232) 的中心设有插接槽 (2321)，所述连接柱 (232) 的外圆周面上设有若干凸台 (2322)。

4. 根据权利要求 1 所述的工具箱组合，其特征在于：所述箱体 (3) 上设有与挂板 (2) 对应的上卡扣 (5)、下卡扣 (6)，所述上卡扣 (5) 与下卡扣 (6) 通过连扳 (7) 连接，所述连扳 (7) 侧面设有至少一对与箱体 (3) 连接的卡块 (8)，所述下卡扣 (6) 的前端还设有一块斜向上的导向板 (9)，所述上卡扣 (5) 为直角三角形，所述上卡扣 (5) 的斜边上设有向内凹的圆弧形，所述下卡扣 (6) 的横截面为钩形。

5. 根据权利要求 1 所述的工具箱组合，其特征在于：所述箱体 (3) 内设有若干滑槽 (31)，所述滑槽 (31) 内设有卡板 (32)，所述卡板 (32) 包括设有开口卡槽 (324) 的弹性卡板 (322)、设在弹性卡板 (322) 外侧的硬质卡板 (321)、设在硬质卡板 (321) 外侧与滑槽 (31) 对应的滑板 (323)，所述开口卡槽 (324) 内设有对称的两个卡舌 (325)，所述硬质卡板 (321) 的端部设有弹性卡片 (326)。

6. 根据权利要求 5 所述的工具箱组合，其特征在于：所述箱体 (3) 内设有第一抽屉 (33)，所述第一抽屉 (33) 上设有与滑槽 (31) 对应的滑条 (331)，所述箱体 (3) 上设有手柄 (34)，所述手柄 (34) 上设有防滑纹 (341)。

7. 根据权利要求 1 所述的工具箱组合，其特征在于：所述底座 (1) 包括后连扳 (11)、底板 (12)，所述后连扳 (11) 的前壁上开有矩形槽，所述矩形槽上壁内侧设有一块竖直向下的挡块 (13)，所述挡块 (13) 与矩形槽壁之间形成一个扣槽 (14)，所述底板 (12) 后侧的上平面设有一条与扣槽 (14) 相适配的卡条 (15)，所述底板 (12) 的底面设有至少一个插线板放置槽 (16) 和插线板锁紧块 (17)，所述插线板锁紧块 (17) 转动设置在插线板放置槽 (16) 的侧边上，在正对插线板放置槽 (16) 的底板 (12) 底面上还设有蓄电池充电槽 (18)，所述蓄电池充电槽 (18) 的两个侧壁上分别开有蓄电池固定槽 (19)，所述蓄电池充电槽 (18) 的入口处设有蓄电池卡扣 (110)，所述蓄电池卡扣 (110) 的一端平滑的与底板 (12) 的底面连接，所述蓄电池卡扣 (110) 的另一端凸出底板 (12) 的底面，所述底板 (12) 上还开有供电源线通过的第二通孔 (111)。

8. 根据权利要求 7 所述的一种工具箱组合，其特征在于：所述底板 (12) 的底面还开有应急灯放置槽 (112)，所述应急灯放置槽 (112) 的两侧边各设有一块向内倾斜的应急灯挡板 (113)，所述应急灯放置槽 (112) 的入口处设有一个应急灯卡扣 (114)，所述底板 (12) 前部的侧壁上设有至少一个第二抽屉 (115)。

9. 根据权利要求 1 所述的一种工具箱组合，其特征在于：所述上盖 (4) 包括盖板 (41) 和面板 (42)，所述盖板 (41) 与所述面板 (42) 铰接，所述盖板 (41) 与所述面板 (42) 之间

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设有气缸 (43)，所述盖板 (41) 的两侧分别设有侧板 (411)，所述侧板 (411) 上设有挂钩 (412)，所述盖板 (41) 与所述面板 (442) 之间设有两只气缸 (43)，所述气缸 (43) 设于所述侧板 (411) 的内侧。

10. 根据权利要求 9 所述的一种工具箱组合，其特征在于：所述盖板 (41) 上设有背挂板 (414)，所述背挂板 (414) 上设有挂孔 (4141)，所述盖板 (41) 上设有网孔 (413)，所述面板 (42) 上设有把手 (421)。

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工具箱组合

技术领域

[0001] 本发明涉及工具箱组合。

背景技术

[0002] 工具箱，顾名思义，是存储工具的容器，工具箱被广泛使用在很多领域中。一般的工具组合是由多个工具箱组成，工具组合中工具箱的个数都是固定的，如果每个工具箱中存放一个种类的工具，当我们需要多个种类工具组成一个工具组合时，其调整就不是很方便，需要将多个工具箱放在一起，再用工具将多个工具箱采用螺钉固定或者直接焊接方式固定，费时费力，并且在拆卸时也不方便。现有的工具箱为了避免内部放置的工具晃动，防止工具损坏，通常设置与工具对应的凹槽，这就使得工具箱内放置工具时，需要与凹槽一一对应，如果需要增加工具，必须再设置与工具对应的凹槽，制造比较麻烦，无法实现工具箱内工具的多样化。

发明内容

[0003] 本发明所要解决的技术问题在于提供工具箱组合，结构简单，组装拆装方便，能够方便放置各种工具，实现工具箱内工具的多样化，并且能够使得工具定位放置，防止损坏。

[0004] 为解决上述现有的技术问题，本发明采用如下方案：工具箱组合，包括底座、设在底座上的挂板、设在底座上与挂板对应的箱体，所述挂板上设有上盖。

[0005] 作为优选，所述挂板两端各设一个侧板，两侧板上均设有两个挂接孔，所述挂接孔内设有挂接头，两侧对应的挂接头之间设有挂杆，所述挂板上设有上下两排安装孔，所述挂板上设有若干加强筋，所述加强筋上设有第一通孔，所述挂杆穿过所述第一通孔。结构简单，装拆方便。

[0006] 作为优选，所述挂接头包括安装盘，所述安装盘的两侧各设有一个连接柱，所述连接柱的中心设有插接槽，所述连接柱的外圆周面上设有若干凸台。

[0007] 作为优选，所述箱体上设有与挂板对应的上卡扣、下卡扣，所述上卡扣与下卡扣通过连扳连接，所述连扳侧面设有至少一对与箱体连接的卡块，所述下卡扣的前端还设有一块斜向上的导向板，所述上卡扣为直角三角形，其斜边为工作边，所述上卡扣的斜边上设有向内凹的圆弧形，所述下卡扣的横截面为钩形。无需使用任何工具，就能将工具箱方便的挂接到挂板上，快速拼装出一个工具组合，而且工具箱挂在挂板上稳固牢靠。

[0008] 作为优选，所述箱体内设有若干滑槽，所述滑槽内设有对应的卡板，所述卡板包括设有开口卡槽的弹性卡板、设在弹性卡板外侧的硬质卡板、设在硬质卡板外侧与滑槽对应的滑板，所述开口卡槽内设有对称的两个卡舌，所述硬质卡板的端部设有弹性卡片。采用了若干滑槽以及与滑槽对应的卡板，根据所需放置工具的局部大小设置卡板的数量，能够使得所需放置工具定位放置，方便了放置各种工具，实现了工具箱内工具的多样化，防止了工具的损坏。

[0009] 作为优选，所述箱体内设有第一抽屉，所述第一抽屉上设有与滑槽对应的滑条，所

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述箱体上设有手柄，所述手柄上设有防滑纹。防滑效果好，有效地防止了工具箱的掉落。

[0010] 作为优选，所述底座包括后连扳、底板，所述后连扳的前壁上开有矩形槽，所述矩形槽上壁内侧设有一块竖直向下的挡块，所述挡块与矩形槽壁之间形成一个扣槽，所述底板后侧的上平面设有一条与扣槽相适配的卡条，所述底板的底面设有至少一个插线板放置槽和插线板锁紧块，所述插线板锁紧块转动设置在插线板放置槽的侧边上，在正对插线板放置槽的底板底面上还设有蓄电池充电槽，所述蓄电池充电槽的两个侧壁上分别开有蓄电池固定槽，所述蓄电池充电槽的入口处设有蓄电池卡扣，所述蓄电池卡扣的一端平滑的与底板的底面连接，所述蓄电池卡扣的另一端凸出底板的底面，所述底板上还开有供电源线通过的第二通孔。只要先将底板的部分卡条插入扣槽内，再向下压底板使卡条完全进入扣槽内，从而使底板与后连扳稳固连接，底板与后连扳连接方便快捷，省时省力，稳固牢靠。

[0011] 作为优选，所述底板的底面还开有应急灯放置槽，所述应急灯放置槽的两侧边各设有一块向内倾斜的应急灯挡板，所述应急灯放置槽的入口处设有一个应急灯卡扣，所述底板前部的侧壁上设有至少一个第二抽屉。

[0012] 作为优选，所述上盖包括盖板和面板，所述盖板与所述面板铰接，所述盖板与所述面板之间设有气缸，所述盖板的两侧分别设有侧板，所述侧板上设有挂钩，所述盖板与所述面板之间设有两只气缸，所述气缸设于所述侧板的内侧。通过盖板上的挂钩可以与挂板实现连接，由于盖板与面板之间设有气缸，可以实现上盖在任意位置的定位，其结构简单，装拆方便。

[0013] 作为优选，所述盖板上设有背挂板，所述背挂板上设有挂孔，所述盖板上设有网孔，所述面板上设有把手。

[0014] 有益效果：

[0015] 本发明采用上述技术方案提供工具箱，结构简单，组装拆装方便，能够方便放置各种工具，实现工具箱内工具的多样化，并且能够使得工具定位放置，防止损坏。

附图说明

[0016] 图 1 为本发明的结构示意图；

[0017] 图 2 为本发明中挂板未装配挂杆的结构示意图；

[0018] 图 3 为本发明中挂板装配挂杆的结构示意图；

[0019] 图 4 为挂接头的结构示意图；

[0020] 图 5 为本发明中上卡扣和下卡扣的结构示意图；

[0021] 图 6 为本发明中上卡扣和下卡扣使用时的示意图；

[0022] 图 7 为本发明中箱体的结构示意图；

[0023] 图 8 为本发明中箱体与卡板卡接的结构示意图；

[0024] 图 9 为本发明中底座后连扳的结构示意图；

[0025] 图 10 为本发明中底座底板底面的结构示意图；

[0026] 图 11 为本发明中底座的结构示意图；

[0027] 图 12 为图 10 中 A 处的局部放大图；

[0028] 图 13 为本发明中上盖的结构示意图。

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具体实施方式

[0029] 如图 1 所示，工具箱组合，包括底座 1、设在底座 1 上的挂板 2、设在底座 1 上与挂板 2 对应的箱体 3，所述挂板 2 上设有上盖 4。结构简单，组装拆装方便，能够方便放置各种工具。

[0030] 如图 2、图 3、图 4 所示，所述挂板 2 两端各设一个侧板 21，两侧板 21 上均设有两个挂接孔 22，所述挂接孔 22 内设有挂接头 23，两侧对应的挂接头 23 之间设有挂杆 24，所述挂板 2 上设有上下两排安装孔 25，所述挂板 2 上设有若干加强筋 26，所述加强筋 26 上设有第一通孔 261，所述挂杆 24 穿过所述第一通孔 261。所述挂接头 23 包括安装盘 231，所述安装盘 231 的两侧各设有一个连接柱 232，所述连接柱 232 的中心设有插接槽 2321，所述连接柱 232 的外圆周面上设有若干凸台 2322。装配时，挂杆 24 与挂接头 23 实现连接，再通过挂杆 24 与上盖 4 上的挂钩连接即可，挂接头 23 两侧各设有一个连接柱 232，还可以实现多段挂杆 24 的连接，从而实现多个工具箱的连接。

[0031] 如图 5、图 6 所示，所述箱体 3 上设有与挂板 2 对应的上卡扣 5、下卡扣 6，所述上卡扣 5 与下卡扣 6 通过连扳 7 连接，所述连扳 7 侧面设有至少一对与箱体 3 连接的卡块 8，所述下卡扣 6 的前端还设有一块斜向上的导向板 9，所述上卡扣 5 为直角三角形，其斜边为工作边，所述上卡扣 5 的斜边上设有向内凹的圆弧形，所述下卡扣 6 的横截面为钩形。在箱体 3 两侧面的后部可以先开卡孔，将上卡扣 5、下卡扣 6 扣入卡孔中，从而将上卡扣 5、下卡扣 6 与箱体 3 紧固连接在一起，再先将上卡扣 5 挂入挂条的上部，在箱体 3 的下部施力向内推，使挂条的下部沿下卡扣 6 的导向板 9 滑入下卡扣 6 内，从而将工具箱挂上挂条，用同样的方式将多个工具箱都挂在挂条上组成一个工具柜。无论是卡扣与工具箱连接，还是卡扣与挂条挂接，都方便快捷，且连接稳固牢靠。

[0032] 如图 7、图 8 所示，所述箱体 3 内设有若干滑槽 31，所述滑槽 31 内设有对应的卡板 32，所述卡板 32 包括设有开口卡槽 324 的弹性卡板 322、设在弹性卡板 322 外侧的硬质卡板 321、设在硬质卡板 321 外侧与滑槽 31 对应的滑板 323，所述开口卡槽 324 内设有对称的两个卡舌 325，所述硬质卡板 321 的端部设有弹性卡片 326。所述箱体 3 内设有第一抽屉 33，所述第一抽屉 33 上设有与滑槽 31 对应的滑条 331，所述箱体 3 上设有手柄 34，所述手柄 34 上设有防滑纹 341。根据所需放置工具的局部大小设置卡板 32 的数量，然后利用滑板 323 与滑槽 31 配合，实现了卡板 32 的放置，弹性卡板 322 上的开口卡槽 324 卡接所需放置的工具，保证了工具的定位放置。第一抽屉 33 用于放置工具，根据放置工具的大小设置不同大小的第一抽屉 33，第一抽屉 33 上设置滑条 331，保证了第一抽屉 33 与箱体 3 之间的可靠连接。箱体 3 上设有与手柄 34 对应的卡扣，当工具箱不使用时，手柄 34 转动到卡扣位置卡住定位，不易转动，防止损伤。

[0033] 所述的弹性卡板 322 采用改性聚丙烯 CK-95210BK001，磨损小，弹性好，方便了工具的卡接装配。成分构成如表 1 所示：

[0034] 表 1

[0035]

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成分构成	序号	项 目	用 量	单位	质量分数
主要材料	1	HPP	346	kg	34~35%
	2	CPP	125	kg	12~13%
	3	HCPP 高结晶 PP	250	kg	24~26%
	4	弹性体	50	kg	4~6%
	5	矿物粉	220	kg	21~23%
辅助材料	6	抗氧剂	4	kg	0.3~0.5%
	7	耐候剂	3	Kg	0.2~0.4%
	8	加工助剂	2	kg	0.1~0.3%

[0036] 如图 9、图 10、图 11、图 12 所示，所述底座 1 包括后连扳 11、底板 12，所述后连扳 11 的前壁上开有矩形槽，所述矩形槽上壁内侧设有一块竖直向下的挡块 13，所述挡块 13 与矩形槽壁之间形成一个扣槽 14，所述底板 12 后侧的上平面设有一条与扣槽 14 相适配的卡条 15，所述底板 12 的底面设有至少一个插线板放置槽 16 和插线板锁紧块 17，所述插线板锁紧块 17 转动设置在插线板放置槽 16 的侧边上，在正对插线板放置槽 16 的底板 12 底面上还设有蓄电池充电槽 18，所述蓄电池充电槽 18 的两个侧壁上分别开有蓄电池固定槽 19，所述蓄电池充电槽 18 的入口处设有蓄电池卡扣 110，所述蓄电池卡扣 110 的一端平滑的与底板 12 的底面连接，所述蓄电池卡扣 110 的另一端凸出底板 12 的底面，所述底板 12 上还开有供电源线通过的第二通孔 111。所述底板 12 的底面还开有应急灯放置槽 112，所述应急灯放置槽 112 的两侧边各设有一块向内倾斜的应急灯挡板 113，所述应急灯放置槽 112 的入口处设有一个应急灯卡扣 114，所述底板 12 前部的侧壁上设有至少一个第二抽屉 115。后连扳 11 与底板 12 装配时，先将底板 12 左侧卡条 15 的一部分伸入扣槽 14 内，再下压底板 12 的右侧，使卡条 15 整个扣进扣槽 14 内，完成后连扳 11 与底板 12 的配合；如果要将后连扳 11 与底板 12 分开，只要手握底板 12 右侧，向上施力，就能使卡条 15 与扣槽 14 分离，将后连扳 11 与底板 12 分开，组合和拆分后连扳 11 与底板 12 时方便快捷。放置插线板时，先将插线板锁紧块 17 旋至竖直状态，将插线板放入插线板放置槽 16 内，再将插线板锁紧块 17 旋转 90 度，把插线板固定住。如果电动工具中的电池需要充电，只要将充电电池推入蓄电池充电槽 18，蓄电池的扣边扣入蓄电池固定槽 19 中，蓄电池的后部通过蓄电池卡扣 110 卡住，蓄电池对接到插线板上，即可开始对蓄电池进行充电，充电完成后，按下蓄电池卡扣 110，将蓄电池从蓄电池充电槽 18 中抽出。

[0037] 如图 13 所示，所述上盖 4 包括盖板 41 和面板 42，所述盖板 41 与所述面板 42 铰接，所述盖板 41 与所述面板 42 之间设有气缸 43，所述盖板 41 的两侧分别设有侧板 411，所述侧板 411 上设有挂钩 412，所述盖板 41 与所述面板 442 之间设有两只气缸 43，所述气缸 43 设于所述侧板 411 的内侧。所述盖板 41 上设有背挂板 414，所述背挂板 414 上设有挂孔

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4141，所述盖板 41 上设有网孔 413，所述面板 42 上设有把手 421。可以实现上盖 4 在任意位置的定位，定位准确。

[0038] 以上所述仅为本发明的具体实施例，但本发明的技术特征并不局限于此，任何本领域的技术人员在本发明的领域内，所作的变化或修饰皆涵盖在本发明的专利范围之中。

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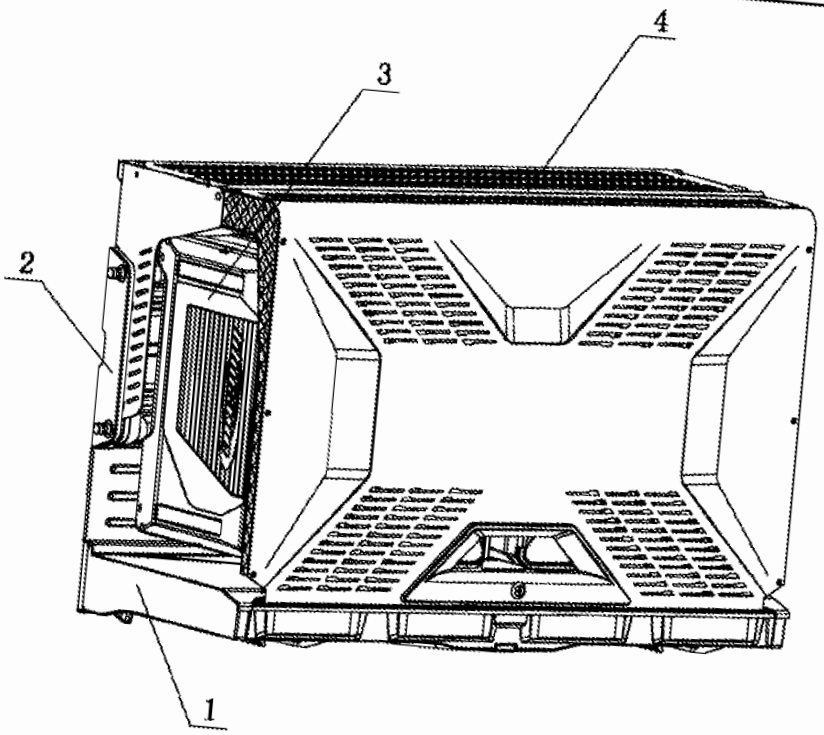


图 1

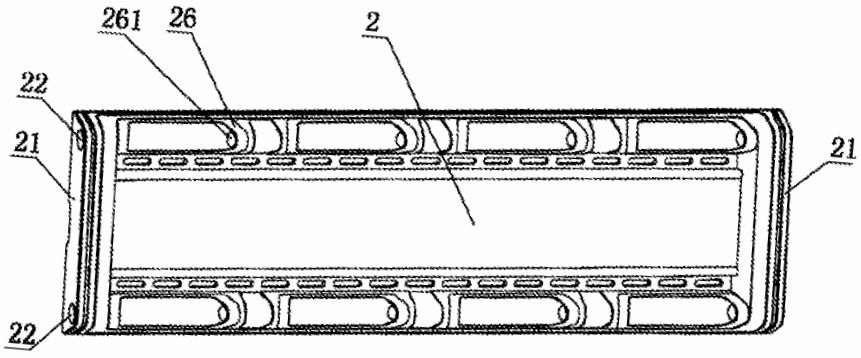


图 2

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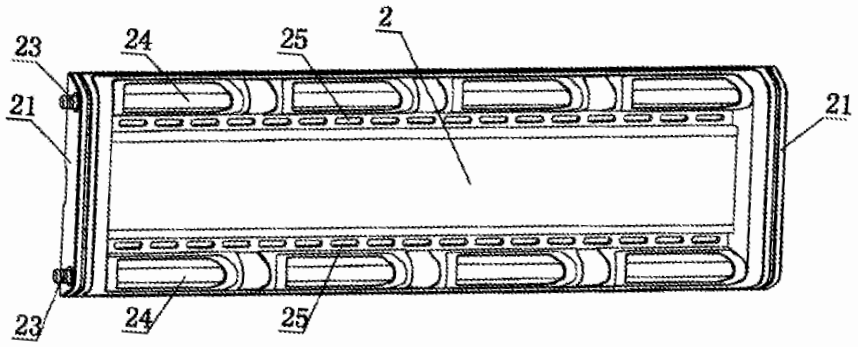


图 3

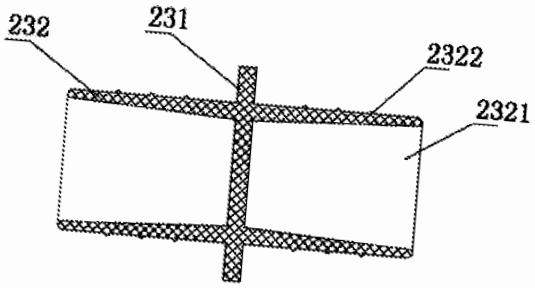


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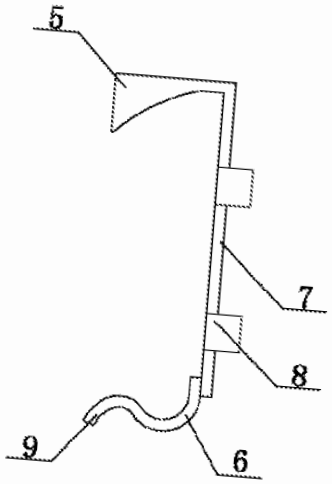


图 5

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1980
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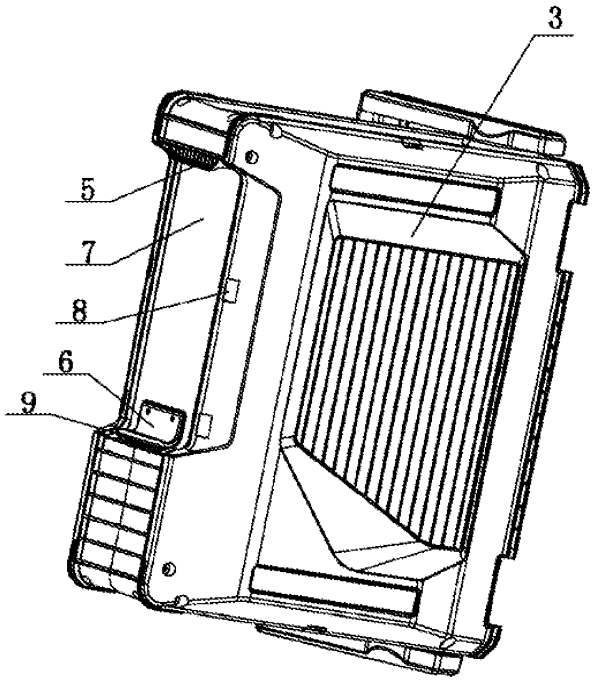


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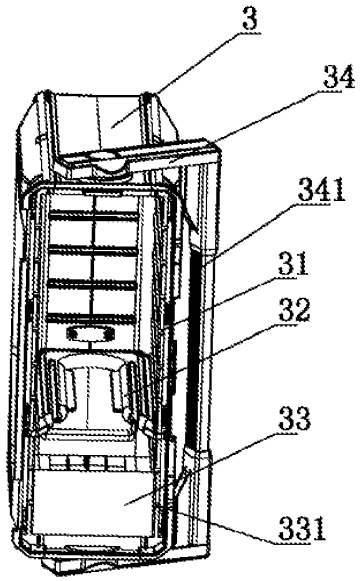


图 7

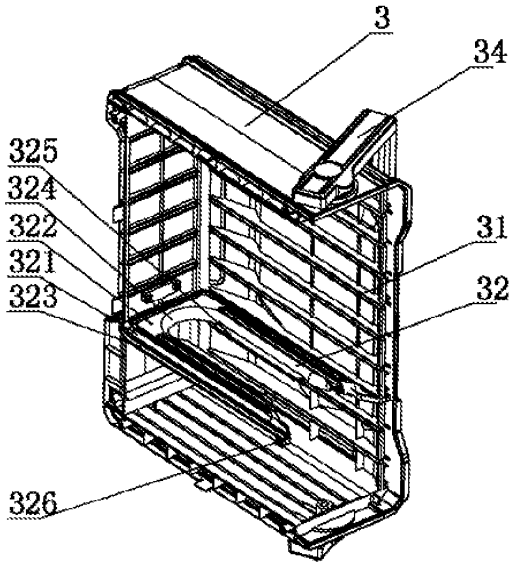


图 8

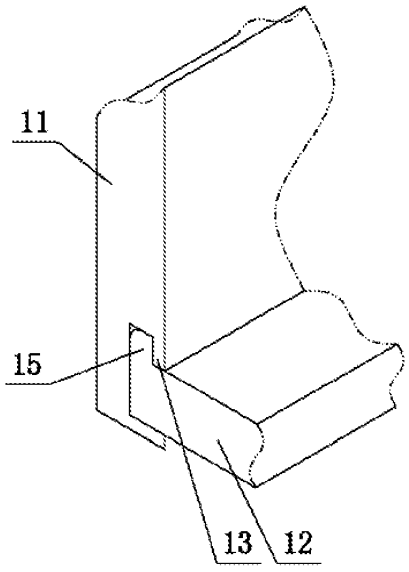


图 9

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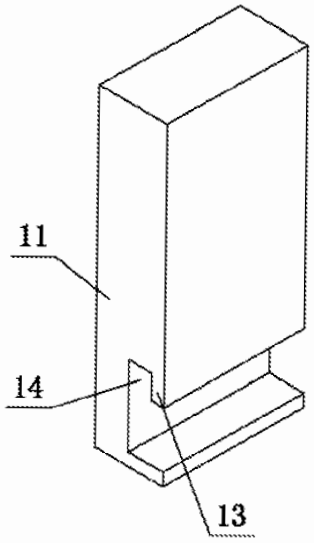


图 10

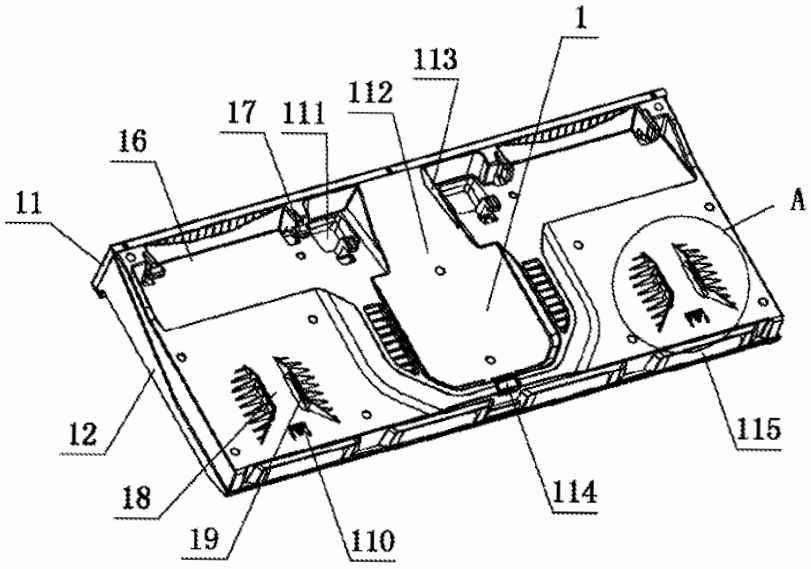


图 11

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 1982
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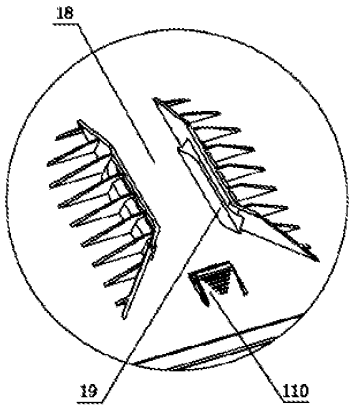


图 12

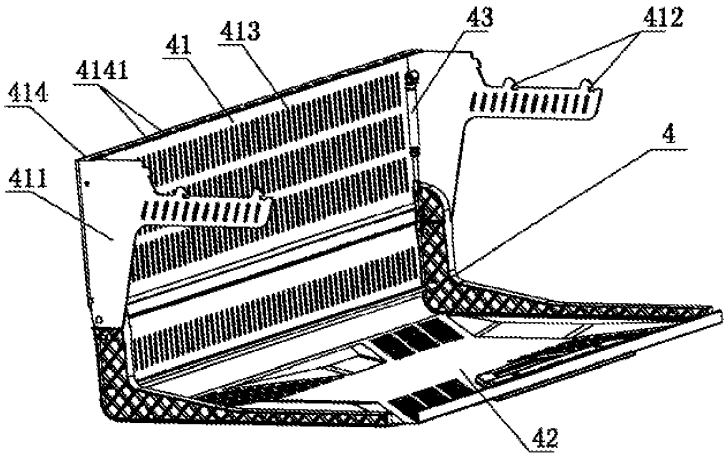


图 13

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1) Family number: 40916894 (CN200947356Y) © PatBase

Title: Box seat

Priority: CN200620063530U 20060829

Family:

Publication number	Publication date	Application number	Application date
CN200947356 Y	20070912	CN200620063530U	20060829

Probable Assignee: FU GANG

Assignee(s):(std): FU GANG

Inventor(s):(std): FU GANG

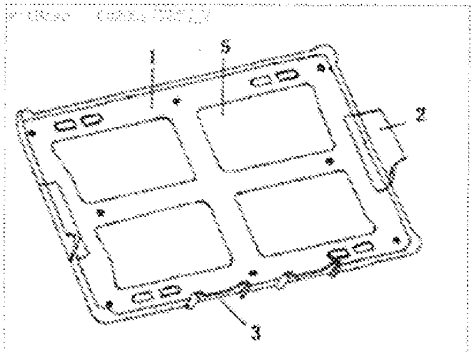
Inventor(s): GANG FU

International class (IPC 8-s): A61F17/00 G12B9/08 (Advanced/Invention); A61F17/00 G12B9/00 (Core/Invention)

Classification Explorer

Abstract:

The utility model discloses a box-seat, which comprises a back board, a box-fixing device and a boxing-supporting device connected with the back board. The utility model is a wall-hanging box seat on which the box can be placed, and when taking the goods out from the box, the box can be preserved in the original position. The box-supporting device can turn to the wall and cling to the wall to save the space. The box-seat can be used not only for placing the first-aid kit but also for placing tool-box, haircut-box, small-sized electronic appliances, etc. with a high practicability.



[19] 中华人民共和国国家知识产权局

[51] Int. Cl.
G12B 9/08 (2006.01)
A61F 17/00 (2006.01)

[12] 实用新型专利说明书

专利号 ZL 200620063530.1

[45] 授权公告日 2007 年 9 月 12 日

[11] 授权公告号 CN 200947356Y

[22] 申请日 2006.8.29
[21] 申请号 200620063530.1
[73] 专利权人 傅 钢
地址 510620 广东省广州市珠江新城华明路华普广场东塔 1003
[72] 设计人 傅 钢

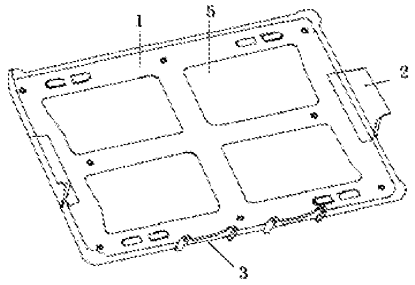
[74] 专利代理机构 广州三环专利代理有限公司
代理人 刘孟斌
权利要求书 1 页 说明书 3 页 附图 1 页

[54] 实用新型名称

箱座

[57] 摘要

本实用新型公开了一种箱座，包括背板，还包括与背板连接的箱体固定器和箱体支撑器。本实用新型为挂墙式箱座，不但可以摆放箱体，而且取放箱体内的物品时可以不搬下箱体，箱座的箱体支撑器可以向墙体方向转动，贴在墙体上，节省空间。该箱座不但可以用来放置急救箱，还可以广泛地用于放置工具箱、理发箱、小型电器等箱体，实用性强。



1. 一种箱座，包括背板，其特征在于它还包括与背板连接的箱体固定器和箱体支撑器。

2. 根据权利要求 1 所述的箱座，其特征在于所述箱体固定器为背板两侧各设置至少一个用于卡住箱体的勾形把手。

3. 根据权利要求 1 所述的箱座，其特征在于所述箱体固定器为背板两侧各设置至少一个皮带卡接器，皮带连接到两侧的相应位置的皮带卡接器上。

4. 根据权利要求 1 所述的箱座，其特征在于所述箱体固定器为连接背板两侧的环形金属框。

5. 根据权利要求 1 所述的箱座，其特征在于所述箱体支撑器与背板下边框集为一体的结构。

6. 根据权利要求 1 所述的箱座，其特征在于所述箱体支撑器与背板之间为活动连接。

7. 根据权利要求 5 或 6 所述的箱座，其特征在于所述箱体支撑器为背板下边框上设置的至少一个用于支撑箱体的托块。

8. 根据权利要求 7 所述的箱座，其特征在于所述托块设有插槽，固定座通过该插槽与托块连接。

9. 根据权利要求 5 或 6 所述的箱座，其特征在于所述箱体支撑器为托板。

10. 根据权利要求 1 所述的箱座，其特征在于所述背板内设有至少一个空位。

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箱 座

技术领域

本实用新型涉及一种固定装置，具体地说涉及一种用于固定箱体的挂墙式的箱座。

背景技术

传统的急救箱都没有挂墙的箱座，存放不方便，急救箱经常随便放置在地上、柜子或者占用其他地方，容易造成乱丢，急需时还要花费时间寻找，而且放置地上时灰尘很多，不卫生，而放置在柜子里或者高处时，使用的时候还要搬下来才能拿到物品，很不方便。

实用新型内容

本实用新型的目的就是为了克服上述缺点，提供一种箱座，这种箱座固定在墙体上，可以安全方便地挂好急救箱，挂与取操作方便，也可以直接打开急救箱直接取放物品，而不用把急救箱从箱座上搬下来，使用方便。

本实用新型是这样实现的：

本实用新型提供的箱座，包括背板，还包括与背板连接的箱体固定器和箱体支撑器。

在上述方案中：

箱体固定器可以是背板两侧各设置的一个或者多个用于卡住箱体的勾形把手，箱体放置到箱座上时，勾形把手刚好可以把箱体两侧相应的卡位卡住。

箱体固定器可以是背板两侧各设置的一个或者多个皮带卡接器，箱体放置到箱座上时，皮带可以连接到两侧的相应位置的皮带卡接器上，把箱体水平固定。

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箱体固定器可以是连接背板两侧的环形金属框。

箱体支撑器可以与背板下边框集为一体的结构。

箱体支撑器与背板之间可以为活动连接，箱体支撑器可以向上转动 90 度贴在墙体上，这样，平时不放箱体的时候可以节省空间。

箱体支撑器可以是背板下边框上设置的一个或多个用于支撑箱体的托块，该托块可以由背板的下边框支撑，与由背板的下边框连接成一体的结构，也可以是活动连接，平时不放箱体的时候把托块向上转动 90 度，使得托块贴在墙体上，节省空间。

所述托块可以设有插槽，固定座可以通过该插槽与托块连接，延长箱体的支撑面积，这样，箱体挂在墙时也可以固定 90 度打开箱子，不需要用手托住箱子就能取放物品。

箱体支撑器可以是托板，托板可以是整块的托板，也可以设有一个或多个空位，使得托板的重量减轻。

所述箱体的背板内可以设有一个或多个空位，使得背板的重量减轻。

箱体的背板上设有一个或多个大孔和小孔，方便用不同的钉子固定在墙上。

箱座采用这样的结构后，不但可以摆放急救箱，而且取放急救箱内的物品时可以不取下箱体，也可以不用手托扶，使用方便。箱座的箱体支撑器采用活动连接时，还可以节省空间。该箱座不但可以用来放置急救箱，还可以广泛地用于放置工具箱、理发箱、小型电器等箱体，实用性强。

附图说明

下面结合附图和具体实施方式详细描述本实用新型的实施方式。

图 1 是本实用新型箱座的示意图。

图 2 是固定座的示意图。

具体实施方式

下面结合附图对本实用新型作进一步说明。

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图 1 是本实用新型箱座的示意图，本实用新型箱座包括背板 1、箱体固定器和箱体支撑器；箱体固定器为两个勾形把手 2，各设置在背板 1 的左右边框上，可以卡住箱体相应的卡位；箱体支撑器为两个托块 3，托块 3 带有插槽，托块 3 用于支撑箱体；背板 1 设有 4 个空位 5，可以减轻背板 1 的重量。放置箱体时，可以把箱体直接卡入勾形把手 2，箱底用托块 3 托住，即可实现挂住，取时直接握住箱体把手向前拉开即可。

图 2 为本实用新型箱座的固定座示意图，固定座 4 安装在托块 3 上，对箱体起到支撑的作用，取放物品时，可以不取下箱体，直接打开箱盖即可固定 90 度打开，方便取放物品。

本实用新型不局限于上述具体实施方式，例如箱体的固定器可以换成皮带和配合皮带使用的皮带卡接器，或者环形的金属框，箱体的支撑器跟背板之间可以活动连接，只要是功能相同的简单结构形状变化，均落入本实用新型的保护范围。本实用新型可根据所述的技术方案结合具体的应用情况设计其他实施方式。

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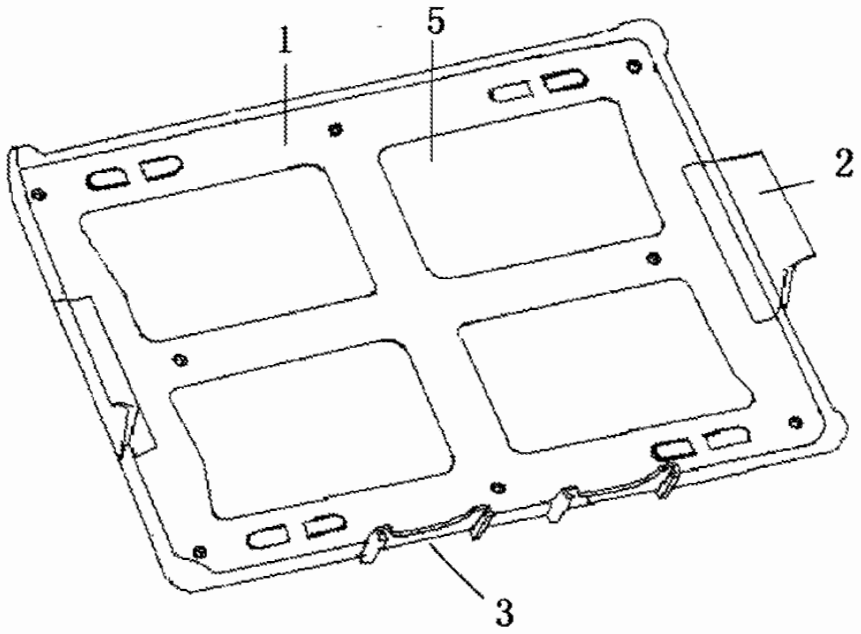


图 1



图 2

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English abstract of DE102012106482A1

WALL MOUNT FOR A SUITCASE WALL SUPPORT STRUCTURE FOR SUITCASE, INSTALLED AT E.G. WALL OF E.G. MOTOR CAR, HAS LATCHING UNIT THAT IS SET AS THE PORTION OF DISPLACEMENT PLATE OVER TWO SHIFT GUIDE PORTIONS RELATIVE TO THE X-SHAPED BASE PLATE

The invention relates to a wall bracket for a suitcase, with a base plate, at least one receiving device for supporting one side of the case, and a latching device for fixing the suitcase by latching in a corresponding receptacle of the suitcase. Known such wall brackets ensure no trouble-free locking and unlocking of the case. The task of designing a wall mount in such a way that the suitcase can be removed quickly, easily and without interference is achieved by virtue of the latching device being part of a plate which can be displaced relative to the base plate by means of at least two displacement guides.

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(56) Ermittelter Stand der Technik:

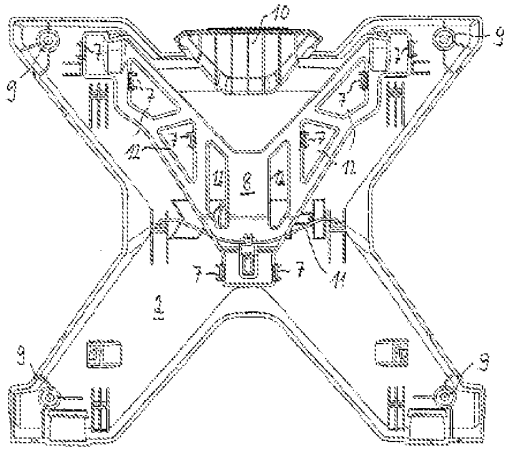
DE	**28 55 240**	**A1**
DE	**10 2010 005 703**	**A1**
DE	**29 722 898**	**U1**

Prüfungsantrag gemäß § 44 PatG ist gestellt.

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

(54) Bezeichnung: **Wandhalterung für einen Koffer**

(57) Zusammenfassung: Die Erfindung betrifft eine Wandhalterung für einen Koffer, mit einer Grundplatte, mindestens einer Aufnahmeeinrichtung zur Abstützung einer Seite des Koffers, und einer Einklinkvorrichtung zur Festlegung des Koffers durch Einklinken in eine korrespondierende Aufnahme des Koffers. Bekannte derartige Wandhalterungen gewährleisten keine störungsfreie Ver- und Entriegelung des Koffers.
Die Aufgabe, eine Wandhalterung so auszubilden, dass der Koffer schnell, einfach und störungsfrei entnehmbar ist, wird dadurch gelöst, dass die Einklinkvorrichtung Teil einer über mindestens zwei Verschiebeführungen relativ zu der Grundplatte verschiebbaren Platte ist.



Beschreibung

[0001] Die Erfindung betrifft eine Wandhalterung für einen Koffer nach dem Oberbegriff des Anspruchs 1.

[0002] Das deutsche Gebrauchsmuster DE 297 22 898 U1 offenbart eine Transportsicherung für einen Handkoffer mit einem Tragegriff und einem an der gegenüberliegenden Seite angebrachten Haltekeil. Der Handkoffer ist in eine Halterung mit einem Rahmen einsetzbar, wobei die Standfüße des Handkoffers seitlich in eine Aussparung des Rahmens geschoben werden. An dem Rahmen, welcher den Teil des Handkoffers mit dem Tragegriff umschließt, ist ein federbelasteter Bolzen angeordnet. Beim Einschieben des Handkoffers in den Rahmen schiebt der Haltekeil den federbelasteten Bolzen zurück. Sobald der Handkoffer in der vorgesehenen Position liegt, wird der federbelastete Bolzen zurück in seine Ausgangsstellung gedrückt und sichert den Koffer. Die Sicherung ist jedoch unzureichend und die Betätigung der Vorrichtung umständlich.

[0003] Das deutsche Gebrauchsmuster DE 28 55 240 U1 zeigt eine Anordnung eines Verbandskastens in einem Fahrzeug. Der Verbandskasten ist drehbar um zwei Lagerpunkte aufgehängt. Bei einem Unfall oder bei gewünschter Entnahme schwingt der Verbandskasten um die daran angebrachte Verlängerung in eine Gebrauchsstellung. Zur Halterung des Verbandskastens ist an diesem eine Verriegelung angeordnet, welche manuell oder automatisch geöffnet werden kann. Ein Druckknopf, angeordnet am Armaturenbrett, dient der manuellen Entriegelung. Ein Verriegelungshebel hintergreift mit seinem hakenförmigen Fortsatz eine Ausnehmung in dem Verbandskasten. Der Verriegelungshebel greift in ein Gestänge oder einen Seilzug ein, welches wiederum an einem Betätigungshebel befestigt ist. Bei einer Betätigung des Druckknopfes wird eine Kraft entgegen der Haltefeder ausgeübt, was eine Freigabe des hakenförmigen Fortsatzes und somit ein Ausschwenken des Verbandskastens zur Folge hat. Der Gegenstand dieses Gebrauchsmusters dient der notfallmäßigen Entnahme eines Verbandskastens und befasst sich nicht mit dem häufigen Ein- und Ausschnappen eines Koffers, z. B. eines Werkzeugkoffers. Die Betätigung ist umständlich und unsicher.

[0004] Es besteht daher die Aufgabe, eine Wandhalterung für einen Koffer so auszubilden, dass der Koffer einfach und schnell aus der Halterung entnehmbar und wieder in diese einführbar ist, wobei eine stabile und sichere Halterung des Koffers gewährleistet werden soll und ebenso eine störungsfreie Funktion der Verriegelungseinrichtung.

[0005] Gelöst wird diese Aufgabe mit den kennzeichnenden Merkmalen des Anspruchs 1. Vorteilhafte Ausgestaltungen sind den Unteransprüchen entnehmbar.

[0006] Ein Ausführungsbeispiel der Erfindung wird im Folgenden unter Bezugnahme auf die begleitenden Zeichnungen näher erläutert. Diese zeigen:

[0007] **Fig.** 1: Eine Ausführungsform der erfindungsgemäßen Wandhalterung von vorn;

[0008] **Fig.** 2: die in **Fig.** 1 dargestellte Wandhalterung von oben;

[0009] **Fig.** 3: die in den **Fig.** 1 und **Fig.** 2 dargestellte Wandhalterung von hinten;

[0010] **Fig.** 4: die in den **Fig.** 1 bis **Fig.** 3 dargestellte Wandhalterung von rechts;

[0011] **Fig.** 5: die in den **Fig.** 1 bis **Fig.** 4 dargestellte Wandhalterung von links;

[0012] **Fig.** 6: die in den **Fig.** 1 bis **Fig.** 5 gezeigte Wandhalterung, montiert an einer gelochten Rückwand, und mit einem darauf aufgesetzten Koffer;

[0013] **Fig.** 7: den Schnitt B-B aus **Fig.** 6 während des Einsetzens des Koffers in die Wandhalterung.

[0014] Wie aus den im Folgenden gemeinsam erörterten **Fig.** 1–**Fig.** 5 ersichtlich, weist die erfindungsgemäße Wandhalterung eine im Wesentlichen X-förmig ausgebildete Grundplatte **2** aus Kunststoff, z.B. Polyethylen, Polypropylen, Polyvinylchlorid, Polyester oder anderen Kunststoffen oder einer Mischung der genannten Kunststoffe auf. In den Eck- bzw. Endbereichen der X-förmigen Grundplatte befinden sich Bohrungen **9** zum Durchtritt von (nicht dargestellten) Schrauben, über welche die Grundplatte **2** an einer Wand befestigbar ist. Hierbei kann es sich um die Wand eines Gebäudes oder auch um die Innenwand oder Innenverkleidung eines Kraftfahrzeugs handeln, ebenso um eine Regalwand innerhalb eines Gebäudes oder eines Fahrzeugs.

[0015] Die Grundplatte **2** der Wandhalterung weist an der in **Fig.** 1 unten dargestellten Unterseite, also an den beiden unteren Ausläufern der X-Form, nach vorn auskragende Aufnahmeneinrichtungen **3** auf, welche als etwa hakenförmige Elemente ausgebildet sind.

[0016] An der gegenüberliegenden Seite, also den beiden oberen Ausläufern der X-Form gemäß **Fig.** 1 weist die Grundplatte **2** zwei Einklinkvorrichtungen **5** auf. Hierbei handelt es sich um verschiebbare V-Elemente, welche ebenfalls aus Kunststoff bestehen.

[0017] Wie insbesondere aus **Fig.** 3 ersichtlich ist, sind diese Einklinkvorrichtungen **5** Teile einer über

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mindestens zwei Verschiebeführungen **7** relativ zu der Grundplatte **2** verschiebbaren Platte **8** an der Rückseite, also der der Montagewand zugewandten Seite, der Grundplatte **2**. Diese verschiebbare Platte **8** ist im dargestellten Ausführungsbeispiel über insgesamt **8** paarweise angeordnete Verschiebeführungen **7** an der Grundplatte **2** fixiert und in vertikaler Richtung relativ zu der Grundplatte **2** verschiebbar. Die Verschiebeführungen sind als hakenförmig aus der Grundplatte **2** herausragende Auskragungen ausgebildet, welche die Platte **8** entsprechend übergreifen, jedoch genügend Spiel belassen, um eine vertikale Verschiebung der Platte **8** relativ zu der Grundplatte **2** zu ermöglichen.

[0018] Da die Einklinkvorrichtungen **5** Teil der verschiebbaren Platte **8** sind, erfolgt bei einer Verschiebung der Platte **8** relativ zu der Grundplatte **2** auch eine vertikale Verschiebung der beiden Einklinkvorrichtungen **5**.

[0019] Die verschiebbare Platte **8** weist zwischen den beiden oberen Ausläufern der X-förmigen Grundplatte **2** einen Betätigungsgriff **10** auf. Ferner ist die verschiebbare Platte **8** gegenüber der Grundplatte **2** über eine in **Fig.** 3 dargestellte Plattfeder **11** nach oben vorgespannt, sodass eine vertikale Verschiebung durch Druck auf den Betätigungsgriff **10** nach unten gegen die Wirkung der Feder **11** möglich ist und nach Ende des Drucks auf den Betätigungsgriff **10** die verschiebbare Platte **8** durch die Feder **11** wieder nach oben gedrückt wird und damit auch die Einklinkvorrichtungen **5**.

[0020] Wie in **Fig.** 3 dargestellt weist die verschiebbare Platte **8** zur Gewichtsreduzierung und zur Einsparung von Material eine Reihe von Aussparungen **12** auf. Diese dienen teilweise auch dem Durchgriff der Verschiebeführungen **7**.

[0021] In **Fig.** 6 ist die erfindungsgemäße Wandhalterung mit einem aufgesetzten Koffer **1** dargestellt, wobei es sich beispielsweise um einen Werkzeugkoffer, jedoch auch um einen Verbandskasten oder um ein beliebiges anderes festes Behältnis zur Aufnahme beliebiger Waren handeln kann. In den in **Fig.** 6 dargestellten Ausführungsbeispiel ist die Wandhalterung auf einer Lochplatte dargestellt, wie sie in der Inneneinrichtung von Service-Fahrzeugen Verwendung findet.

[0022] Wie aus **Fig.** 6, insbesondere aber auch aus **Fig.** 7, welche den Zustand des Einsetzens des Koffers **1** in die Wandhalterung zeigt, erkennbar ist, dienen die Aufnahmeeinrichtungen **3** der Abstützung einer Seite (z.B. der Unterseite) des Koffers **1**, wobei die hakenförmig ausgebildeten Aufnahmeeinrichtungen **3** in entsprechende Ausnehmungen des Koffers **1** eingreifen. Der so an seiner Unterseite abgestützte Koffer **1** wird sodann im Bereich seiner Oberseite auf die Einklinkvorrichtungen **5** geschnappt. Hierbei schnappen die Einklinkvorrichtungen **5** auf Grund einer in **Fig.** 7 dargestellten keilförmigen Querschnittsgestaltung zurück, wobei sich die verschiebbare Platte **8** nach unten bewegt. Nach vollständigem Einschnappen des Koffers **1** bzw. entsprechender Ausnehmungen des Koffers **1** in die Einklinkvorrichtungen **5** schnappen diese wieder nach oben zurück, und zwar auf Grund der Wirkung der Feder **11** und hintergreifen die entsprechenden Ausnehmungen des Koffers **1**, wodurch der Koffer **1** sicher befestigt ist.

[0023] Zum Lösen des Koffers **1** von der Wandhalterung muss nun lediglich der Betätigungsgriff **10** nach unten gedrückt werden, worauf die Einklinkvorrichtungen **5** den Koffer freigeben und dieser abgeschwenkt werden und anschließend aus den unteren Aufnahmeeinrichtungen **3** herausgehoben werden kann.

[0024] In alternativen Ausgestaltungen können die Aufnahmeeinrichtungen **3** nicht in entsprechende Aufnahme des Koffers **1** eingreifen, sondern die Unterseite des Koffers **1** vollständig umgreifen. Ferner sind beliebig andere Ausgestaltungen der Feder **11**, z.B. als Schraubenfeder, möglich.

[0025] Vorteilhaft bei der Erfindung gegenüber dem Stand der Technik ist die Ausgestaltung der Einklinkvorrichtungen **5** als Teile einer über mehrere Verschiebeführungen **7** relativ zu der Grundplatte **2** verschiebbaren Platte **8**. Über die mehreren Führungen und die räumlich ausgedehnte Ausgestaltung der verschiebbaren Platte **8** wird eine gleichmäßige Führung bzw. Bewegung dieser Platte **8** gegenüber der Grundplatte **2** ermöglicht. Verglichen mit einfachen Einklinkvorrichtungen wird somit ein Verkanten und damit eine unzureichende Sicherung des Koffers auf der Wandhalterung vermieden. Gleichzeitig ist der Koffer jedoch einfach und schnell aus der Wandhalterung entnehmbar und wieder in diese einführbar.

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Patentansprüche

1. Wandhalterung für einen Koffer (**1**), mit einer Grundplatte (**2**), mindestens einer Aufnahmeeinrichtung (**3**) zur Abstützung einer Seite (**4**) des Koffers (**1**), und einer Einklinkvorrichtung (**5**) zur Festlegung des Koffers (**1**) durch Einklinken in eine korrespondierende Aufnahme (**6**) des Koffers (**1**), **dadurch gekennzeichnet,** dass die Einklinkvorrichtung (**5**) Teil einer über mindestens zwei Verschiebeführungen (**7**) relativ zu der Grundplatte (**2**) verschiebbaren Platte (**8**) ist.

2. Wandhalterung nach Anspruch 1, **dadurch gekennzeichnet,** dass die Grundplatte (**2**) etwa X-förmig ausgebildet ist.

3. Wandhalterung nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet,** dass die oder jede Aufnahmeeinrichtung (**3**) als nach vorn aus der Grundplatte (**2**) herausragende hakenförmige Elemente ausgebildet sind.

4. Wandhalterung nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet,** dass die Grundplatte (**2**) Bohrungen (**9**) zum Durchtritt von Schrauben zur Befestigung der Grundplatte (**2**) an einer Wand aufweist.

5. Wandhalterung nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet,** dass die Platte (**8**) zwei Einklinkvorrichtungen (**5**) und einen dazwischen liegenden Betätigungsgriff (**10**) aufweist.

6. Wandhalterung nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet,** dass die Platte (**8**) über eine Vielzahl, jeweils paarweise angeordneter Verschiebeführungen (**7**) relativ zu der Grundplatte (**2**) verschiebbar ist.

7. Wandhalterung nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet,** dass sich die Platte (**8**) gegenüber der Grundplatte (**2**) über eine Feder (**11**), insbesondere eine Schraubenfeder oder eine Blattfeder, abstützt.

8. Wandhalterung nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet,** dass die Platte (**8**) Aussparungen (**12**) aufweist.

9. Wandhalterung nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet,** dass die oder jede Verschiebeführung (**7**) als hakenförmig aus der Grundplatte (**2**) herausragende Auskragung ausgebildet ist, welche die Platte (**8**) übergreift.

Es folgen 2 Seiten Zeichnungen

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Anhängende Zeichnungen

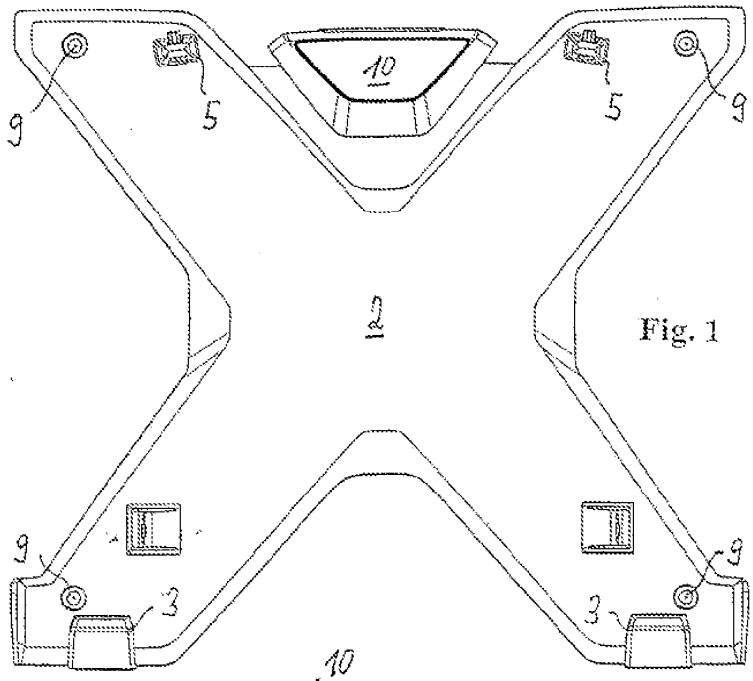


Fig. 1

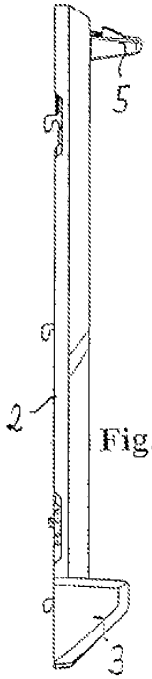


Fig. 4

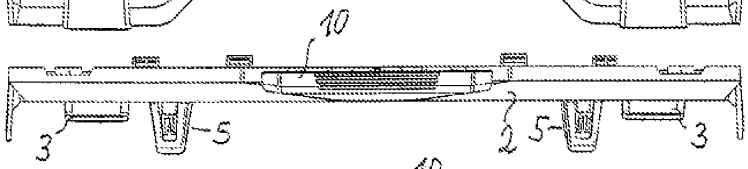


Fig. 2

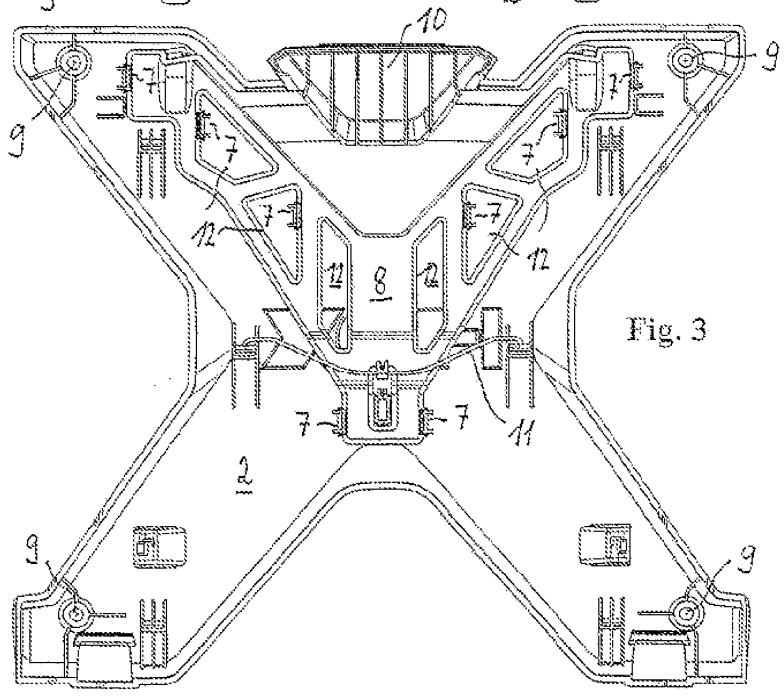


Fig. 3

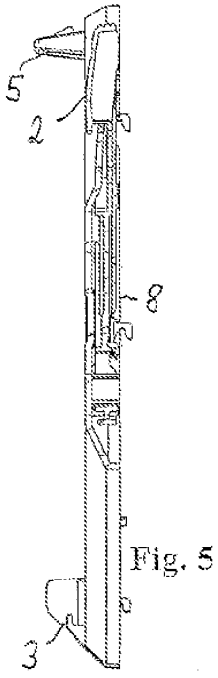


Fig. 5

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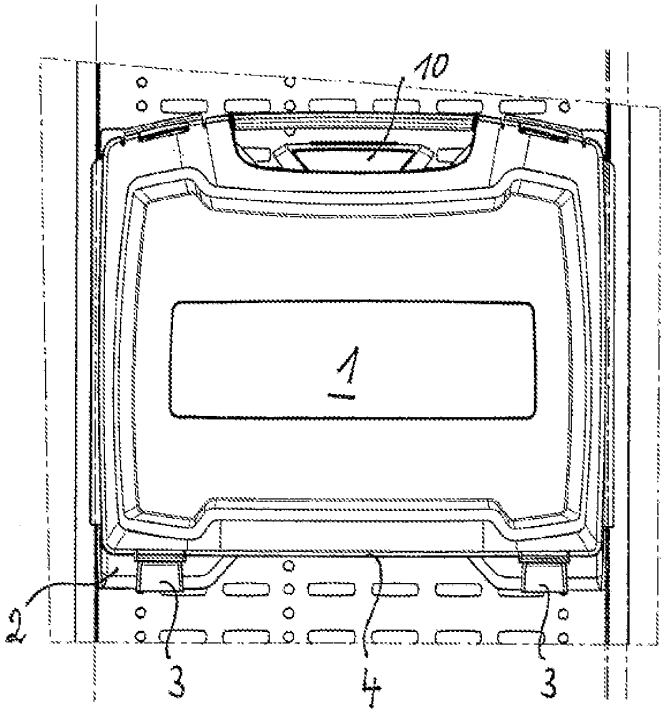


Fig. 6

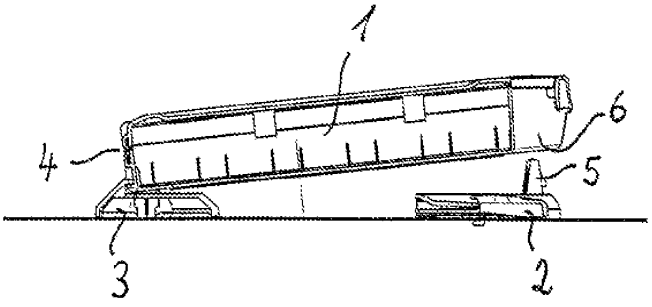


Fig. 7

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1) Family number: 65418522 (DE102015013053A1) © PatBase

Title: STAPELBARER KOFFER MIT VERBINDUNGSVORRICHTUNG STACKABLE BOX WITH CONNECTION DEVICE (Machine translation)

Priority: DE201510013053 20151008

Family:

Publication number	Publication date	Application number	Application date
DE102015013053 A1	20170413	DE201510013053	20151008

Probable Assignee: PLASTON AG

Assignee(s):(std): PLASTON AG

Inventor(s):(std): BURCHIA ROLF

International class (IPC 8-9): A45C5/02 B25H3/02 B65D21/028 (Advanced/Invention)

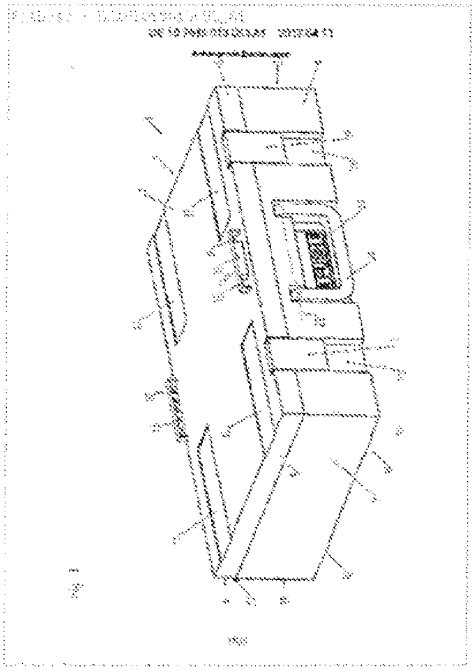
CPC: A45C7/0045 B25H3/02 B65D21/0223

Classification Explorer

Cited documents: EP2346741 B1, EP2313321 B1, DE102008058007 B3

Forward Citations: DE102017213034,

Abstract:
Source: DE102015013053A1 [DE]
Kofferanordnung mit mindestens zwei stapelbaren Koffern (1, 1'), wobei jeder Koffer (1, 1') aus einem kastenfoermigen Unterteil (3) besteht, das ueber eine horizontale Schwenkachse (33) mit einem schwenkbaren Deckel (2) verbunden ist, wobei eine erste Verbindungsvorrichtung zwischen den Koffern (1, 1') aus einer parallel zur Schwenkachse (33) auf der Deckwand (7) des Deckels angeordneten Einhaengelasche (12) gebildet ist, in welche bodenseitige, nach hinten gerichtete Einhaengehaken (27') des darueber angeordneten Koffers (1') eingreifen und eine zweite handbetaetigte Verbindungsvorrichtung naechst der Vorderseite der Koffer (1, 1') zur formschluessigen Koppelung zwischen einander zugeordneten Flaechen der uebereinander gestapelten Koffer (1, 1') angeordnet ist, wobei an der Vorderwand (8) des Unterteils (3) ein um eine horizontale Schwenkachse (22) schwenkbarer Klappgriff (21) angeordnet ist, der eine vorderwandseitige Ausnehmung (25, 26) uebergreift, in deren Bereich eine handbetaetigbare, schwenkbare Druckplatte (23; 23a, 23b) angeordnet ist, an der Verriegelungshaken (24) angeformt sind, die in Eingriff mit einer deckwandseitigen Einhaengelasche (14) am gegenueber liegenden Koffer (1, 1') bringbar sind.



Machine translation: Luggage arrangement with at least two stackable suitcases (1, 1'),

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where each case (1, 1') consists of a rectangular base (3), which is connected via a horizontal swivel axis (33) with a pivoting lid (2), where a first connection device between the suitcases (1, 1') from one parallel to the swivel axis (33) a hanging bracket on the deck wall (7) of the cover (12) formed is, in which ground-side, rear-facing hook (27') of the case also arranged (1') intervene and one second hand-operated connection device nearest the front of the case (1, 1') associated to the positive connection between each other surfaces of stacked suitcases (1, 1') is arranged where on the front panel (8) of the lower part (3) a pivoting about a horizontal pivot axis (22) folding handle (21) is arranged, the a front wall recess (25, 26) uebergreift area in which a hand-operated, adjustable printing plate (23, 23a, 23B) is arranged, moulded on the locking hook (24) are in operation with a single deck wall-side hanging bracket on the opposite case (14), (1, 1') are bath.

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(19) Deutsches Patent- und Markenamt

(10) **DE 10 2015 013 053 A1** 2017.04.13

(12) # Offenlegungsschrift

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(56) Ermittelter Stand der Technik:
DE 10 2008 058 007 B3

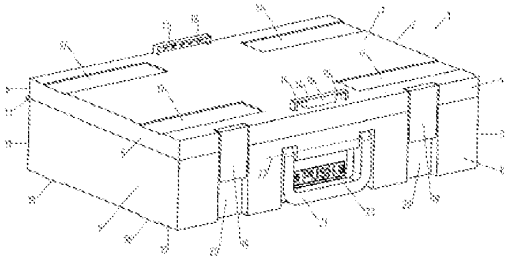
Rechercheantrag gemäß § 43 Abs. 1 Satz 1 PatG ist gestellt.

Prüfungsantrag gemäß § 44 PatG ist gestellt.

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

(54) Bezeichnung: **Stapelbarer Koffer mit Verbindungsvorrichtung**

(57) Zusammenfassung: Kofferanordnung mit mindestens zwei stapelbaren Koffern (1, 1'), wobei jeder Koffer (1, 1') aus einem kastenförmigen Unterteil (3) besteht, das über eine horizontale Schwenkachse (33) mit einem schwenkbaren Deckel (2) verbunden ist, wobei eine erste Verbindungsvorrichtung zwischen den Koffern (1, 1') aus einer parallel zur Schwenkachse (33) auf der Deckwand (7) des Deckels angeordneten Einhängelasche (12) gebildet ist, in welche bodenseitige, nach hinten gerichtete Einhängehaken (27') des darüber angeordneten Koffers (1') eingreifen und eine zweite handbetätigte Verbindungsvorrichtung nächst der Vorderseite der Koffer (1, 1') zur formschlüssigen Koppelung zwischen einander zugeordneten Flächen der übereinander gestapelten Koffer (1, 1') angeordnet ist, wobei an der Vorderwand (8) des Unterteils (3) ein um eine horizontale Schwenkachse (22) schwenkbarer Klappgriff (21) angeordnet ist, der eine vorderwandseitige Ausnehmung (25, 26) übergreift, in deren Bereich eine handbetätigbare, schwenkbare Druckplatte (23; 23a, 23b) angeordnet ist, an der Verriegelungshaken (24) angeformt sind, die in Eingriff mit einer deckwandseitigen Einhängelasche (14) am gegenüber liegenden Koffer (1, 1') bringbar sind.



Beschreibung

[0001] Die Erfindung betrifft einen stapelbaren Koffer mit Verbindungsvorrichtung nach dem Oberbegriff des Patentanspruches 1.

[0002] Ein solcher stapelbarer Koffer ist beispielsweise mit dem Gegenstand der EP 2 313 321 B1 bekannt geworden. Der bekannte Koffer besteht aus einem kastenförmigen Unterteil und einem das Unterteil verschließenden Deckel, der schwenkbar in einer horizontalen Schwenkachse mit dem Unterteil verbunden ist, an der Oberseite des Deckels ist ein abklappbarer Handgriff angeordnet.

[0003] An der Vorderseite des Deckels ist ein schwenkbarer Riegel angeordnet, der um eine horizontale Achse schwenkbar ist.

[0004] Die Aufstapelung von übereinander gestapelten Koffer erfolgt dergestalt, dass an der Bodenseite des oberen Koffers Abstützstandfüße angeordnet sind, die in zugeordnete, an der Deckelseite des unteren Koffers angeordnete Ausnehmungen formschlüssig, das heißt spielfrei, eingreifen.

[0005] Ferner sind weitere Standfüße vorhanden, die als Eingreifstandfüße bezeichnet sind, die im Abstand von den erst genannten Standfüßen angeordnet sind und nach hinten gerichtete Vorsprünge aufweisen, die in rillenförmige, vertiefte Ausnehmungen im Deckel des darunter liegenden Koffers eingreifen.

[0006] Während demnach die vorderen Abstandsstandfüße eine formschlüssige und spielfreie Lagensicherung zwischen dem Deckel des unteren Koffers und der Bodenseite des oberen Koffers herstellen, hintergreifen die im Abstand dazu angeordneten Eingreifstandfüße eine rillenförmige Vertiefung im Deckel des unteren Koffers, um eine gegen Ausheben gesicherte Verbindung herstellen.

[0007] Nachteil dieser Anordnung ist, dass eine präzise Lagenzuordnung der vorderen Abstandsstandfüße zu den darin formschlüssig eingreifenden Ausnehmungen an der Deckelseite des unteren Koffers notwendig ist. Wenn jedoch diese Vertiefungen durch Verschmutzungen oder durch Ablagerung von Teilen nicht mehr zugänglich sind oder auch nur geringfügig verschmutzt sind, misslingt die gegenseitige Verriegelung zwischen den aufeinander gestapelten Koffern.

[0008] Weiterer Nachteil der Anordnung ist, dass die Verriegelung zwischen dem oberen und dem unteren Koffer durch einen frontseitig angeordneten doppelarmigen Schwenkhebel erfolgt, der mit seinem einen Schwenkarm einen an der Vorderseite des Unterteils angeordneten Zapfen übergreift und gleichzeitig mit seinem anderen Schwenkarm einen an der Vorderseite des oberen Koffers am dortigen Unterteil vorstehenden Zapfen übergreift.

[0009] Der Verriegelungshebel an der Vorderseite des einen Koffers dient demnach sowohl zum Verriegeln des Deckels am Unterteil als auch zur Herstellung einer Verbindung mit dem darüber liegenden Koffer.

[0010] Damit ist aber der Nachteil verbunden, dass eine formschlüssige und genau fluchtende Verbindung zwischen dem oberen und dem unteren Koffer hergestellt werden muss, denn wenn der obere Koffer nur leicht versetzt zu dem unteren Koffer angeordnet ist, gelingt die Verriegelung mit dem doppelarmigen Schwenkhebel nicht mehr. Die klein dimensionierten Zapfen müssen genau zueinander fluchtend im Schwenkbereich des Verriegelungshebels positioniert sein.

[0011] Es handelt sich demnach um eine schwergängige Arretierverbindung, die nur mit hoher manuelle Handdrehkraft herzustellen ist, denn es muss mit einer solchen Handkraft sowohl die Verriegelung mit dem vorstehenden Zapfen an der Vorderseite des Unterteils des unteren Koffers als auch mit dem vorstehenden Zapfen an der Vorderseite des Unterteils des oberen Koffers gleichzeitig und zueinander fluchtend hergestellt werden.

[0012] Die beiden von einander beabstandeten Zapfen sollten fluchtend und in gleicher Ebene übereinander liegen. Kommt es nur zu einem geringfügigen Versatz zwischen den Koffern in vertikaler oder horizontaler Ebene, gelingt die gegenseitige Verriegelung der Koffer nicht mehr oder sie wird so schwergängig, dass sie nicht mehr betätigt werden kann. Die klein dimensionierten Zapfen können bei einem solchen Verriegelungsversuch beschädigt werden oder sogar abbrechen. Sie sind außerdem nicht gegen Beschädigung durch Anstoß von Fremdgegenständen geschützt, weil sie frei zugänglich an der jeweiligen Frontseite des Koffers angeordnet sind.

[0013] Das Hintergreifen der hinteren, bodenseitigen und hakenförmigen Eingreifstandfüße am einen Koffer in eine hinterschnittene Nut oder Kante an der hinteren Seite des Deckels des darunter liegenden Koffers hat den Nachteil, dass die Gefahr besteht, dass sich die Nut ebenfalls durch Ablagerung von Schmutz oder Fremdkörpern zusetzt, wodurch das Hintergreifen der hakenförmigen Nut nicht mehr möglich ist. Die Nut kann nicht von Verschmutzungen freigehalten werden, weil sie als nach oben offene Ausnehmung im Deckel ausgeformt ist, die ansonsten allseitig geschlossen ist.

[0014] Die vorderen, dem Formschluss dienenden und mit Zentrierflächen ausgerüsteten, vorderen Ausnehmungen können ebenso wenig gegen

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Schmutzablagerungen geschützt werden. Die genannten Zentrierausnehmungen sind demnach ebenfalls nicht gegen Verschmutzung oder Verschleiß geschützt.

[0015] Mit dem Gegenstand der EP 2 346 741 B1 ist ein weiterer stapelbarer Koffer bekannt geworden, bei dem die Verriegelung in der ähnlichen Weise erfolgt. Es sind an der Bodenseite des jeweiligen Koffers nach hinten gerichtete hakenförmige Ansätze vorhanden, die mit zugeordneten, vertieft in der Deckelseite des darunter liegenden Koffers angeordneten Ausnehmungen verriegelt werden sollen. Auch hier besteht der Nachteil, dass die vertieft ausgebildeten, napfförmigen Ausnehmungen nicht gegen Verschmutzung geschützt sind. Es sind auf einer Ebene jeweils zwei voneinander beabstandete Haken vorhanden, so dass das lagenrichtige Einschwenken eines Bodenteils eines oberen Koffers in einen Deckelteil eines unteren Koffers erschwert ist, weil der eine Koffer nur ohne Verkantung mit dem anderen Koffer verriegelt werden kann.

[0016] Weiteres Problem ist, dass die Haken groß dimensioniert sind und von der Bodenfläche hervorstehen, dass eine Ablage eines Koffers mit seiner Bodenfläche auf einer bodenseitigen Aufstandsfläche nicht ohne Weiteres möglich ist. Es besteht dann die Gefahr, dass die von der Bodenfläche abstehenden Haken beschädigt werden oder mit Schmutz oder mit anderen Fremdkörpern verunreinigt werden. Dadurch ist die Funktionsfähigkeit der Einhängeverbindung gefährdet und das gerade und unverkantete Abstellen des Koffers auf einer ebenen, bodenseitigen Aufstandsfläche ist erschwert.

[0017] Die vorstehenden Haken bilden demnach gleichzeitig die Standfüße, und nachdem die Haken mit hinterschnittenen Nuten versehen sind, besteht die Gefahr der Verschmutzung der hinterschnittener Nuten, wenn der Koffer auf einer verschmutzten Oberfläche abgestellt wurde.

[0018] Der Erfindung liegt deshalb die Aufgabe zugrunde, ausgehend von der EP 2 313 321 B1 einen stapelbaren Koffer der eingangs genannten Art so weiterzubilden, dass die Aufstapelung der Koffer einfacher und betriebsicherer geschehen kann, so dass die Stapelvorrichtung und die gegenseitige Lagenzuordnung der aufzustapelnden Koffer gegen Verschmutzung und Beschädigung geschützt ist. Ferner sollen auch unterschiedlich dimensionierte Koffer leicht aufeinander gestapelt und miteinander verbunden werden können.

[0019] Zur Lösung der gestellten Aufgabe ist die Erfindung durch die technische Lehre des Anspruches 1 gekennzeichnet.

[0020] Merkmal der Erfindung ist, dass die Vorderseite des ersten Koffers als Bedienseite ausgebildet ist, die sich dadurch auszeichnet ist, dass im Durchgriffsbereich für einen Klappgriff eine federbelastet schwenkbare Druckplatte angeordnet ist, an der die Verriegelungshaken für die Verriegelung mit dem oberen Koffer angeordnet sind.

[0021] Weiteres Merkmal der Erfindung ist, dass die gegenseitige Verriegelung der Koffers im Wesentlichen aus einer mittigen, im hinteren Bereich des Koffers angeordneten Aufnahmeöffnung für den Eingriff von bodenseitigen, nach hinten vorstehenden Einhängehaken am gegenüberliegenden Koffer ausgebildet ist und dass in der Nähe der Front- oder Bedienseite an der Deckwand des Deckels eine Einhängelasche angeformt ist, die mindestens zwei nebeneinander angeordnete Aufnahmeöffnungen aufweist.

[0022] Mit der gegebenen technischen Lehre ergibt sich der Vorteil, dass eine mittige Lagenzuordnung der aufeinander zu stapelnden Koffer durch eine an der Deckelseite mittig angeordnete Einhängelasche erfolgt, die bevorzugt im hinteren Bereich, nämlich in der Nähe der Schwenkachse des Deckels angeordnet ist und ferner durch eine an der Vorderseite des Deckels angeordnete, ebenfalls mittig angeordnete Einhängelasche, die mindestens zwei voneinander beabstandete Aufnahmeöffnungen für den Eingriff von Verriegelungshaken bildet, die am vorderen, freien schwenkbaren Ende der Federn schwenkbaren Druckplatte angeordnet sind.

[0023] Damit ergibt sich eine besonders einfache mechanische Verriegelung von aufeinander zu stapelnden Koffern, denn der obere Koffer wird mit seiner Bodenfläche und den von der Bodenfläche nach hinten abstehenden Einhängehaken gegen die an der Schwenkachse des unteren Koffers angeordnete hintere, deckelseitige Einhängelasche geführt, und die bodenseitigen Einhängehaken des oberen Koffers werden dort eingehängt, was auch mit seitlichem Spiel erfolgen kann.

[0024] Vorteilhaft ist, dass die bodenseitigen, hinteren Einhängehaken in einer Wandvertiefung angeordnet sind und nicht über die Ebene der Bodenfläche hinaus stehen, sodass die Bodenfläche des Koffers als ebene Abstellfläche ausgebildet ist.

[0025] Durch die Anordnung der bodenseitigen, hinteren Einhängehaken in einer Wandvertiefung der Rückwand sind diese optimal gegen Beschädigung und Verschmutzung geschützt, zumal diese Wandvertiefung nach unten hin offen ist.

[0026] Es kommt demnach nicht auf eine genaue Lagenzuordnung des oberen und des unteren Koffers beim Einhängen der hinteren Einhängeverbindung an, so dass keine besonderen Anforderungen

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an die gegenseitige Verschiebung oder die lagenrichtige Zuordnung der Koffer im Hinblick auf die hintere Einhängeverbindung notwendig sind.

[0027] Die seitliche Zentrierung der bodenseitigen Einhängehaken des unteren Koffers mit den deckelseitigen Anschlagflächen an den Einhängelaschen im hinteren Bereich des unteren Koffers erfolgt also erst dann, wenn die Koffer aufeinander gestellt sind und fluchtend zueinander ausgerichtet sind. Die Seitenflächen der Wandvertiefung wirken als Führungsflächen für die dort einzuführend Einhängelasche.

[0028] Ferner ist wichtig, dass die an der federnd gelagerten Druckplatte angeordneten Verriegelungshaken ebenfalls in Aufnahmeöffnungen an den vorderen Einhängelaschen einhängbar sind, wobei das Einhängen automatisch während des Aufstapelns der Koffer erfolgt.

[0029] Die Verriegelungshaken selbst sind nicht biegbar und am vorderen freien Ende des nicht biegbaren Teils der Druckplatte angeformt. Sie sind deshalb nicht als Federhaken ausgebildet und haben geeignete Einführschrägen, so dass beim Aufsetzen der federbelastet schwenkbaren Druckplatte die gesamte Druckplatte automatisch nach hinten gegen die Kraft einer Druckfeder oder eines anderen Kraftspeichers verschwenkt und die Verriegelungshaken somit in Gegenüberstellung zu den Aufnahmeöffnungen in der vorderen Einhängelasche gebracht werden und dann automatisch und ohne weitere Einstellbewegung in diese Aufnahmeöffnungen einschwenken.

[0030] Es handelt sich also um einen automatisierten Rastvorgang, der auch mit der Bezeichnung „Click & Go" bezeichnet werden kann.

[0031] Dadurch, dass die einseitig schwenkbare, federbelastete Druckplatte im Durchgriffsbereich des Klappgriffs angeordnet ist, ist sie optimal gegen Beschädigung geschützt, genauso wie die an der Unterseite angeformten Verriegelungshaken.

[0032] Auf eine lagenrichtige Zuordnung, wie es bei formschlüssigen einander zugeordneten Ausnehmungen in der EP 2 313 321 B1 ankam, kommt es bei der vorliegenden Erfindung nicht mehr an.

[0033] Eine grobe Lagenzuordnung der Bodenfläche des unteren Koffers zu der Deckwand im Deckel des unteren Koffers erfolgt dadurch, dass in der Deckwand im Deckel des unteren Koffers eine Anzahl von nach außen geöffneten, relativ groß dimensionierten, rechteckförmigen Vertiefungen angeordnet sind, die zur Seite hin geöffnet sind. Damit wird ein sich dort ablagernder Schmutz zur jeweils offenen Seite abgeführt und bleibt nicht in der Vertiefung eingeschlossen, wie es beim Stand der Technik der Fall ist.

[0034] Korrespondierend hierzu sind an der Bodenseite des darunter liegenden Koffers eine Anzahl von Abstandshalter angeordnet, die nur wenig über die Bodenfläche hervor stehen und die ebenfalls rechteckförmig profiliert sind, die aber mit großem Spiel in die deckelseitigen Vertiefungen in der Deckwand des Deckels des oberen Koffers eingreifen. Diese flächenförmigen Abstandshalter bilden somit die bodenseitige Aufstandsfläche des Koffers auf einer Ablageebene und vermeiden ein Verkippen oder Verkanten des Koffers beim Abstellen, wie es beim Stand der Technik in Kauf genommen werden musste.

[0035] Statt bodenseitiger Haken, die über die Bodenfläche in ungünstiger Weise vorstehen, wie es beim Stand der Technik bekannt ist und welche eine Ablage des Koffers auf einer bodenseitigen Ablagefläche erschweren, verwendet die Erfindung rechteckförmige oder quadratische, etwa plattenförmige Abstandshalter, die nur geringfügig über die Bodenfläche heraus stehen und eine ebene Ablage des Koffers auf einer bodenseitigen Ablagefläche gestatten. Eine zu vermeidende Schmutzaufnahme ist mit den glatten Abstandshaltern nicht zu befürchten.

[0036] Damit soll lediglich eine grobe Lagenzuordnung beim Aufeinanderstapeln der Koffer ermöglicht werden, und außerdem dienen die Abstandshalter, die in der Bodenwand des oberen Koffers angeordnet sind und die mit Spiel in die Vertiefungen in der Deckwand des unteren Koffers eingreifen, als Kratzschutz.

[0037] Das heißt, sie sollen über die Vertiefung in der Deckwand des unteren Koffers nur um ein geringes Maß vertikal überstehen, um zu vermeiden, dass die Bodenwand des oberen Koffers direkt auf der Deckwand des Deckels des unteren Koffers aufsitzt. Es handelt sich deshalb lediglich um Abstandshalter, die einen Kratzschutz der einander benachbarten Flächen gewährleisten, weil dadurch erreicht wird, dass die benachbarten Flächen vom oberen und unteren Koffer nicht direkt aufeinander liegen, sondern einen geringen vertikalen Abstand zueinander einnehmen, sodass dort eingeschlossene Partikel nicht zu einer Verkratzung der Flächen zu führen.

[0038] Wichtig bei der Erfindung ist demnach, dass die Verriegelungselemente der einander zugeordneten Koffer von der Frontseite des jeweiligen Koffers durch den Klappgriff geschützt und durch diesen hindurch zugänglich sind und besonders einfach zu betätigen sind, weil mit dem Ergreifen des Klappgriffes auch gleichzeitig mit den Fingern der gleichen Hand die direkt hinter dem Klappgriff angeordnete Druckplatte betätigt werden kann, an deren Unterseite die

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Verriegelungshaken für die Verriegelung mit dem anderen Koffern angeordnet sind.

[0039] Ebenso ist bei der Erfindung wichtig, dass es ausreicht, die Verriegelungselemente, bestehend aus der hinteren Einhängelasche und der im Abstand davon angeordneten vorderen Einhängelasche so auszubilden, dass sie nur im Mittenbereich des Koffers angeordnet sind. Es bedarf also nicht seitlich zueinander versetzter Einhängelaschen, wie sie beim Stand der Technik üblich sind. Dadurch ergeben sich ein besonders geringer Herstellungsaufwand und eine leichte Bedienung.

[0040] Damit ergibt sich auch gleichzeitig der Vorteil, dass längere und kürzere Koffer aufeinander gestapelt werden können, denn es ist nur vorausgesetzt, dass die jeweiligen vorderen und hinteren Einhängelaschen der Koffer komplementär zueinander angeordnet sind. Dadurch können unterschiedlich lange Koffer auch übereinander gestapelt werden. Dies liegt auch daran, dass die lediglich der Lagensicherung und der Abstandshaltung dienenden Vertiefungen in der Deckelseite seitlich nach außen hin geöffnet sind, um zu gewährleisten, dass die auf der Bodenseite des gegenüberliegenden Koffers angeordneten Abstandshalter auch weit aus den deckelseitigen Vertiefungen herausragen können, wenn beispielsweise ein kurzer Koffer mit einem langen Koffer gestapelt wird.

[0041] Als Verschlusselement zwischen dem Unterteil des Koffers und dessen Deckel können beliebige Verschlusselemente verwendet werden, die beispielsweise als Klapphaken oder Verschlusslasche ausgebildet sind. Es kann also jede beliebige handbetätigte lösbare Verriegelung zwischen dem Deckel und dem Unterteil des jeweiligen Koffers verwendet werden. Die Erfindung ist deshalb auf eine besondere Art der Verriegelung nicht angewiesen.

[0042] Die Erfindung ist im Übrigen nicht auf einen Koffer beschränkt, der einen Deckel aufweist. Bei Weglassung des Deckels können stattdessen die deckelseitigen hinteren und vorderen Einhänglaschen direkt am umlaufenden Rand des Unterteils des Koffers angeordnet werden, wodurch sich ansonsten keine weiteren Veränderungen für die Verwirklichung der vorliegenden Erfindung bei einem nach oben offenen Behälter ergeben.

[0043] Hieraus ergibt sich, dass die Erfindung nicht auf einen stapelbaren Koffer beschränkt ist, sondern sie kann auch deckellose, stapelbare und miteinander verriegelbare Behälter betreffen.

[0044] Es bestehen dann die gleichen Vorteile, wie sie anhand des erfindungsgemäßen Koffers geschildert wurden, nämlich eine zentrische Einhängeverbindung, die gegen Schmutz unanfällig ist und ferner eine vordere zentrische Bedienungsseite mit einem Klappgriff, dem eine besonderes einfach zu bedienende und durch den Klappgriff gegen Beschädigung und ungewollte Betätigung geschützte Druckplatte in der Art einer Einhandbedienung zugeordnet ist.

[0045] Der Erfindungsgegenstand der vorliegenden Erfindung ergibt sich nicht nur aus dem Gegenstand der einzelnen Patentansprüche, sondern auch aus der Kombination der einzelnen Patentansprüche untereinander.

[0046] Alle in den Unterlagen, einschließlich der Zusammenfassung offenbarten Angaben und Merkmale, insbesondere die in den Zeichnungen dargestellte räumliche Ausbildung, werden als erfindungswesentlich beansprucht, soweit sie einzeln oder in Kombination gegenüber dem Stand der Technik neu sind. Soweit einzelne Gegenstände als „erfindungswesentlich" oder „wichtig" bezeichnet sind, bedeutet dies nicht, dass diese Gegenstände notwendigerweise den Gegenstand eines unabhängigen Anspruches bilden müssen. Dies wird allein durch die jeweils geltende Fassung des unabhängigen Patentanspruches bestimmt.

[0047] Im Folgenden wird die Erfindung anhand von mehreren Ausführungswegen darstellenden Zeichnungen näher erläutert. Hierbei gehen aus den Zeichnungen und ihrer Beschreibung weitere erfindungswesentliche Merkmale und Vorteile der Erfindung hervor.

[0048] Es zeigen:

[0049] **Fig.** 1: perspektivische Vorderansicht eines Koffers nach der Erfindung

[0050] **Fig.** 2: der Koffer nach **Fig.** 1 mit abgeschwenktem Klappgriff

[0051] **Fig.** 3: eine Schrägansicht auf die Bodenseite des Koffers nach **Fig.** 1 und **Fig.** 2 mit ausgeschwenktem Klappgriff

[0052] **Fig.** 4: die gleiche Darstellung wie **Fig.** 3 mit eingeschwenktem Klappgriff

[0053] **Fig.** 5: eine Rückansicht auf die Bodenseite des Koffers

[0054] **Fig.** 6: schematisiert das Einhängen von zwei Koffern in einem ersten Verfahrensschritt

[0055] **Fig.** 7: die Aufstapelung der beiden in **Fig.** 6 dargestellten Koffer kurz vor der Herstellung der Rastverbindung mit der Druckplatte

[0056] **Fig.** 8: die gleiche Darstellung wie **Fig.** 7 mit Darstellung weiterer Einzelheiten

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[0057] **Fig.** 9: die fertig hergestellte Stapelverbindung zwischen den Koffern im Schnitt

[0058] **Fig.** 10: schematisiert das Funktionsprinzip der Druckplatte

[0059] **Fig.** 11: ein gegenüber **Fig.** 10 abgewandeltes Ausführungsbeispiel

[0060] **Fig.** 12: ein zweites gegenüber **Fig.** 10 und **Fig.** 11 abgewandeltes Ausführungsbeispiel

[0061] **Fig.** 13: ein weiteres Ausführungsbeispiel, bei dem die Druckplatte jeweils vorder- und rückseitig am Unterteil eines Koffers oder eines Behälters befestigt ist

[0062] **Fig.** 14: die Darstellung eines stapelbaren Behälters mit der erfindungsgemäßen Verriegelung und Einhängeverbindung

[0063] Der stapelbare Koffer **1** nach **Fig.** 1 besteht im Wesentlichen aus einem Deckel **2**, der in einer horizontalen Schwenkachse **33** einseitig schwenkbar an der Rückwand **11** eines Unterteils **3** gelagert ist.

[0064] Der Deckel **2** weist eine Vorderwand **4** auf, die in zwei zueinander parallele Seitenwände **5** übergeht und die beiden Seitenwände **5** gehen in eine gemeinsame Rückwand **6** über. Die Oberseite des Deckels **2** wird durch eine Deckwand **7** gebildet.

[0065] Die Erfindung ist nicht darauf beschränkt, die Deckwand **7** durchgehend auszugestalten. Sie kann auch Durchbrechungen, Öffnungen oder dergleichen aufweisen.

[0066] Das Unterteil **3** weist in der gleichen Weise eine Vorderwand **8** auf, die in zwei sich daran anschließende Seitenwände **9** übergeht. Die beiden Seitenwände **9** sind nach hinten durch eine Rückwand **11** abgeschlossen. Ferner weist das Unterteil **3** noch eine Bodenwand **10** auf.

[0067] Erfindungsgemäß ist gemäß **Fig.** 1 im hinteren Bereich des Deckels **2** eine hintere Einhängelasche **12** angeformt, die im Wesentlichen aus einem etwa U-förmig profilierten Teil besteht, welches eine mittige durchgehende Einhängeöffnung aufweist. Die auf der Zeichnung erkennbaren Zungen sind lediglich Verstärkungsrippen zur Versteifung der geschlossenen Hinterwand, die auch entfallen können.

[0068] Diese Aufnahmeöffnung **13** erstreckt sich demnach über die gesamte Breite der Einhängelasche **12**.

[0069] Im vorderen Bereich des Deckels **2**, gegenüberliegend zur Schwenkachse **33**, ist eine weitere Einhängelasche **14** angeformt, die in ihrer Formgebung und Dimension etwa mit der hinteren Einhängelasche **12** übereinstimmt.

[0070] Sie weist zwei voneinander getrennte Aufnahmeöffnungen **15** auf, die durch ein durchgehendes Mittelteil **16** voneinander abgetrennt sind.

[0071] Selbstverständlich ist die Erfindung nicht auf die Ausbildung von zwei nebeneinander liegenden und voneinander getrennten Aufnahmeöffnungen **15** beschränkt. Es kann auch nur eine einzige Aufnahmeöffnung **15** vorhanden sein oder mehr als zwei Aufnahmeöffnungen **15**. In diesen Aufnahmeöffnungen **15** greifen die Verriegelungshaken **24** einer noch später zu beschreibenden schwenkbar gelagerten Druckplatte **23** ein und dementsprechend kann es vorgesehen sein, dass an der Druckplatte **23** lediglich ein einziger Verriegelungshaken **24** oder mehr als zwei Verriegelungshaken **24** angeordnet sind.

[0072] An der Deckwand **7** des Deckels **2** sind eine Anzahl von nach außen geöffneten Vertiefungen **17** vorgesehen, die zum spielbehafteten Eingriff von bodenseitigen Abstandshaltern **18** vorgesehen sind, die an der Bodenwand **10** eines darüber liegenden Koffers angeordnet sind.

[0073] Die Verbindung zwischen dem Deckel **2** und dem Unterteil **3** erfolgt durch beliebig ausgebildete Verschlusslaschen **19**, die im gezeigten Ausführungsbeispiel vertieft in Ausnehmungen **20** an der Vorderwand **8** des Unterteils **3** angeordnet sind.

[0074] Im gezeigten Ausführungsbeispiel sind die Verschlusslaschen **19** schwenkbar in der Ausnehmung **20** in der Vorderwand **8** des Unterteils **3** aufgenommen.

[0075] Sie greifen mit zugeordneten Hakenteilen in eine zugeordnete Ausnehmung im Bereich der Vorderwand **4** des Deckels **2** oder auch im Bereich der Deckwand **7** ein.

[0076] An der Bedienseite des Koffers **1** (das ist die Vorderwand **8** des Unterteils **3**) ist ein Klappgriff **21** angeordnet, der in einer Schwenkachse **22** schwenkbar in einer ersten vertieften Ausnehmung **25** gelagert ist.

[0077] In einer anderen, nicht zeichnerisch dargestellten Ausführung kann es auch vorgesehen sein, dass die erste vertiefte Ausnehmung **25** für die vertiefte Aufnahme des Klappgriffs **21** entfällt und der Klappgriff **21** vor der Vorderwand **8** angeordnet ist. In diesem Fall ist dann nur noch die zweite Ausnehmung **26** für die vertiefte Aufnahme der Druckplatte **23** vorhanden.

[0078] In der ersten Ausführung setzt sich jedoch die Ausnehmung **25** für die verdeckte (vertiefte) Auf-

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nahme des Klappgriffs **21** in eine dahinter liegende Ausnehmung **26** kleinere Abmessung fort, in der die erfindungsgemäße Druckplatte **23** schwenkbar gelagert ist und die an ihrer vorderen Seite zwei nach vorne gerichtete Verriegelungshaken **24** aufweist (siehe **Fig.** 2). Die Ausnehmungen **25**, **26** sind zur Bodenwand **10** hin geöffnet. Die Verriegelungshaken **24** sind deshalb von unten her durch die nach unten hin geöffnete Ausnehmung **26** für das Einfahren der deckelseitig am anderen Koffer angeordnete Einhängelasche **14** zugänglich.

[0079] Die **Fig.** 2 zeigt auch, dass die deckelseitig angeordneten Vertiefungen **17** mit großem Seitenspiel **30** die bodenseitigen Abstandhalter **18** an der Bodenwand **10** des darüber liegenden Koffers aufnehmen. Neben dem Seitenspiel **30** gibt es auch noch ein Längsspiel **31**, so dass erkennbar ist, dass diese Anordnung lediglich der Abstandshaltung zwischen der Deckwand **7** des unteren Koffers **1** und der Bodenwand **10** des oberen Koffers dient, um zu vermeiden, dass die Bodenwand **10** des oberen Koffers nicht die Deckwand **7** des unteren Koffers verkratzt oder in anderer Weise beschädigt.

[0080] Die **Fig.** 3 zeigt die Ansicht auf die Bodenseite des Koffers **1**, wo erkennbar ist, dass an der Unterseite der Rückwand **11** in einer Wandvertiefung **46** geschützt angeordnete und nach hinten vorstehende Einhängehaken **27** vorgesehen sind, die zum Eingriff in die relativ groß dimensionierte Aufnahmeöffnung **13** der Einhängelasche **12** eines darunter liegenden Koffers dienen. Die Wandvertiefung **46** ist deshalb nach unten hin geöffnet, um das spielbehaftete Einfahren der Einhängelasche **12** zu ermöglichen.

[0081] Die **Fig.** 3 zeigt auch, dass die Breite **28** der bodenseitig vorstehenden Abstandshalter **18** wesentlich kleiner ist als die Breite der deckelseitig vorhandenen Vertiefungen **17**, so dass sich das in **Fig.** 2 dargestellte Seiten- und Längsspiel **30**, **31** ergibt.

[0082] Die **Fig.** 4 zeigt den nach oben abgeklappten Klappgriff **21**, hinter dem die Druckplatte **23** sichtbar ist. Bei Druck auf die Druckplatte **23** werden somit die nach vorne gerichteten Verriegelungshaken **24** außer Eingriff mit den zugeordneten Aufnahmeöffnungen **15** in der vorderen Einhängelasche **14** des darunter liegenden Koffers gebracht.

[0083] Die Schwenkachse **32** der Druckplatte **23** ist lediglich schematisiert dargestellt.

[0084] Die **Fig.** 5 zeigt die bodenseitige Rückseite des Koffers **1**, wo erkennbar ist, dass die bodenseitigen und in der Rückwand **11** angeordneten Einhängehaken **27** mit Eingriffsschrägen ausgebildet sind, um ein erleichtertes Einhängen der Einhängehaken **27** in die rückwandseitige Einhängelasche **12** zu ermöglichen.

[0085] Im gezeigten Ausführungsbeispiel nach **Fig.** 5 ist die Einhängelasche **12** nach hinten geschlossen. Hierauf ist die Erfindung nicht beschränkt. Sie kann auch durchbrochen sein, so dass die Aufnahmeöffnung **13** nach hinten geöffnet ist.

[0086] Die **Fig.** 6 zeigt einen ersten Verfahrensschritt beim Aufstapeln von zwei einander zugeordneten Koffern, wobei der obere Koffer und die dazugehörenden Teile jeweils mit einem hochgestellten Strich bezeichnet sind, während die gleichen Teile des unteren Koffers ohne Strich bezeichnet werden. Für die gleichen Teile gelten somit die gleichen Erläuterungen.

[0087] Zunächst wird der obere Koffer **1'** schräg geneigt auf den Deckel **2** des unteren Koffers **1** aufgesetzt, um zu gewährleisten, dass die an der Rückseite des oberen Koffers **1'** angeordneten Einhängehaken **27'** in Eingriff mit der Aufnahmeöffnung **13** der hinteren Einhängelasche **12** am unteren Koffer **1** kommen.

[0088] Zu diesem Zweck sind die Einhängehaken **27'** mit einer Einführschräge versehen.

[0089] Wie aus **Fig.** 6 erkennbar, gelangen damit die bodenseitigen, erhöhten Abstandshalter **18'** des oberen Koffers **1** in Gegenüberstellung zu den deckelseitigen Vertiefungen **17** des unteren Koffers **1**, wobei die Breite **29** der Vertiefung wesentlich größer gewählt ist als die Breite **28** der bodenseitigen Abstandshalter **18**, so dass lediglich eine Abstandshaltung zwischen der Bodenwand **10'** des oberen Koffers **1'** und der gegenüberliegenden Deckwand **7** des unteren Koffers **1** erfolgt.

[0090] Nachdem der obere Koffer **1'** in die Einhängelasche **12** des unteren Koffers **1** gemäß **Fig.** 6 eingeführt wurde, können die weiteren Teile der Verriegelung beschrieben werden.

[0091] Es ist erkennbar, dass beim Abschwenken des oberen Koffers **1'** in Pfeilrichtung **34** die deckelseitig am unteren Koffer **1** angeordnete Einhängelasche **14** in eine zugeordnete Ausnehmung **36'** an der Vorderseite der Druckplatte **23'** einfährt und aufgrund der Einführschräge der Verriegelungshaken **24'** wird die Druckplatte **23** entgegen der Kraft einer Druckfeder **35'** selbsttätig nach hinten um seine Schwenkachse **32'** verschwenkt.

[0092] Wichtig ist auch noch, dass der Hakenboden **39'** des Verriegelungshakens **24'** einen kurzen Abstand oberhalb einer Anschlagkante **37'** hat, so dass der Hakenboden **39'** nach unten von der Bodenwand **10'** abgestützt ist. Er überträgt damit keine Last, die sein Schwenklager belasten würde.

[0093] Der Verriegelungshaken **24'** gleitet mit seiner Einführschräge an einer zugeordneten Anschlagkan-

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te **38** im Bereich der Einhängelasche **14** des unteren Koffers **1** entlang und wird gegen die Druckfeder **35** verschwenkt.

[0094] Die **Fig.** 7 zeigt den fortschreitenden Zustand der Verrastung beim Übergang von **Fig.** 6 auf **Fig.** 7.

[0095] Dort ist erkennbar, dass der Verriegelungshaken **24'** mit seiner Einführschräge gerade an der Anschlagkante **38** vorbeiläuft, und entgegen der Kraft der Feder **35'** zurückgedrückt wird und kurz vor dem Verrasten mit den beiden Aufnahmeöffnungen **15** im Bereich der Einhängelasche **14** steht.

[0096] Die **Fig.** 8 zeigt die gleiche Darstellung wie **Fig.** 7, wo erkennbar ist, dass dies entgegen der Kraft der Druckfeder **35** erfolgt.

[0097] Es versteht sich von selbst, dass die Druckfeder **35'** auch als anders ausgebildeter Kraftspeicher ausgebildet sein kann. Sie kann als Elastomerfeder, als Schraubendruckfeder, als Schenkel-, Teller- oder Spiralfeder oder dergleichen ausgebildet sein. Ebenso ist es möglich, insgesamt die Druckplatte **23** ohne Druckfeder **35** auszubilden, so dass die Druckplatte **23** selbst als biegbares Federteil ausgebildet ist und als biegbare, federnde Platte wirkt.

[0098] Die **Fig.** 9 zeigt den fertig eingerasteten Zustand, wo erkennbar ist, dass der Verriegelungshaken **24'** nun selbsttätig und vollständig in die Aufnahmeöffnungen **15** der unteren Einhängelasche **14** eingeschwenkt ist.

[0099] Die beiden Koffer **1**, **1'** sind nun lagenrichtig zueinander verriegelt, wobei die Lastübertragung im Wesentlichen nur über die beiden Einhängelaschen **12**, **14** erfolgt, nicht aber durch andere Elemente, die zwischen den Koffern **1**, **1'** angeordnet sind.

[0100] Die **Fig.** 10 zeigt das Prinzip der Druckplatte **23** mit den Verriegelungshaken **24** schematisiert. Es ist erkennbar, dass die Druckplatte **23** als einseitig schwenkbarer, in der Schwenkachse **32** gelagerter Hebel ausgebildet ist, der in den Pfeilrichtungen **41** verschwenkbar ist.

[0101] Bei Druck in Betätigungsrichtung **40** wird somit der einzige Hebelteil gegen die Druckfeder **35** gepresst und die Feder wird damit vorgespannt.

[0102] Der gezeigte Hakenboden **39** bildet einen geringfügigen Abstand über der Bodenwand, so dass sichergestellt ist, dass keine Lastübertragung zwischen der Schwenkachse **32** und dem Verriegelungshaken **24** stattfindet, die den Verriegelungshaken **24** mit einer Stauchkraft belastet.

[0103] Die **Fig.** 11 zeigt ein gegenüber **Fig.** 10 abgewandeltes Ausführungsbeispiel, bei der die Druckplatte **23** als zweiarmiger Hebel ausgebildet ist. In diesem Fall setzt sich der obere Teil **42** eines Hebels in ein unteres Teil **43** eines zweiten Hebels fort, so dass es sich um einen zweiarmigen Hebel handelt, wobei am unteren Teil **43** die Verriegelungshaken **24** angeformt sind.

[0104] Somit muss zur Betätigung einer solchen Druckplatte **23a** eine Betätigungskraft in Betätigungsrichtung **40** aufgebracht werden, so dass die Druckplatte **23a** in dieser Richtung gezogen werden muss, um dann selbsttätig hinter die Einhängelasche **14** einzurasten.

[0105] Die **Fig.** 12 zeigt ein abgewandeltes Ausführungsbeispiel, welches ohne Druckfeder oder ohne einem anderen Kraftspeichers auskommt.

[0106] Die Druckplatte **23b** ist als zweiarmiger Hebel ausgebildet und die Offenstellung der Druckplatte **23b** wird dadurch erreicht, dass eine Druckkraft in Pfeilrichtung **44b** aufgebracht wird, wodurch der Verriegelungshaken **24** in Pfeilrichtung **41** nach hinten über einen bodenseitigen Rastvorsprung **45** verschwenkt wird, der sich elastisch verformt und somit den Verriegelungshaken **24** in seiner in Pfeilrichtung **41** zurück geschwenkten Lage hält.

[0107] Wird hingegen in Betätigungsrichtung **44b** auf den oberen Teil **42** gedrückt, wird der Verriegelungshaken **24** außer Eingriff mit dem elastisch verformbaren Rastvorsprung **45** gebracht und verschwenkt in seine in **Fig.** 12 dargestellte Raststellung.

[0108] Auch diese Schwenklagen können dann gegebenenfalls federunterstützt sein.

[0109] Die **Fig.** 13 zeigt als Abwandlungsbeispiel zu den vorgenannten Ausführungsformen, dass es auch möglich ist, jeweils eine Druckplatte **23a**, **23b** an den gegenüber liegenden Seiten des Unterteils **3** anzuordnen. Anstatt der hinteren Einhängelasche **12** wäre dann im hinteren Bereich des Deckels **2** eine weitere Druckplatte **23b** angeordnet, so dass die hintere Einhängelasche **12** entfällt und stattdessen an der hinteren Seite des Deckels **2** eine hintere Einhängelasche **14b** vorhanden ist, während an der vorderen Seite des Deckels eine vordere Einhängelasche **14a** vorhanden ist.

[0110] Somit ist klar, dass auch die gegenseitige Verriegelung von aufeinander gestapelten Koffern durch zwei entgegengesetzt zu betätigende Druckplatten **23a**, **23b** möglich ist, die jeweils mit ihren Verriegelungshaken **24a**, **24b** in zugeordnete, deckelseitige vorstehende Einhängelaschen **14a**, **14b** im darunter liegenden Koffer einhängbar sind.

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[0111] Die **Fig.** 14 zeigt als weiteres Abwandlungsbeispiel, dass es nicht auf die Anordnung eines Deckels **2** auf dem Unterteil **3** ankommt und dass die gesamte Erfindung auch bei einem nach oben offenen Behälter übertragen werden kann, der nur aus einem Unterteil **3** besteht.

[0112] Alle gleichen Teile wurden mit den gleichen Bezugszeichen versehen, und es ist erkennbar, dass nach oben offene Behälter in der gleichen Weise übereinander gestapelt und verriegelt werden können, wie es anhand der vorstehenden Ausführungsbeispiele dargestellt und beschrieben wurde.

Bezugszeichenliste

1 Koffer **1'**
2 Deckel
3 Unterteil
4 Vorderwand (von **2**)
5 Seitenwand (von **2**)
6 Rückwand (von **2**)
7 Deckwand (von **2**)
8 Vorderwand (**3**)
9 Seitenwand
10 Bodenwand
11 Rückwand
12 Eindringlasche (hinten)
13 Aufnahmeöffnung
14 Einhängelasche (vorn)
15 Aufnahmeöffnung
16 Mittelteil
17 Vertiefung
18 Abstandshalter
19 Verschlusslasche
20 Ausnehmung
21 Klappgriff
22 Schwenkachse
23 Druckplatte a, b
24 Verriegelungshaken
25 Ausnehmung (für **21**)
26 Ausnehmung (für **23**)
27 Einhängehaken
28 Breite (von **18**)
29 Breite (von **17**)
30 Seitenspiel
31 Längsspiel
32 Schwenkachse (von **23**)
33 Schwenkachse (**2**)
34 Pfeilrichtung
35 Druckfeder
36 Ausnehmung
37 Anschlagkante
38 Anschlagkante
39 Hakenboden (von **24**)
40 Betätigungsrichtung
41 Pfeilrichtung
42 oberes Teil (von **23a**)
43 unteres Teil
44 Betätigungspunkt a, b
45 Rastvorsprung
46 Wandvertiefung (in **11**)

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Patentansprüche

1. Kofferanordnung mit mindestens zwei stapelbaren Koffern (**1**, **1'**), wobei jeder Koffer (**1**, **1'**) aus einem kastenförmigen Unterteil (**3**) besteht, das über eine horizontale Schwenkachse (**33**) mit einem schwenkbaren Deckel (**2**) verbunden ist, wobei eine erste Verbindungsvorrichtung zwischen den Koffern (**1**, **1'**) aus einer parallel zur Schwenkachse (**33**) auf der Deckwand (**7**) des Deckels angeordneten Einhängelasche (**12**) gebildet ist, in welche bodenseitige, nach hinten gerichtete Einhängehaken (**27'**) des darüber angeordneten Koffers (**1'**) eingreifen und eine zweite handbetätigte Verbindungsvorrichtung nächst der Vorderseite der Koffer (**1**, **1'**) zur formschlüssigen Koppelung zwischen einander zugeordneten Flächen der übereinander gestapelten Koffer (**1**, **1'**) angeordnet ist, **dadurch gekennzeichnet,** dass an der Vorderwand (**8**) des Unterteils (**3**) ein um eine horizontale Schwenkachse (**22**) schwenkbarer Klappgriff (**21**) angeordnet ist, der mindestens eine vorderwandseitige Ausnehmung (**25**, **26**) übergreift, in deren Bereich eine handbetätigbare, federbelastet schwenkbare Druckplatte (**23**; **23a**, **23b**) angeordnet ist, an der Verriegelungshaken (**24**) angeformt sind, die in Eingriff mit einer deckwandseitigen Einhängelasche (**14**) am gegenüber liegenden Koffer (**1**, **1'**) bringbar sind.

2. Kofferanordnung nach Anspruch 1, **dadurch gekennzeichnet,** dass die vorderen und hinteren Einhängelaschen (**12**, **14**) zueinander fluchtend in der Mittenquerachse des Deckels (**2**) angeordnet sind.

3. Kofferanordnung nach Anspruch 1 oder 2, **dadurch gekennzeichnet,** dass die oberhalb des Klappgriffes (**21**) am Deckel (**2**) angeordnete Einhängelasche (**14**) mindestens zwei voneinander beabstandete Aufnahmeöffnungen (**15**) aufweist und dass am schwenkbaren Teil der Druckplatte (**23**) die mindestens zwei Verriegelungshaken starr angeformt sind.

4. Kofferanordnung nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet,** dass die Druckplatte (**23**, **23a**, **23b**) als einseitig schwenkbare Platte ausgebildet ist, die gegen einen Kraftspeicher vorgespannt ist.

5. Kofferanordnung nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet,** dass die Druckplatte (**23**, **23a**, **23b**) des einen Koffers (**1'**) selbsttätig in die Einhängelasche (**14**) des anderen Koffers (**1**) einrastet.

6. Kofferanordnung nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet,** dass auf der Bodenwand (**10'**) des einen Koffers (**1'**) mehrere über die Fläche der Bodenwand (**10'**) verteilte und vorstehende Abstandshalter (**18'**) angeordnet sind, die mit Seiten- und Längsspiel (**30**, **31**) in zugeordnete, in der deckelseitigen Deckwand (**7**) vertieft angeordnete Vertiefungen (**17**) eingreifen.

7. Kofferanordnung nach Anspruch 6, **dadurch gekennzeichnet,** dass die deckelseitig in der Deckwand (**7**) vertieft angeordnete Vertiefungen (**17**) zur jeweiligen Seitenwand (**5**) des Deckels (**2**) hin geöffnet sind.

8. Kofferanordnung nach einem der Ansprüche 1 bis 7, **dadurch gekennzeichnet,** dass mit dem Ergreifen des Klappgriffes (**21**) auch die direkt hinter dem Klappgriff (**21**) angeordnete Druckplatte (**23**, **23a**, **23b**) betätigbar ist.

9. Kofferanordnung nach einem der Ansprüche 1 bis 8, **dadurch gekennzeichnet,** dass die stapelbaren Koffer (**1**, **1'**) ohne Deckel (**2**) ausgebildet sind und lediglich deren Unterteile (**3**, **3'**) stapelbar sind.

10. Kofferanordnung nach einem der Ansprüche 1 bis 8, **dadurch gekennzeichnet,** dass der Klappgriff (**21**) in einer ersten vertieften Ausnehmung (**25**) an der Vorderwand (**8**) des Unterteils (**3**) angeordnet ist und dass hinter der ersten Ausnehmung (**25**) eine zweite vertiefte Ausnehmung (**26**) angeordnet ist, in der schwenkbare Teil der Druckplatte (**23**, **23a**, **23b**) angeordnet ist.

11. Behälteranordnung mit mindestens zwei stapelbaren Behältern (**1**, **1'**), wobei jeder Behälter (**1**, **1'**) aus einem kastenförmigen Unterteil (**3**) besteht, wobei eine erste Verbindungsvorrichtung zwischen den Behältern (**1**, **1'**) aus einer parallel zur Schwenkachse (**33**) auf dem umlaufenden Rand des Behälters angeordneten Einhängelasche (**12**) gebildet ist, in welche bodenseitige, nach hinten gerichtete Einhängehaken (**27'**) des darüber angeordneten Behälters (**1'**) eingreifen und eine zweite handbetätigte Verbindungsvorrichtung nächst der Vorderseite der Behälter (**1**, **1'**) zur formschlüssigen Koppelung zwischen einander zugeordneten Flächen der übereinander gestapelten Behälter (**1**, **1'**) angeordnet ist, **dadurch gekennzeichnet,** dass an der Vorderwand (**8**) des Unterteils (**3**) ein um eine horizontale Schwenkachse (**22**) schwenkbarer Klappgriff (**21**) angeordnet ist, der mindestens eine vorderwandseitige Ausnehmung (**25**, **26**) übergreift, in deren Bereich eine handbetätigbare, federbelastet schwenkbare Druckplatte (**23**; **23a**, **23b**) angeordnet ist, an der Verriegelungshaken (**24**) angeformt sind, die in Eingriff mit einer deckwandseitigen Einhängelasche (**14**) am gegenüber liegenden Behälter (**1**, **1'**) bringbar sind.

12. Behälteranordnung nach Anspruch 11, **dadurch gekennzeichnet,** dass am Behälter jeweils zwei einander gegenüberliegende Druckplatten (**23a**, **23b**) mit Verriegelungshaken (**24**) zur Verriegelung

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mit zugeordneten behälterseitigen Einhängelaschen (**14**) vorgesehen sind.

Es folgen 11 Seiten Zeichnungen

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Anhängende Zeichnungen

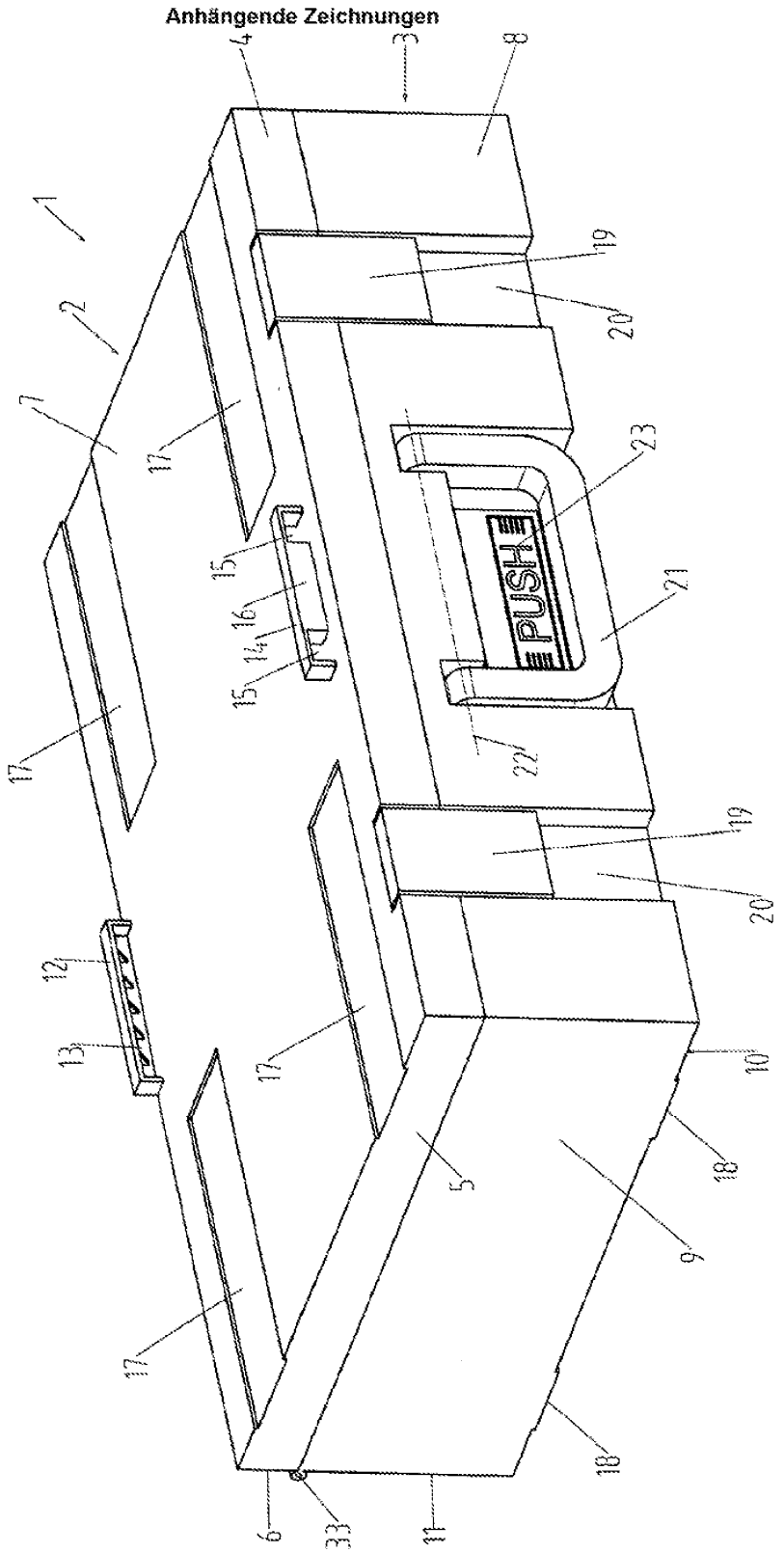


Fig. 1

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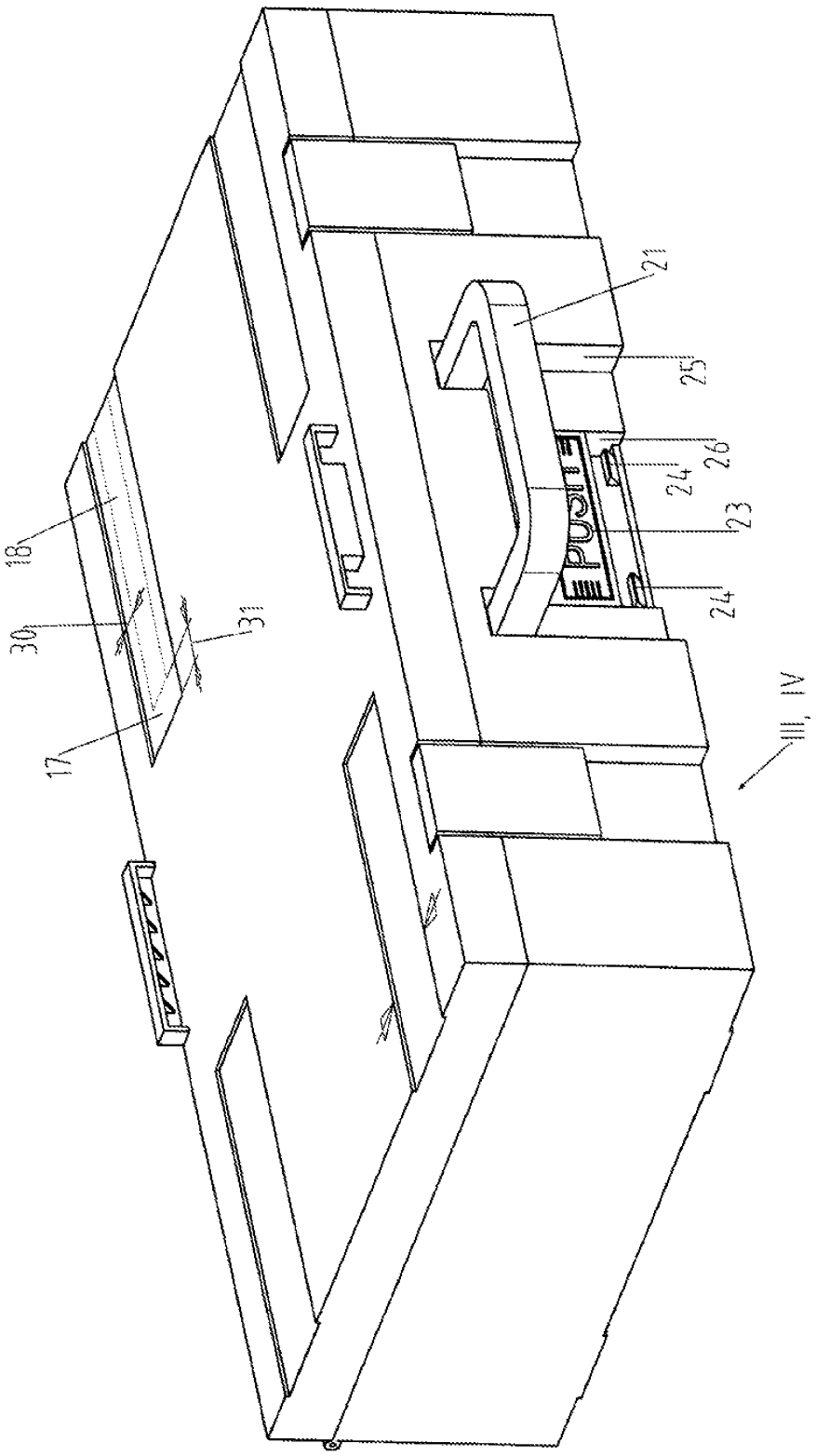


Fig. 2

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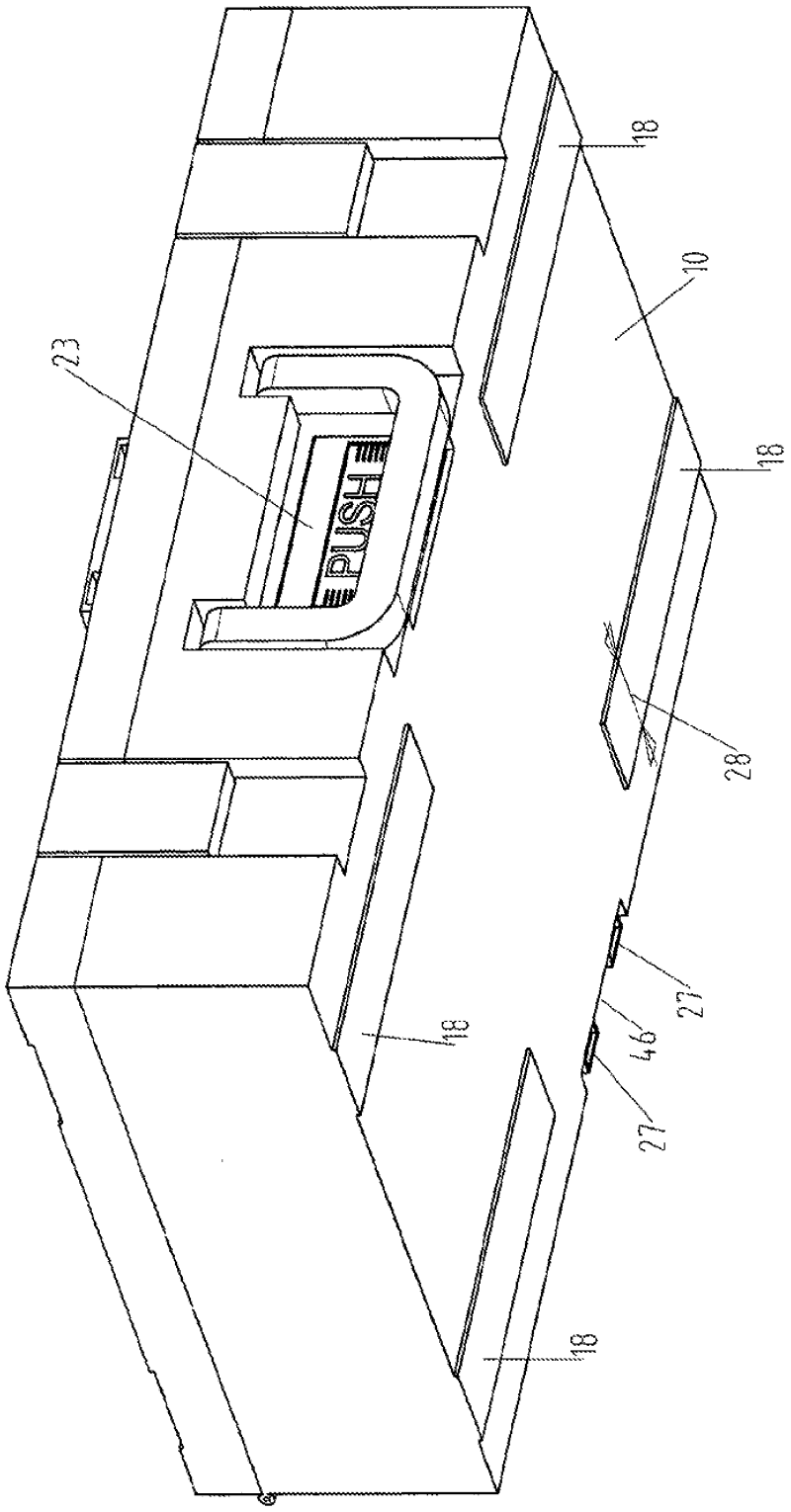


Fig. 3

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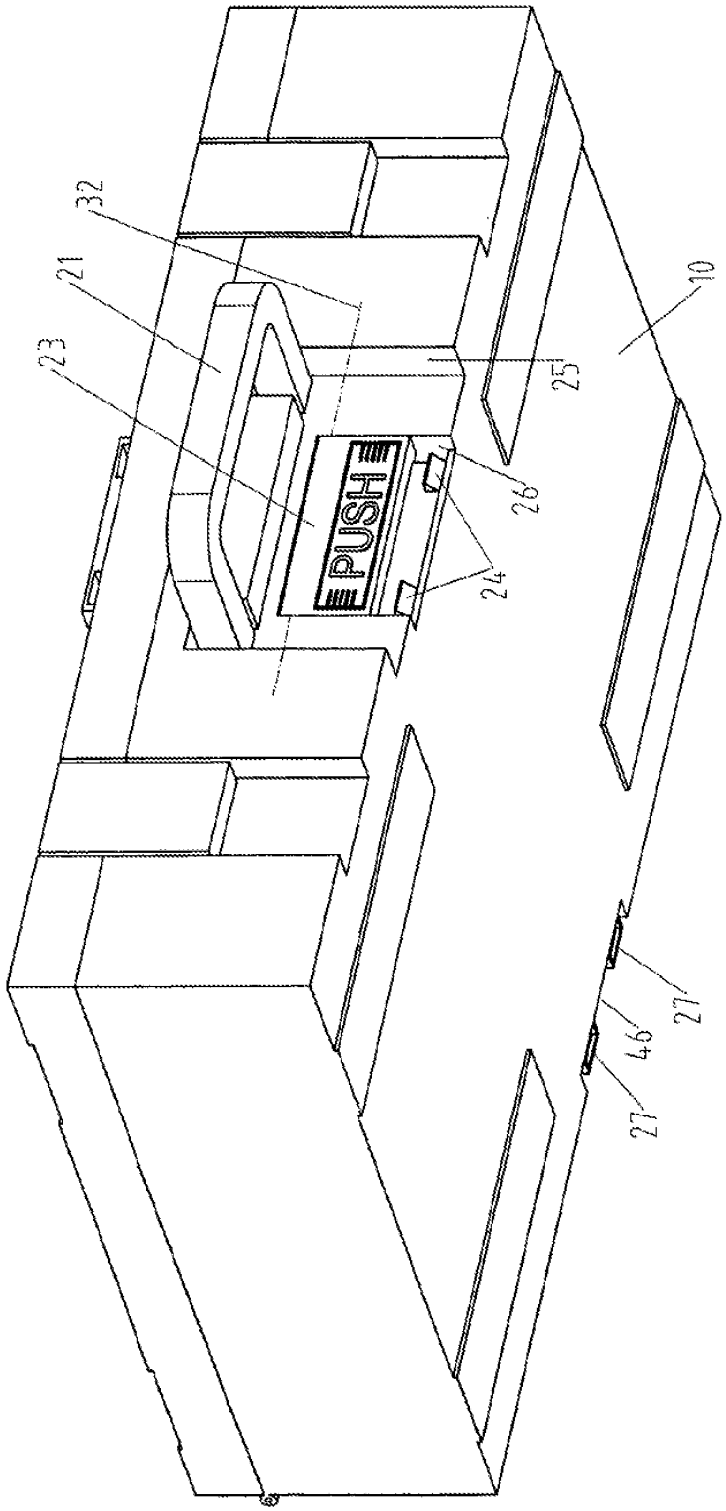


Fig. 4

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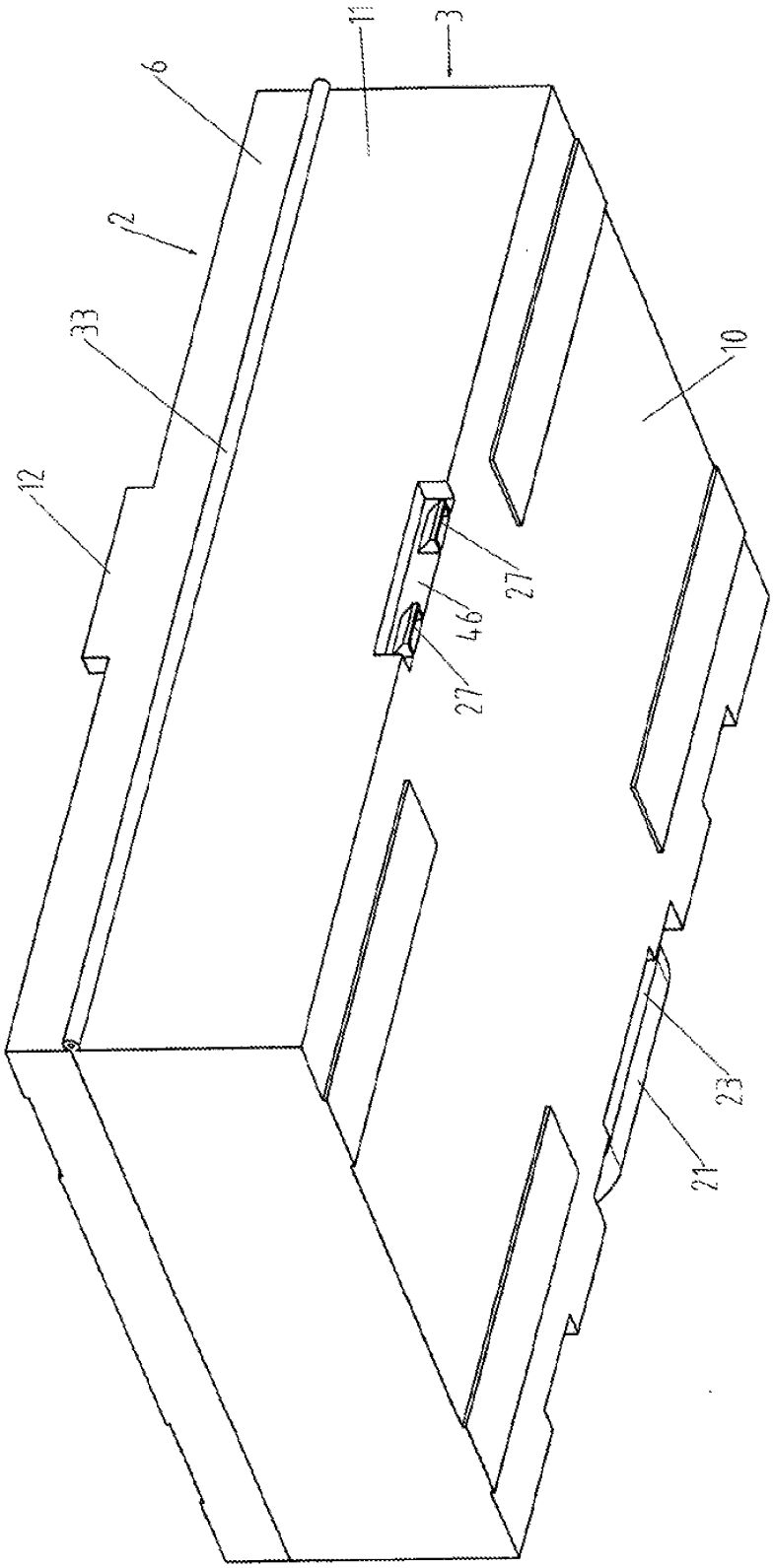


Fig. 5

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2017
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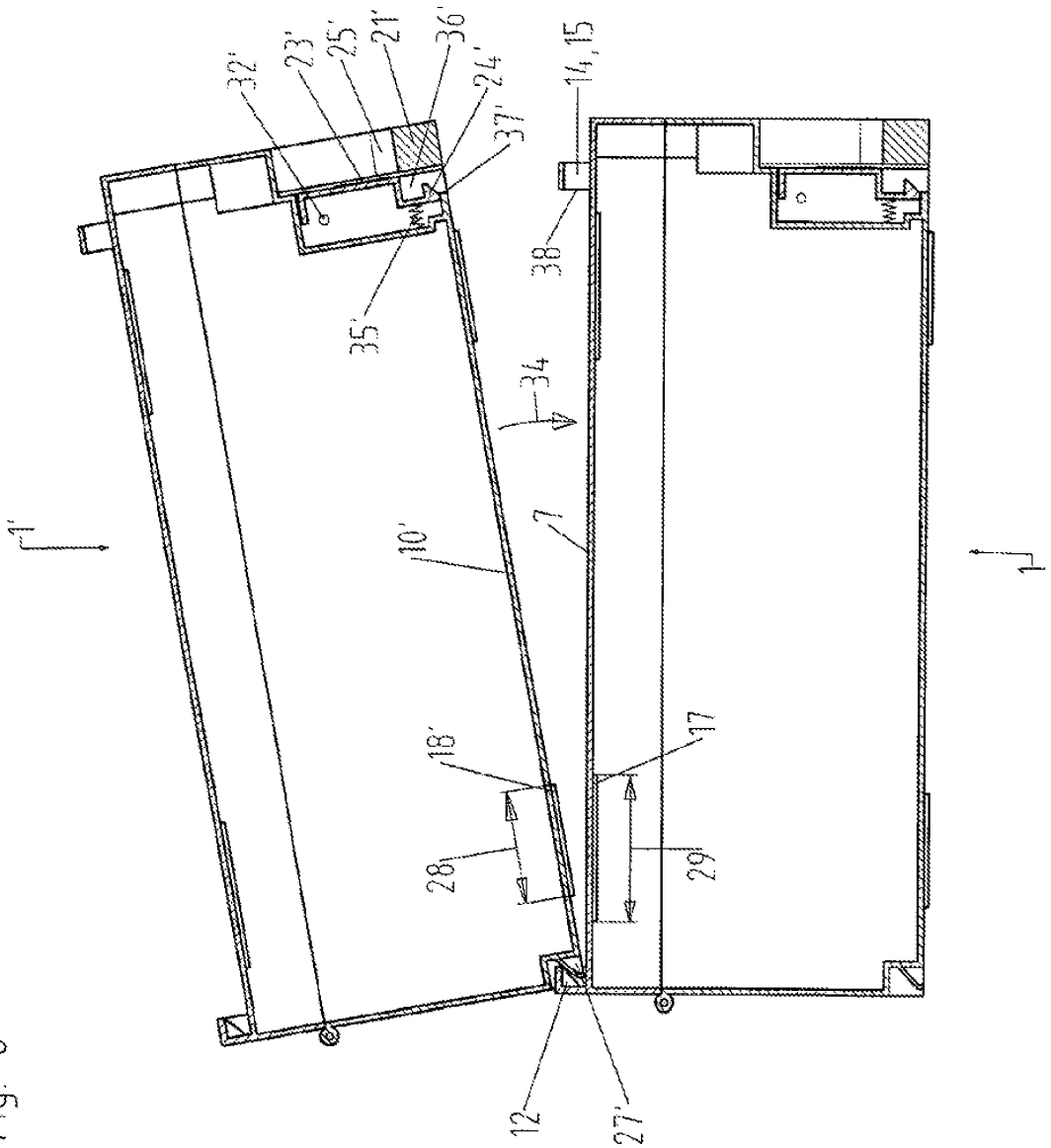


Fig. 6

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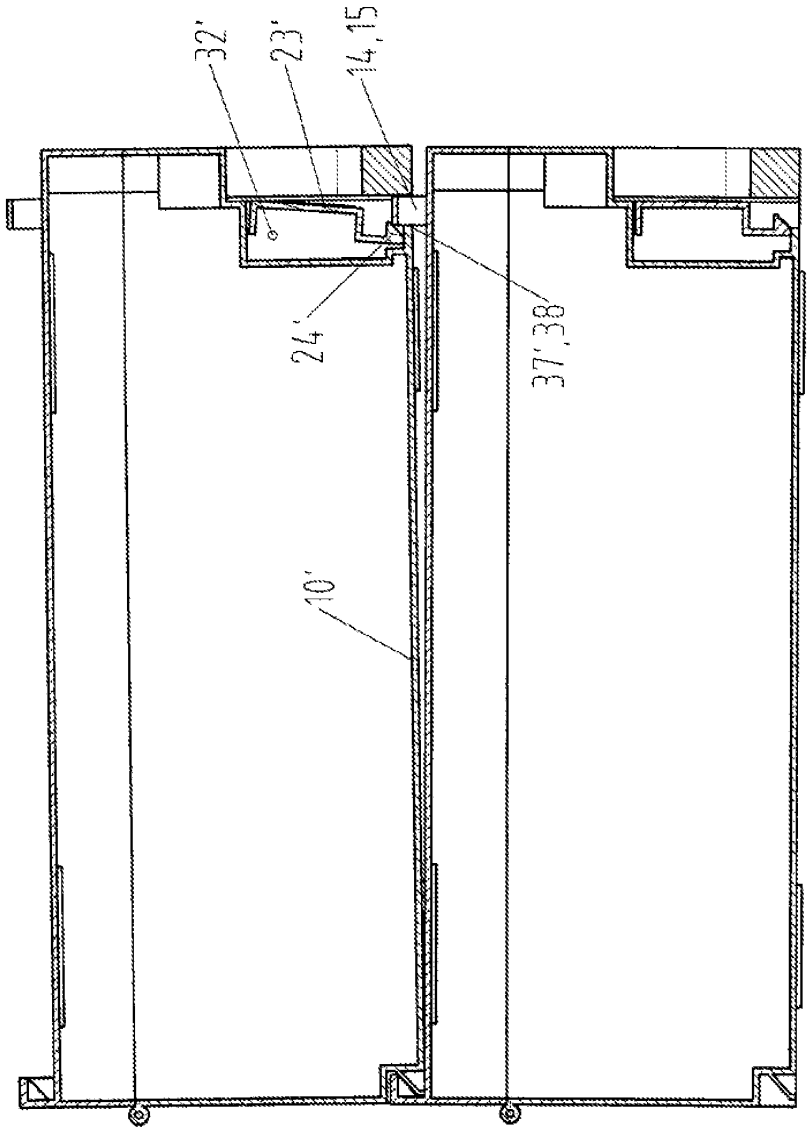


Fig. 7

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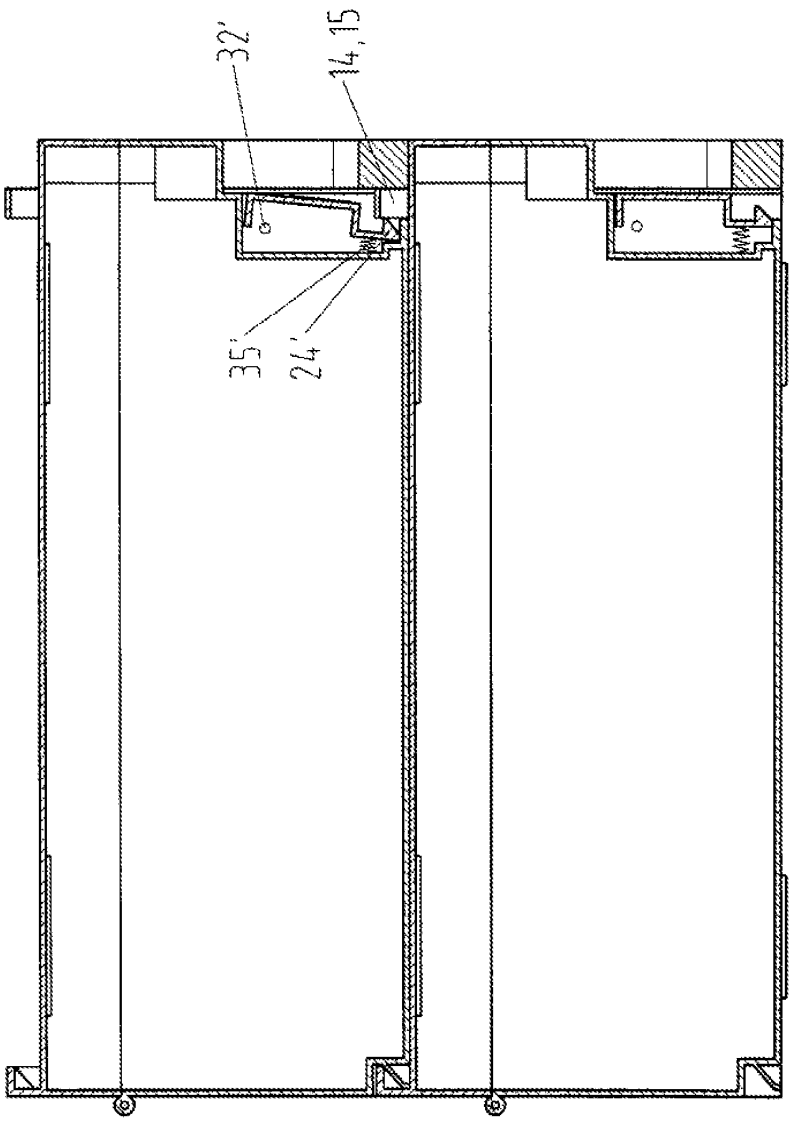


Fig. 8

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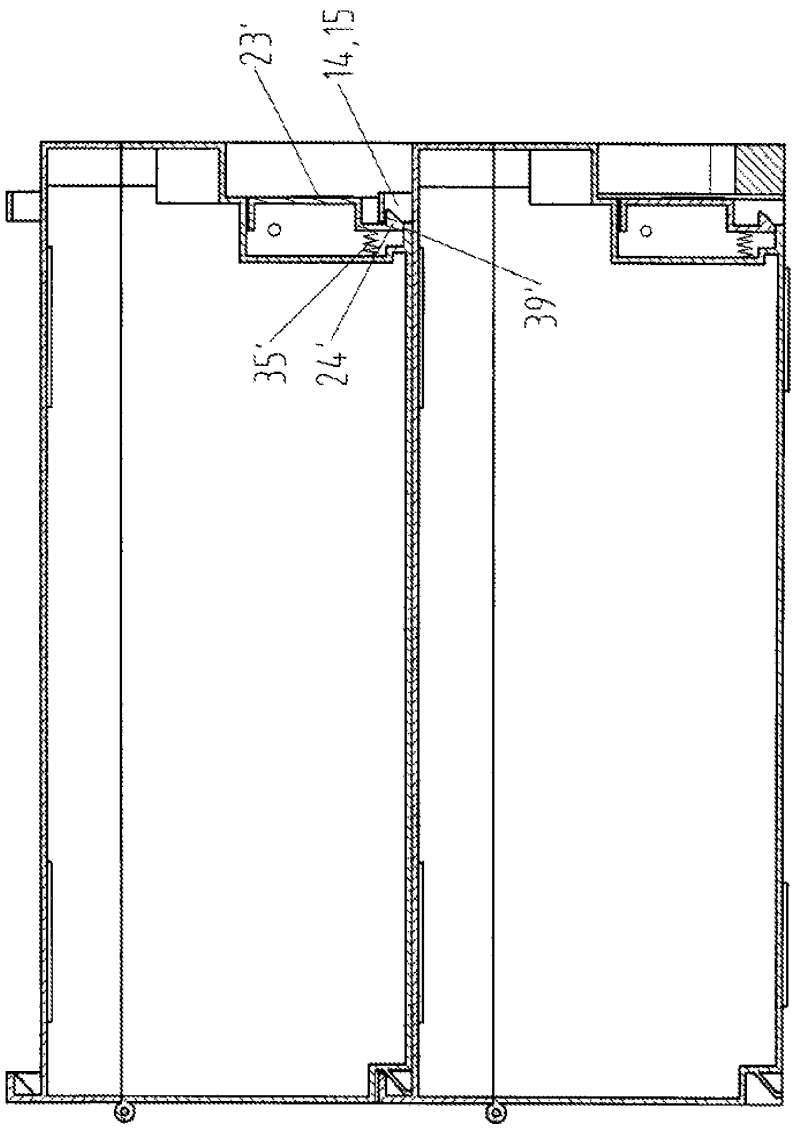


Fig. 9

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Fig. 10

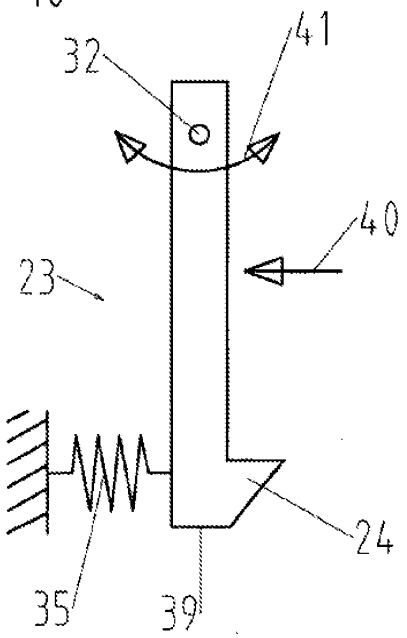


Fig. 11

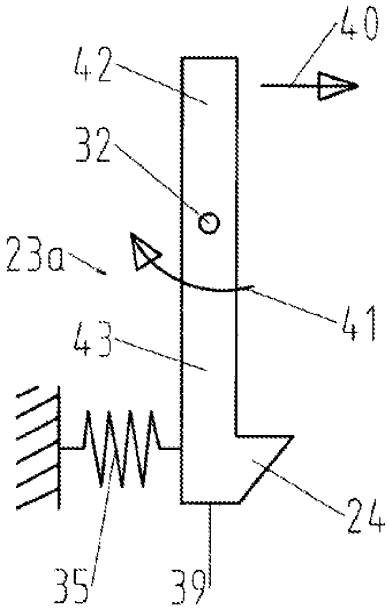
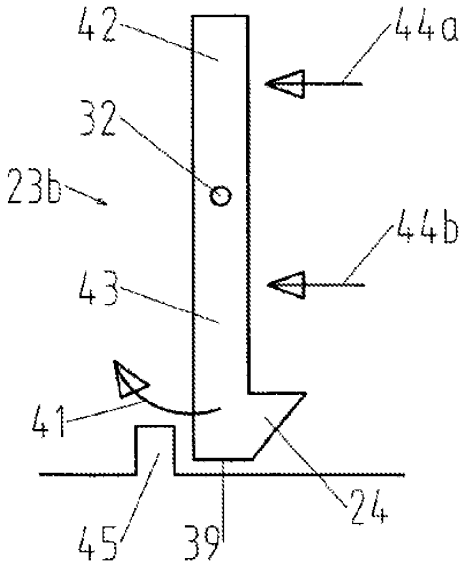


Fig. 12



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Fig. 13

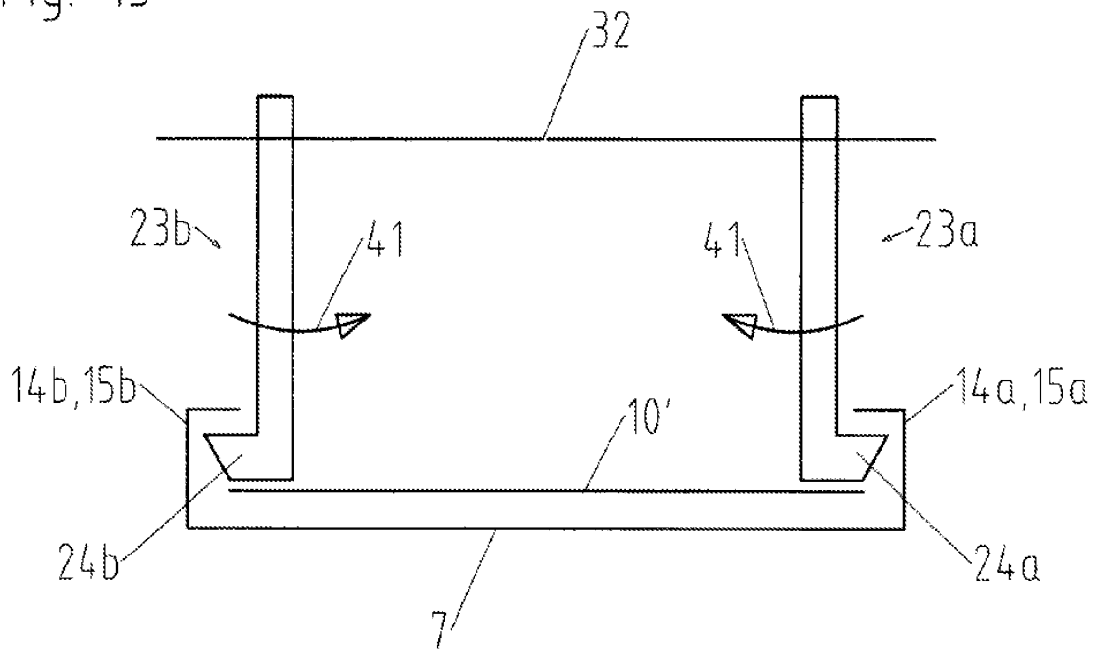
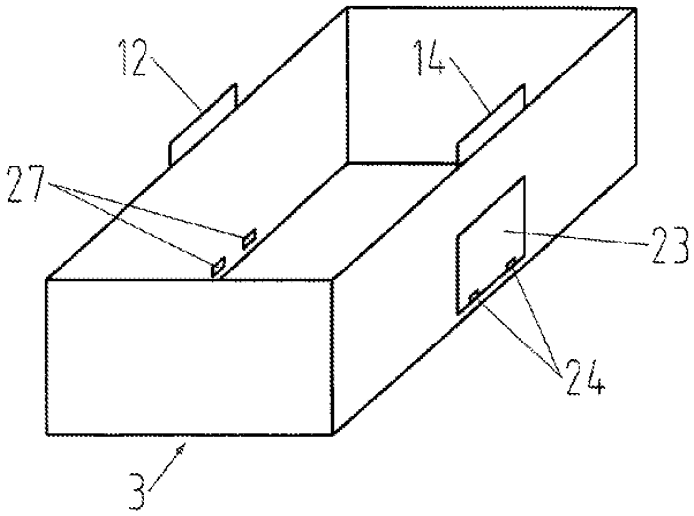


Fig. 14



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English abstract of DE102015112204A1

STACKABLE CONTAINER FOR CONSTRUCTING A CONTAINER STACK OF STACKED AND, IN PARTICULAR, COUPLED PANELS AND ACCESSORIES FOR MAKING UPPER CLOSURE OF THE PACKAGING STACK STACKABLE CONTAINER FOR THE TRAINING OF A STACK OF CONTAINERS FROM STACKED AND PARTICULAR COUPLED CONTAINERS AND ACCESSORIES TO FORM A TOP END CAPACITY OF THE CONTAINER STACK

The invention relates to a stackable container for forming a container stack (1) along a vertical stacking axis (S) comprising a plurality of stackable containers (1) with a body (2) having at least one container bottom (3) and a container cover (4), wherein the body (2) for forming a connecting device (18) on the bottom side connecting elements (11) which are designed to cooperate with counter-connecting elements (19) in the container cover (4) of a second stackable container (1) and the container (1). a locking device (30) with a relative to the body (2) movably mounted locking element (33) for cooperation with a Gegenverriegelungselement (35) of the second stackable container (1), wherein each of the connecting elements (11) and the mating connecting elements (19) immovable With respect to the body (2) are formed and the connecting means (18) alone at least for formschlüssige Aufn is formed by vertical traction forces (F).

(19) Deutsches Patent- und Markenamt

(10) **DE 10 2015 112 204 A1** 2017.02.16

(12) # Offenlegungsschrift

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(51) Int Cl.: ***B65D 21/032*** (2006.01)
B65D 21/028 (2006.01)
B65D 21/02 (2006.01)

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(56) Ermittelter Stand der Technik:

DE	201 04 892	U1
US	2002 / 0 053 529	A1
US	2002 / 0 130 132	A1
US	4 000 817	A
EP	2 013 099	B1

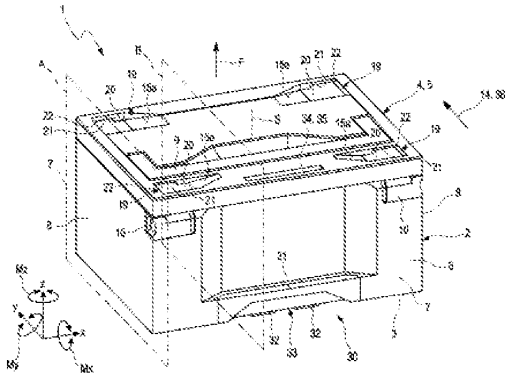
Prüfungsantrag gemäß § 44 PatG ist gestellt.

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

Der Inhalt dieser Schrift weicht von den am Anmeldetag eingereichten Unterlagen ab.

(54) Bezeichnung: **Stapelbarer Behälter zur Ausbildung eines Behälterstapels aus gestapelten und insbesondere gekoppelten Behältern sowie Zubehör zum Bilden eines oberen Abschlusses des Behälterstapels**

(57) Zusammenfassung: Die Erfindung betrifft einen stapelbarer Behälter zur Ausbildung eines Behälterstapels (1) entlang einer vertikalen Stapelachse (S) aus mehreren stapelbaren Behältern (1) mit einem zumindest einen Behälterboden (3) und eine Behälterdecke (4) aufweisenden Korpus (2), wobei der Korpus (2) zur Ausbildung einer Verbindungseinrichtung (18) bodenseitig Verbindungselemente (11) besitzt, die zum Zusammenwirken mit Gegenverbindungselementen (19) im Bereich der Behälterdecke (4) eines zweiten stapelbaren Behälters (1) ausgebildet sind und der Behälter (1) eine Verriegelungseinrichtung (30) mit einem bezüglich des Korpus (2) beweglich gelagerten Verriegelungselement (33) zum Zusammenwirken mit einem Gegenverriegelungselement (35) des zweiten stapelbaren Behälters (1) aufweist, wobei jeweils die Verbindungselemente (11) und die Gegenverbindungselemente (19) unbeweglich bzgl. des Korpus (2) ausgebildet sind und die Verbindungseinrichtung (18) alleine zumindest zur formschlüssigen Aufnahme von vertikalen Zugkräften (F) ausgebildet ist.



Beschreibung

[0001] Die Erfindung betrifft einen stapelbaren Behälter zur Ausbildung eines Behälterstapels aus gestapelten und insbesondere gekoppelten Behältern entlang einer vertikalen Stapelachse nach dem Oberbegriff des Anspruchs 1 sowie eine Grundplatte zum Bilden des Behälterstapels nach dem Oberbegriff des Anspruchs 21 sowie Zubehör zum Bilden eines oberen Abschlusses des Behälterstapels.

[0002] Aus der EP 2013099 B1 ist ein stapelbarer Behälter bekannt, mit dem es möglich ist, einen Behälterstapel zu bilden, wobei die gestapelten Behälter miteinander gekoppelt werden können. Als Verbindungselemente im Bodenbereich weist ein solcher Behälter einen umlaufenden Kragen mit zumindest einer Verriegelungseinrichtung auf. Als Verriegelungseinrichtung weist ein solcher Behälter einen klappbaren Schnapphaken auf, welcher zum Verriegeln hinter eine entsprechende Gegenverriegelungskante im Deckenbereich eines zweiten Behälters greift. Ein tragender Transport zweier solcher Behälter ist erst möglich, wenn die Verriegelungseinrichtung, das heißt der Schnapphaken (in der EP 2013099 B1 mit dem Bezugszeichen **11** bezeichnet) zuverlässig verriegelt ist. Bei dem Schnapphaken handelt es sich um ein beweglich bezüglich des Behälters gelagertes Bauteil welches im Alltagsbetrieb derart stapelbarer Kisten hohen Belastungen ausgesetzt ist und somit hohem Verschleiß unterliegt. Es ist beobachtet worden, dass derartig bewegliche Verriegelungselemente eine erhöhte Ausfallwahrscheinlichkeit haben.

[0003] Bei einem Ausfall des Verriegelungselementes ist eine stapelnde Verbindung zweier Behälter gemäß der EP 2013099 B1 nicht-mehr derart möglich, dass eine vertikal nach oben gerichtete Tragkraft oder Hebekraft von einem Behälter auf einen darunterliegenden Behälter übertragen werden kann. Ein gemeinsamer Transport mehrerer gestapelter Behälter ist somit nicht mehr gewährleistet.

[0004] Außerdem muss bei einem Behälter gemäß der oben genannten Druckschrift die Verriegelungseinrichtung derart stabil und massiv ausgelegt werden, dass sie in der Lage ist, auch hohe Gewichtskräfte mehrerer übereinander gestapelter Behälter aufnehmen zu können.

[0005] Des Weiteren ist bei einem derartigen Behälter von Nachteil, dass zum Lösen der Verbindung zweier Behälter diese zueinander gekippt werden müssen. Hierfür ist, insbesondere wenn die Behälter als stapelbarer Werkbehälterturm in einem Kraftfahrzeug z. B. einem Servicefahrzeug installiert sind, nicht immer der notwendige Platz vorhanden. Üblicherweise sind derartige Behältertürme in solchen Servicefahrzeugen nahe der Fahrzeugwandung eines Kastenaufbaus angeordnet. Somit müsste ein Teilbehälterstapel gemäß der EP 2013099 B1 einen gewissen Freigang in einer Kipprichtung besitzen um überhaupt zuverlässig gestapelt und voneinander getrennt werden zu können. Dies macht einen erhöhten Bauraumbedarf im Fahrzeug notwendig.

[0006] Aufgabe der Erfindung ist es daher, einen stapelbaren Transportbehälter anzugeben, mit dem die Ausbildung eines Behälterstapels ermöglicht ist und besonders robust und widerstandsfähig im Betriebsalltag ausgebildet ist. Eine weitere Aufgabe der Erfindung ist es, eine bezüglich eines Behälters bewegliche Verriegelungseinrichtung im gestapelten Zustand von Gewichtskräften in vertikaler Richtung freizuhalten.

[0007] Des Weiteren soll gewährleistet sein, dass selbst bei einem Versagen einer Verriegelungseinrichtung immer noch ein tragender Transport eines aus mehreren Behältern gebildeten Behälterstapels möglich ist.

[0008] Diese Aufgaben werden mit einem stapelbaren Behälter mit den Merkmalen des Anspruchs 1 gelöst. Vorteilhafte Ausführungsformen sind in den Unteransprüchen angegeben.

[0009] Erfindungsgemäß wurde erkannt, einen stapelbaren Behälter zur Ausbildung eines Behälterstapels entlang einer vertikalen Stapelachse aus mehreren stapelbaren Behältern mit einem zumindest einen Behälterboden und einer Behälterdecke aufweisenden Korpus, wobei der Korpus zur Ausbildung einer Verbindungseinrichtung bodenseitig Verbindungselemente besitzt, die zum Zusammenwirken mit Gegenverbindungselementen im Bereich der Behälterdecke eines zweiten stapelbaren Behälters ausgebildet sind und der Behälter eine bezüglich des Korpus beweglich gelagerte Verriegelungseinrichtung zum Zusammenwirken mit einer Gegenverriegelungseinrichtung des zweiten stapelbaren Behälters aufweist, derart weiterzubilden, dass jeweils die Verbindungselemente und die Gegenverbindungselemente unbeweglich bezüglich des Korpus ausgebildet sind und die Verbindungseinrichtung alleine zumindest zur formschlüssigen Aufnahme von vertikalen Zugkräften ausgebildet ist. Erfindungsgemäß wird also insbesondere die Aufnahme von vertikalen Zugkräften, die zwangsweise auftreten wenn ein Behälterstapel an seinem obersten Behälter angehoben wird, alleine durch die Verbindungseinrichtung von einen Behälter auf den anderen übertragbar sind. Erfindungsgemäß ist die Verriegelungseinrichtung an einer solchen Kraftübertragung, die bevorzugt auch zumindest Kippmomente um Raumachsen senkrecht zur Stapelachse betrifft, nicht beteiligt. Die Verbindungseinrichtung ist dabei starr bezüglich des Korpus ausgebildet, sodass die Verbindungseinrichtung keine bezüglich des Korpus beweglichen Bauteile,

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die im Alltag einem erhöhten Verschleiß unterworfen sind, besitzt.

[0010] Gemäß einer zweckmäßigen Ausführungsform der Erfindung ist die Verbindungseinrichtung durch eine ausschließlich translatorische Eingreifbewegung entlang einer Eingreifbewegungsrichtung senkrecht zur Stapelachse eines ersten Behälters relativ zum zweiten Behälter in Eingriff bringbar. Dies bedeutet, dass zunächst ein Behälter mit seinem Boden auf die Decke eines zweiten Behälters gesetzt wird und lediglich durch translatorische Verschiebungsbewegung des einen Behälters relativ zum anderen Behälter die Verbindungseinrichtungen in Eingriff gelangen und somit eine Verbindung schaffen, die vertikale Zugkräfte entlang der Stapelachse übertragen kann.

[0011] Bevorzugt sind hierfür die Verbindungselemente hakenartige Vorsprünge und die Gegenverbindungselemente taschenartige Ausnehmungen. Gleichwohl ist es alternativ auch möglich die Verbindungselemente als taschenartige Ausnehmungen und die Gegenverbindungselemente als hakenartige Vorsprünge auszubilden. Somit kann die Verbindungseinrichtung nach Art eines Linear-Bajonettverschlusses ausgebildet sein und/oder zumindest zur Aufnahme von Kippmomenten um Raumachsen senkrecht zur Stapelachse ausgebildet sein.

[0012] Zur Kraftübertragung in vertikaler Richtung, das heißt in Richtung parallel zur Stapelachse, weisen die Verbindungselemente und die Gegenverbindungselemente zweckmäßigerweise Wirkflächen und Gegenwirkflächen auf, die im Eingriff befindliche Kräfte parallel zur Stapelachse formschlüssig übertragen können. Hierbei ist unter den Begriffen "Wirkflächen" und "Gegenwirkflächen" auch eine stegartige Ausbildung zu verstehen, bei der exakt geometrisch gesehen keine flächigen Elemente miteinander wechselwirken sondern beispielsweise die Verbindungselemente und die Gegenverbindungselemente in Form einer Linienberührung oder einer Punktberührung miteinander wechselwirken.

[0013] In einer weiteren vorteilhaften Ausführungsform ist die Verriegelungseinrichtung als lösbare Rastverbindung mit zumindest einem Verriegelungselement und zumindest einem Gegenverriegelungselement ausgebildet und derart eingerichtet, dass mittels der Verriegelungseinrichtung eine Relativbewegung zweier Behälter zueinander zumindest entgegen der translatorischen Eingreifbewegung blockierbar ist. Mit einer derartigen Ausgestaltung der Verriegelungseinrichtung ist es somit möglich, lediglich die Eingreifbewegung, die zum Zusammenwirken der Verbindungseinrichtung notwendig ist, in ihrer Gegenrichtung zu blockieren. Die Verriegelungseinrichtung selbst ist aber an der Lastübertragung in Vertikalrichtung oder an einer Lastaufnahme aufgrund von Kippmomenten zweier Behälter zueinander, die zumindest um eine Raumachse senkrecht zur Stapelachse ausgerichtet sind, nicht beteiligt. Die Verriegelungseinrichtung stellt somit bevorzugt lediglich eine Sperre für eine translatorische Bewegung entgegen der Eingreifbewegung dar.

[0014] Beispielsweise ist das Verriegelungselement ein Verriegelungsschieber mit Verriegelungsvorsprüngen, welcher zur Ver- und zur Entriegelung parallel zur Stapelachse verlagerbar ist.

[0015] Dabei können Verriegelungsvorsprünge bodenseitig bezüglich des Korpus angeordnet sein und Gegenverriegelungselemente im Bereich der Behälterdecke angeordnet sein.

[0016] Zum erleichterten Herstellen der Verbindung zwischen zwei stapelbaren Behältern können die Verbindungselemente des einen Behälters und die Gegenverbindungselemente des anderen Behälters als Findungsflächen jeweils korrespondierende, zur Stapelachse schräggestellte Schrägflächen besitzen, sodass die Behälter beim Stapelvorgang entlang der Schrägflächen positioniert und zentriert werden können. Gegebenenfalls sind die Schrägflächen hinsichtlich ihrer geometrischen Anordnung und Zuordnung zueinander derart gewählt, dass durch das Aufsetzen eines Behälters auf einen zweiten erfindungsgemäßen Behälter bereits ein Eingriff der Verbindungselemente und der Gegenverbindungselemente durch das Entlanggleiten entlang der Findungsflächen erzeugt wird.

[0017] Zweckmäßigerweise besitzt ein erfindungsgemäßer Behälter zumindest zwei Verbindungselemente und korrespondierend dazu zumindest zwei Gegenverbindungselemente, die über den Behälterboden und die Behälterdecke verteilt angeordnet sind und derart ausgebildet sind, dass sie in der Lage sind, zumindest eine Vertikalkraft entlang der Stapelachse und Momente um zur Stapelachse senkrechte Raumachsen aufzunehmen. Zweckmäßigerweise können die Verbindungselemente und korrespondierend hierzu die Gegenverbindungselemente auch so ausgelegt sein, dass sie alle Kräfte und Momente aufnehmen können mit Ausnahme einer der Eingriffsrichtung entgegengesetzten translatorischen Kraft. Zur Aufnahme dieser einen der Eingreifbewegung entgegengesetzten Kraftrichtung ist die Verriegelungseinrichtung vorgesehen.

[0018] Zur ergonomischen und bequemen Bedienbarkeit ist es zweckmäßig, den Verriegelungsschieber zur Betätigung an einer Behälterseitenwand zugänglich anzuordnen, wobei eine Außenseite dieser Behälterseitenwand in eine zur Eingreifbewegung entgegengesetzte Richtung weist.

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[0019] Der erfindungsgemäße Behälter eignet sich insbesondere als stapelbarer Kunststoffbehälter, insbesondere ein stapelbarer Kunststoffwerkzeugbehälter und ist bevorzugt zum Ausstatten von Werkstattfahrzeugen geeignet.

[0020] Der erfindungsgemäße Behälter kann dabei auch als Einschubrahmen zur Aufnahme von Schubladen ausgebildet sein.

[0021] Selbstverständlich ist es auch möglich, den erfindungsgemäßen Behälter als einen Behälter mit einem Grundkörper und einer als Deckel ausgebildeten Behälterdecke auszubilden, der zusammen mit einem Behältergrundkörper den Korpus bildet, wobei der Behälterdeckel mit dem Behälterkörper formschlüssig verbindbar ist.

[0022] Selbstverständlich ist im Falle eines Behälters, der einen Behälterkörper und einen Behälterdeckel aufweist, der Behälterdeckel mittels geeigneten Verschlussmechanismen bezüglich des Korpus verschließbar. Diese Verschlussmechanismen zum Verbinden des Deckels mit dem Behälterkörper werden erfindungsgemäß aber nicht zur Ausbildung einer Verbindung zweier stapelbarer Behälter im Stapelfall benutzt.

[0023] Die Verriegelungseinrichtung ist zweckmäßigerweise derart ausgebildet, dass zur Entriegelung eines bestimmten Behälters des Behälterstapels vom verbleibenden Behälterstapel das Verriegelungselement des bestimmten Behälters zu betätigen ist.

[0024] Dies bedeutet, dass derjenige Behälter oder der unterste Behälter eines abzunehmenden Teilstapels die Verriegelungsvorrichtung besitzt, die zum Lösen der Verbindung betätigt werden muss. Aus dem Stand der Technik sind auch Lösungen bekannt, bei denen eine Verriegelungseinrichtung eines unterhalb liegenden nächsten Behälters betätigt werden muss um den darüber liegenden Behälter lösen zu können. Dies wird als unpraktisch empfunden und ist mit oben genannter zweckmäßiger Ausgestaltung der Erfindung verbessert.

[0025] Weiterhin ist es zweckmäßig, die Verriegelungseinrichtung insbesondere ausschließlich zur Blockierung der Relativbewegung zweier Behälter zueinander entgegen der Eingriffsbewegung auszubilden. Diese Kräfte sind lediglich Schubkräfte die z. B. senkrecht zur Stapelachse ausgerichtet sind und betragsmäßig im Betriebsalltag eher gering sind, sodass die Verriegelungseinrichtung mit geringem Aufwand äußerst haltbar konstruiert werden kann. Da keine Gewichtskräfte auf die Verriegelungseinrichtung einwirken ist auch der Verschleiß begrenzt.

[0026] Der Verriegelungsschieber kann dabei zweckmäßig federnd vorgespannt bezüglich des Behälterkorpus gelagert sein und beim in Eingriff bringen zweier Behälter zueinander entlang der Eingriffsbewegung an einer vorbestimmten Stelle in die, z. B. als Falle ausgebildete Gegenverriegelungseinrichtung einschnappen. Somit ist eine automatische Verriegelung bei korrekter Positionierung gestapelter Behälter zueinander gewährleistet. Dies erleichtert insbesondere die Bedienungsfreundlichkeit beim Stapeln.

[0027] Weiterhin betrifft die Erfindung eine Grundplatte zum Bilden eines Behälterstapels aus stapelbaren Behältern, wobei die Grundplatte Gegenverbindungselemente und Gegenverriegelungselemente aufweist, die korrespondierend zu Verbindungselementen des Behälters und zu Verriegelungselementen des Behälters ausgebildet sind.

[0028] In bevorzugter Art und Weise weist die Grundplatte Befestigungseinrichtungen zum Verankern der Grundplatte auf einem Bodenuntergrund auf.

[0029] In besonders einfacher Art und Weise sind die Gegenverbindungselemente der Grundplatte und die Gegenverriegelungselemente der Grundplatte identisch zu den Gegenverbindungselementen des Behälters und zu Gegenverriegelungselementen des Behälters ausgebildet.

[0030] Besonders zweckmäßig ist es, dass die Grundplatte Gegenverbindungselemente und Gegenverriegelungselemente aufweist, die ein verriegeltes Aufsetzen eines Behälters in der Eingriffsrichtung um 180° um die Stapelachse S (z-Achse) gedreht entgegen der Eingriffsrichtung ermöglicht.

[0031] Des Weiteren betrifft die Erfindung Zubehör zum Bilden eines oberen Abschlusses eines Behälterstapels aus stapelbaren Behältern, wobei das Zubehör zur Ausbildung einer Verbindungseinrichtung mit Gegenverbindungselementen des Behälters korrespondierende Verbindungselemente besitzt und ein bezüglich des Zubehörs beweglich gelagertes Verriegelungselement zum Zusammenwirken mit dem Gegenverriegelungselement des Behälters aufweist. Derartiges Zubehör muss lediglich auf der Bodenseite des Zubehörs diejenigen Elemente aufweisen, die für eine Verriegelung und Kopplung des Zubehörs mit dem letzten oberen Behälter notwendig sind.

[0032] Als Zubehör kann zweckmäßiger Weise ein Arbeitsplattenaufsatz oder ein nach oben offener Schüttbehälter vorgesehen sein. Das Zubehör ist erfindungsgemäß oberseitig bevorzugt nicht mit Gegenverbindungselementen oder Gegenverriegelungselementen versehen.

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[0033] Im Folgenden wird die Erfindung anhand der Figuren beispielhaft näher erläutert. Es zeigen:

[0034] **Fig.** 1: einen erfindungsgemäßen stapelbaren Behälter aus Kunststoff in einer perspektivischen Ansicht unter anderem auf eine Behälterdecke;

[0035] **Fig.** 2: den Behälter gemäß **Fig.** 1 in einer perspektivischen Ansicht unter anderem auf einen Behälterboden;

[0036] **Fig.** 3: einen Schnitt durch einen Behälterstapel aus zwei erfindungsgemäßen Behältern in einer Schnittebene A parallel zu einer Stapelachse (Vertikalachse; z-Achse) enthaltend Verbindungselemente und Gegenverbindungselemente;

[0037] **Fig.** 4: einen Schnitt durch einen Behälterstapel aus zwei erfindungsgemäßen Behältern in einer Schnittebene B parallel zu einer Stapelachse S (= Vertikalachse; = z-Achse) enthaltend Verriegelungselemente und Gegenverriegelungselemente und

[0038] **Fig.** 5: einen Schnitt in der Ebene A gemäß **Fig.** 3 durch einen erfindungsgemäßen Behälter und eine Grundplatte, die als Aufstellelement für einen Behälterstapel dient.

[0039] Ein erfindungsgemäßer Behälter **1** (**Fig.** 1, **Fig.** 2) besitzt einen Behälterkorpus **2** mit einem Behälterboden **3** und einer Behälterdecke **4**. Im vorliegenden Ausführungsbeispiel ist die Behälterdecke **4** als Klappdeckel **5** ausgebildet, welcher einen nach oben offenen Behältergrundkörper **6** verschließbar macht. Der Behälter **1** weist zwei zueinander beabstandet parallel verlaufende Längsseitenwandungen **7** und zwei beabstandet parallel zueinander laufende Querseitenwandungen **8** auf. In der Behälterdecke **4** bzw. im Klappdeckel **5** ist ein Klappgriff **9** angeordnet, der aus der Behälterdecke **4** zum Zwecke des Tragens des Behälters **1** ausgeklappt werden kann.

[0040] Für die weitere Beschreibung sei folgendes Koordinatensystem definiert:
Eine x-Achse verläuft parallel zu den Längsseitenwandungen **7**. Eine y-Achse verläuft parallel zu den Schmalseitenwandungen **8** und eine z-Achse ist vertikal ausgerichtet und bildet eine Stapelachse S entlang der mehrere Behälter **1** aufeinander stapelbar sind. Die x-Achse und die y-Achse verlaufen jeweils horizontal, wenn der Behälter **1** auf einem waagerechten Untergrund steht.

[0041] Zum Zwecke der weiteren Beschreibung sei diejenige Längsseitenwandung **7**, die in **Fig.** 1 und **Fig.** 2 sichtbar ist, als vordere Längsbegrenzungswandung **7** definiert. Im Bereich der vorderen Begrenzungswandung **7** sitzen Verschlusseinrichtungen **10** mittels denen der Klappdeckel **5** relativ zum Grundkörper **6** festgelegt werden kann. Im Bereich einer der vorderen Längsseitenwandung **7** gegenüberliegenden Längsseitenwandung **7** ist der Klappdeckel **5** scharnierend angelenkt.

[0042] Bodenseitig stehen vom Behälterboden **3** hakenartige Verbindungselemente **11** nach unten vor. Die Verbindungselemente **11** besitzen hakenartige Stege **12**, die von Domen **13** der Verbindungselemente **11** aus von der vorderen Längsseitenwandung **7** weg weisen. Diese hakenartigen Stege **12** weisen somit in positive y-Richtung und damit in eine – wie weiter unten näher erläutert wird – Eingriffrichtung **14**, die parallel zur y-Richtung ausgerichtet ist. Die Dome **13** weisen zudem zum Behälterboden **3** hin laufende Schrägflächen **15** auf, die mit korrespondierenden Schrägflächen **15a** in der Behälterdecke **4** Findungsflächen zur Zentrierung und Positionierung eines ersten Behälters **1** auf einem zweiten Behälters **1** beitragen.

[0043] Die Verbindungselemente **11**, die mit den Stegen **12** und den Domen **13** als hakenartige Vorsprünge **16** ausgebildet sind, besitzen als Wirkflächen **17** horizontal, das heißt sich senkrecht zur Stapelachse S (z-Achse) erstreckende Flächen.

[0044] Die hakenartigen Vorsprünge **16** zusammen mit den Wirkflächen **17** bilden eine Verbindungseinrichtung **18** im Bereich des Behälterbodens **3**. Über die Fläche des Behälterbodens **3** verteilt sind im Ausführungsbeispiel gemäß den **Fig.** 1 und **Fig.** 2 jeweils **4** Verbindungseinrichtungen **18** angeordnet. Die vier Verbindungseinrichtungen **18** sind in Eckbereichen des Behälterbodens **3** angeordnet, wobei jeweils zwei Verbindungseinrichtungen **18** parallel zur y-Achse und parallel zur x-Achse zueinander fluchten.

[0045] Bei einer solchen Anordnung wirken die Verbindungseinrichtungen **18** auch als Stellfüße für den Behälter **1**.

[0046] Korrespondierend zu den Verbindungseinrichtungen **18** sind in der Behälterdecke **4** Gegenverbindungselemente **19** vorgesehen, in welche die hakenartigen Vorsprünge **16** eingreifen können. Zur Ausbildung der Gegenverbindungselemente **19** sind wannenartige Vertiefungen **20** vorgesehen, die hinsichtlich ihrer Verteilung über die Behälterdecke **4** korrespondierend zu den Verbindungseinrichtungen **18** am Behälterboden **3** angeordnet sind. Die Vertiefungen **20** besitzen in Eingriffsrichtung **14** gesehen an seitlichen Begrenzungswandungen taschenartige Ausnehmungen **21**, in die die Stege **12** einsteckbar sind. Die wannenartigen Vertiefungen **20** sind hinsichtlich ihrer flächigen Erstreckung in der Draufsicht derart dimensioniert, dass die Verbindungselemente **11** in die Vertiefungen **20** eintauchen können, sodass der Behälterboden **3** auf der Behälterdecke **4** aufsitzt. In dieser aufeinander gestapelten Stellung kön-

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nen die Stege **12** bei einer Verschiebung eines ersten Behälters **1**, der auf einem unteren zweiten Behälter **1** aufgesetzt ist, in Eingriff mit den taschenartigen Ausnehmungen **21** gebracht werden, wenn der obere Behälter relativ zum unteren Behälter in der Eingriffsrichtung **14** bewegt wird. Dabei bilden die Dome **13** der Verbindungselemente **11** Anschläge, die derart positioniert sind, dass in einer Stellung, in der die Stege **12** bis zum Anschlag in die taschenartigen Ausnehmungen **21** eingefahren sind, die Behälter **1** eines Behälterstapels bestehend aus mehreren Behältern **1** fluchtend übereinander angeordnet sind.

[0047] In dieser Fügestellung sind die Wirkflächen **17** mit korrespondierenden Gegenwirkflächen **22a** (**Fig.** 3, **Fig.** 5) der taschenartigen Ausnehmungen **21**, beispielsweise deren Deckenstege **22** im Eingriff, sodass bereits jetzt ein so gebildeter Behälterstapel am Tragegriff des oberen Behälters **1** vertikal, das heißt in z-Richtung, angehoben werden kann, ohne dass ein Lösen der formschlüssigen Verbindung in Vertikalrichtung erfolgt. Durch das Zusammenwirken der Verbindungselemente **11** und der Gegenverbindungselemente **19** sind somit vertikale Kräfte, die beim Anheben eines oberen Behälters **1** auf einen unteren Behälter **1** ausgeübt werden, alleine durch die Verbindungselemente **11** und die Gegenverbindungselemente **19** also die Verbindungseinrichtungen **18** aufgefangen.

[0048] Des Weiteren sind über die verteilte Anordnung der Verbindungseinrichtungen **18** über den Behälterboden **3** bzw. über die Behälterdecke **4** auch Kippmomente My um die y-Achse und Kippmomente Mx um die x-Achse abgestützt, sodass ein oberer Behälter **1**, der auf einem unteren Behälter **1** sitzt, nicht alleine relativ zum unteren Behälter **1** gekippt werden kann, ohne diesen mit zu kippen.

[0049] Um eine unbeabsichtigte Trennung des oberen Behälters **1** vom unteren Behälter **1** durch Tragen durch einen Träger zu verhindern, besitzt der erfindungsgemäße Behälter **1** an seiner vorderen Längsseitenwandung **7** als Verriegelungseinrichtung **30** einen Verriegelungsschieber **31**. Der Verriegelungsschieber **31** ist relativ zum Behälter **1** in vertikaler Richtung (z-Richtung) federnd vorgespannt gelagert und verlagerbar. An seiner Unterseite besitzt der Verriegelungsschieber **31** Verriegelungsvorsprünge **32**, die eine Bodenfläche des Behälterbodens **3** nach unten überragen. Der Verriegelungsschieber **31** und die Verriegelungsvorsprünge **32** sind bevorzugt einstückig ausgebildet und bilden ein Verriegelungselement **33**. Das Verriegelungselement **33**, insbesondere dessen Verriegelungsvorsprünge **32** wirken mit einer korrespondierenden Gegenverriegelungseinrichtung **34** an einer Oberseite der Behälterdecke **4** zusammen. Die Gegenverriegelungseinrichtung **34** besitzt als Gegenverriegelungselement **35** rillenartige Vertiefungen, in welche die Verriegelungsvorsprünge **32** einschnappen können. Sind die Verriegelungsvorsprünge **32** der Verriegelungselemente **33** in die Gegenverriegelungselemente **35** federnd eingeschnappt, so ist eine Relativbewegung zweier übereinander gestapelter Behälter **1** entgegen der Eingriffsrichtung **14** unterbunden. Somit ist der obere Behälter **1** eines Behälterstapels statisch bestimmt relativ zu einem unteren Behälter des Behälterstapels festgelegt.

[0050] Wird nun am oberen Behälter eines Behälterstapels eine vertikale Zugkraft F aufgebracht und ein Teilbehälterstapel bestehend aus zwei oder mehreren Behältern angehoben, so werden die vertikalen Zugkräfte F ausschließlich über die Verbindungseinrichtung **18**, das heißt über die Verbindungselemente **11** und die Gegenverbindungselemente **19** übertragen. Die Verriegelungseinrichtung **30** bleibt mechanisch unbelastet.

[0051] Die Verbindungseinrichtung **18**, das heißt die Verbindungselemente **11** und die Gegenverbindungselemente **19** funktionieren bauartbedingt als Haken und korrespondierende Taschenausnehmung nach Art eines linearen Bajonettverschlusses. Ein oberer Behälter **1** wird zunächst versetzt zum unteren Behälter **1** auf den unteren Behälter **1** aufgesetzt, wobei durch Verschieben des oberen Behälters **1** die Verbindungselemente **11** in die Vertiefungen **20** eintauchen.

[0052] Durch eine ausschließlich translatorische Eingriffsbewegung **36** entlang der Eingriffsrichtung **14** gelangen die Verbindungselemente **11** mit den Gegenverbindungselemente **19** in Wirkverbindung, sodass vertikale Zugkräfte F übertragbar sind. Ist auch die Verriegelungseinrichtung **30** in Wirkverbindung mit der Gegenverriegelungseinrichtung **34** gebracht worden, so ist ein unbeabsichtigtes Lösen der Verbindung zwischen einem unteren Behälter **1** und einem oberen Behälter **1** unterbunden. Die Behälter sind statisch bestimmt, das heißt auch hinsichtlich von Kippmomenten Mx, My um die x-Achse oder um die y-Achse oder hinsichtlich Verdrehmomenten Mz um die z-Achse statisch bestimmt aneinander angebunden. Auf diese Art und Weise können entlang einer Stapelachse S mehrere Behälter **1** gestapelt werden, sodass ein vertikaler Stapelturm entsteht.

[0053] Eine gestapelte Situation zweier Behälter **1** übereinander zeigt **Fig.** 3 in einer Schnittdarstellung durch eine Ebene A. Die Ebene A ist eine Ebene senkrecht zur x-Achse, welche die Verbindungseinrichtungen **11** und die Gegenverbindungseinrichtungen **20** schneidet.

[0054] Die Schnittebene B ist eine Schnittebene parallel zur Schnittebene A und führt durch die Verriegelungseinrichtung **30**.

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[0055] **Fig.** 4 zeigt einen Schnitt durch zwei übereinander gestapelte Behälter **1** gemäß der Erfindung in der Schnittebene B.

[0056] **Fig.** 3 zeigt zwei erfindungsgemäße Behälter **1** im Schnitt entlang der Ebene A im verbundenen Zustand, das heißt in einem Zustand, in dem die Verbindungseinrichtung **18** im Eingriff sind. In diesem Zustand untergreifen die Stege **12** die Deckenstege **22** und bilden somit in einer Vertikalrichtung (z-Richtung) einen Formschluss für vertikale Kräfte F.

[0057] Zum Lösen der Verbindungseinrichtung **18**, welches nach dem Entriegeln der Verriegelungseinrichtung **30** erfolgen kann, ist der obere Behälter **1** ein Stück entgegen der Eingriffsrichtung **14** gegenüber dem unteren Behälter **1** zu verschieben, bis die Stege **12** außer Eingriff mit den Deckenstegen **22** bzw. deren Gegenwirkflächen **22a** auf deren Unterseiten gelangen. In einer solchen Stellung ist der obere Behälter **1** innerhalb der wannenartigen Vertiefungen **20** in der Darstellung gemäß **Fig.** 3 ein Stück nach links verschoben. In dieser Stellung kann der obere Behälter **1** vertikal vom unteren Behälter **1** abgehoben werden.

[0058] Die Wirkungsweise der Verriegelungseinrichtung **30** im Zusammenspiel mit der Gegenverriegelungseinrichtung **34** ist anhand der Schnittdarstellung gemäß **Fig.** 4 entlang der Ebene B dargestellt. In einem verriegelten Zustand, in dem die Verbindungseinrichtungen **18** in Eingriff sind, sind Verriegelungsvorsprünge **32** des Verriegelungselements **33** in das Gegenverriegelungselement **35** eingeschnappt. Das Gegenverriegelungselement **35** ist dabei eine Vertiefung zur Aufnahme der Verriegelungsvorsprünge **32**. Die Verriegelungsvorsprünge **32** und das Gegenverriegelungselement **35** sind dabei derart ausgebildet, dass sie entgegen der Eingriffsrichtung **14** eine Relativbewegung des oberen Behälters **1** relativ zum unteren Behälter **1** blockieren können. Ein Anheben des Verriegelungsschiebers **31** in vertikaler Richtung, das heißt in z-Richtung, durch einen Bediener gibt die Verriegelungseinrichtung **30** frei, sodass die oben im Zusammenhang mit **Fig.** 3 beschriebene Relativbewegung der gestapelten Behälter **1** zum Entkoppeln der Verbindungseinrichtung **18** freigegeben ist.

[0059] Bei der Erfindung ist von besonderem Vorteil, dass die Verriegelungseinrichtung **30**, insbesondere mittels des Verriegelungsschiebers **31** an demjenigen Behälter **1** bedienbar und entriegelbar ist, der als einziger oder unterster Behälter eines darüber angeordneten Behälterstapels von einem darunter liegenden Behälter entriegelt werden soll. Somit ist es für den Bediener besonders einfach durch vertikales Anheben des Verriegelungselements **33**, das heißt des Verriegelungsschiebers **31** die Entriegelung zu bewerkstelligen. Gleichzeitig kann am Betätigungsgriff des Verriegelungsschiebers **31** auch unmittelbar nach dem Entriegeln eine Kraft entgegen der Eingriffsrichtung auf den zu entriegelnden und zu lösenden Behälter **1** aufgebracht werden, sodass ein Versatz des oberen Behälters **1** relativ zum unteren Behälter **1** ohne ein anschließendes Lösen der Behälter ermöglicht ist. Eine derartige Anordnung erleichtert somit die Bedienbarkeit erheblich und ist eine ergonomisch vorteilhafte Maßnahme. Hierzu ist es besonders vorteilhaft, den Verriegelungsschieber oder allgemein gesagt das Verriegelungselement an derjenigen Längsseitenwand **7** oder Schmalseitenwand **8** des Behälters anzuordnen, die entgegen der Eingriffsrichtung **14** weist.

[0060] Unter Bezugnahme auf **Fig.** 5 wird nunmehr eine Verbindung zwischen einem Behälter **1** und einer Grundplatte **50** näher erläutert. Die Grundplatte **50** dient damit als Basisstruktur zum Aufbauen eines Behälterstapels aus mehreren Behältern **1**, wobei der unterste, direkt auf der Grundplatte **50** stehende Behälter **1** mit den vorbeschriebenen Verbindungseinrichtungen **18** und Verriegelungseinrichtungen **30** mit der Grundplatte **50** verbindbar und bezüglich dieser verriegelbar ausgestaltet ist. Die Grundplatte **50** weist somit ebenfalls analog zur Behälterdecke **4** Gegenverbindungselemente **19** auf, wobei in der wannenartigen Vertiefung **20** die taschenartigen Ausnehmungen **21** vorhanden sind. Gegenüber liegend zu den taschenartigen Ausnehmungen **21** wie sie in **Fig.** 5 dargestellt sind besitzt die Grundplatte **50** zusätzliche taschenartige Ausnehmungen **21a**, sodass ein Aufsetzen und Verbinden des Behälters **1** auf der Grundplatte **50** auch in einer um 180° gedrehten Position um die z-Achse also entgegen der in **Fig.** 5 gezeichneten Eingriffsrichtung möglich ist. Korrespondierend zu Gegenverriegelungselementen (nicht gezeigt in **Fig.** 5) besitzt die Grundplatte **50** zusätzliche Gegenverriegelungselemente, die eine Verriegelung in der verdreht aufgesetzten Position des Behälters **1** ermöglichen.

[0061] Bei dem erfindungsgemäßen Behälter ist von besonderem Vorteil, dass dieser leicht zu einem Stapel aus mehreren Behältern verbindbar und auch einzelne oder mehrere Behälter aus diesem Stapel ergonomisch leicht und einfach wieder lösbar sind. Als weiterer Vorteil ist anzuführen, dass die erfindungsgemäß gewählte Art zur Herstellung eines Formschlusses zumindest in z-Richtung über starre und unbeweglich an den Behälter **1** angeformte Verbindungselemente **11** und Gegenverbindungselemente **19** eine besonders robuste Ausgestaltung möglich ist. Die erfindungsgemäß verwendete Verriegelungseinrichtung ist derart angeordnet und ausgebildet, dass diese nicht mit vertikalen Zugkräften im Falle eines Tragens einer oder mehrerer zueinander verriegelter Behälter belastet ist. Selbst im Falle eines Kippmomentes My, Mx auf einen der Behälter um eine y-Achse oder um die x-Achse bleibt die Verriegelungseinrichtung lastfrei. Dies hat zur Folge, dass sie bei-

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spielsweise auch bei einem zur vertikalen schräg angeordneten Behälterstapel, beispielsweise bei einem schief stehenden Werkstattfahrzeug, in welchem ein solcher Behälterstapel angeordnet ist, zur Entriegelung frei von Reaktionskräften bedienbar ist, sodass die Bedienkräfte der Verriegelungseinrichtung, insbesondere des Verriegelungsschiebers **31** auch bei einer Schrägstellung des Turmes konstant niedrig bleiben, da durch die Schrägstellung des Turmes keine Kräfte auf die Verriegelungseinrichtung einwirken.

Bezugszeichenliste

1	Behälter
2	Korpus
3	Behälterboden
4	Behälterdecke
5	Klappdeckel
6	Grundkörper
7	Längsseitenwand
8	Schmalseitenwand
9	Handgriff
10	Verschlusseinrichtung
11	Verbindungselemente
12	Stege
13	Dom
14	Eingriffsrichtung
15	Schrägflächen
15a	Schrägflächen
16	hakenartige Vorsprünge
17	Wirkflächen
18	Verbindungseinrichtung
19	Gegenverbindungselemente
20	Vertiefung
21	taschenartige Ausnehmung
21a	zusätzliche taschenartige Ausnehmungen
22	Deckenstege
22a	Gegenwirkflächen
30	Verriegelungseinrichtung
31	Verriegelungsschieber
32	Verriegelungsvorsprünge
33	Verriegelungselement
34	Gegenverriegelungseinrichtung
35	Gegenverriegelungselement
36	Eingriffsbewegung
50	Grundplatte
A	Ebene
F	vertikale Zugkräfte
S	Stapelachse
Mx	Kippmoment
My	Kippmoment
Mz	Verdrehmoment

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ZITATE ENTHALTEN IN DER BESCHREIBUNG

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- EP 2013099 B1 [0002, 0002, 0003, 0005]

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Patentansprüche

1. Stapelbarer Behälter zur Ausbildung eines Behälterstapels (**1**) entlang einer vertikalen Stapelachse (S) aus mehreren stapelbaren Behältern (**1**) mit einem zumindest einen Behälterboden (**3**) und eine Behälterdecke (**4**) aufweisenden Korpus (**2**), wobei der Korpus (**2**) zur Ausbildung einer Verbindungseinrichtung (**18**) bodenseitig Verbindungselemente (**11**) besitzt, die zum Zusammenwirken mit Gegenverbindungselementen (**19**) im Bereich der Behälterdecke (**4**) eines zweiten stapelbaren Behälters (**1**) ausgebildet sind und der Behälter (**1**) eine Verriegelungseinrichtung (**30**) mit einem bezüglich des Korpus (**2**) beweglich gelagerten Verriegelungselement (**33**) zum Zusammenwirken mit einem Gegenverriegelungselement (**35**) des zweiten stapelbaren Behälters (**1**) aufweist, **dadurch gekennzeichnet**, dass jeweils die Verbindungselemente (**11**) und die Gegenverbindungselemente (**19**) unbeweglich bzgl. des Korpus (**2**) ausgebildet sind und die Verbindungseinrichtung (**18**) alleine zumindest zur formschlüssigen Aufnahme von vertikalen Zugkräften (F) ausgebildet ist.

2. Stapelbarer Behälter nach Anspruch 1, **dadurch gekennzeichnet,** dass die Verbindungseinrichtung (**18**) durch eine ausschließlich translatorische Eingreifbewegung entlang einer Eingreifrichtung (**14**) senkrecht zur Stapelachse (S) eines ersten Behälters (**1**) relativ zum zweiten Behälter (**1**) in Eingriff bringbar ist.

3. Stapelbarer Behälter nach Anspruch 1 oder 2, **dadurch gekennzeichnet,** dass die Verbindungselemente (**11**) hakenartige Vorsprünge sind und die Gegenverbindungselemente (**19**) taschenartige Ausnehmungen (**21**) sind.

4. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Verbindungselemente (**11**) taschenartige Ausnehmungen (**21**) sind und die Gegenverbindungselemente (**19**) hakenartige Vorsprünge sind.

5. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Verbindungseinrichtung (**18**) nach Art eines Linear-Bajonettverschlusses ausgebildet ist und/oder zumindest zur Aufnahme von Kippmomenten (Mx; My) um Raumachsen (x-; y-Achse) senkrecht zur Stapelachse (S) ausgebildet ist.

6. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Verbindungselemente (**11**) und die Gegenverbindungselemente (**19**) zur Kraftübertragung in vertikaler Richtung Wirkflächen (**17**) und Gegenwirkflächen (**22a**) besitzen, welche im Eingriff befindlich Kräfte parallel zur Stapelachse (S) formschlüssig übertragen können.

7. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Verriegelungseinrichtung (**30**) als lösbare Rastverbindung mit zumindest einem Verriegelungselement (**33**) und zumindest einem Gegenverriegelungselement (**35**) ausgebildet ist und derart eingerichtet ist, dass mittels der Verriegelungseinrichtung (**30**) eine Relativbewegung zweier Behälter (**1**) zueinander zumindest entgegen der translatorischen Eingreifrichtung (**14**) blockierbar ist.

8. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass das Verriegelungselement (**33**) ein Verriegelungsschieber (**31**) mit Verriegelungsvorsprüngen (**32**) ist, welcher zur Ver- und Entriegelung parallel zur Stapelachse (S) bezüglich des Korpus (**2**) verlagerbar ist.

9. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Verriegelungsvorsprünge (**32**) bodenseitig bezüglich des Korpus (**2**) angeordnet sind und die Gegenverriegelungselemente (**35**) im Bereich der Behälterdecke (**4**) angeordnet sind.

10. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Verriegelungseinrichtung (**30**) im Falle des Anhebens des Behälterstapels parallel zur Stapelachse (S) unbelastet ist.

11. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Verbindungselemente (**11**) und die Gegenverbindungselemente (**19**) als Findungsflächen jeweils korrespondierende, zur Stapelachse (S) schräggestellte Schrägflächen (**15**; **15a**) besitzen.

12. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass der Behälter (**1**) zumindest zwei Verbindungselemente und korrespondierend hierzu zumindest zwei Gegenverbindungselemente (**19**) aufweist, die über den Behälterboden (**3**) und die Behälterdecke (**4**) verteilt angeordnet sind und genau eine Verriegelungseinrichtung (**30**) besitzt.

13. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass der Verriegelungsschieber (**31**) zur Betätigung an einer Behälterseitenwand (**7**) zugänglich angeordnet ist, wobei eine Außenseite dieser Behälterseitenwand (**7**) in eine zur Eingreifrichtung (**14**) entgegengesetzten Richtung weist.

14. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet**, dass

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der Behälter (**1**) ein stapelbarer, insbesondere tragbarer Kunststoffbehälter, z. B. ein tragbarer, stapelbarer Kunststoffwerkzeugbehälter ist, der bevorzugt zum Ausstatten von Werkstattfahrzeugen vorgesehen ist.

15. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass der Behälter (**1**) ein Einschubrahmen zur Aufnahme von Schubladen ist.

16. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Behälterdecke (**4**) als Behälterdeckel (**5**) ausgebildet ist und zusammen mit einem Behältergrundkörper (**6**) den Korpus (**2**) bildet, wobei der Behälterdeckel (**5**) mit dem Behältergrundkörper (**6**) formschlüssig verbindbar ist.

17. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Verriegelungseinrichtung (**30**) derart ausgebildet und eingerichtet ist, dass zur Entriegelung eines bestimmten Behälters (**1**) des Behälterstapels vom verbleibenden Behälterstapel das Verriegelungselement (**33**) des bestimmten Behälters zu betätigen ist.

18. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass mittels der Verbindungseinrichtungen (**11**) alle Kräfte und Momente zwischen verbundenen Behältern (**1**) aufnehmbar sind mit Ausnahme von Kräften entgegen der Eingriffsrichtung (**14**).

19. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass die Verriegelungseinrichtung (**30**) insbesondere ausschließlich zur Blockierung einer Relativbewegung zweier Behälter zueinander entgegen der Eingriffsbewegung (**36**) ausgebildet ist.

20. Stapelbarer Behälter nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet,** dass der Verriegelungsschieber (**31**) federnd vorgespannt bezüglich des Korpus (**2**) gelagert ist und beim in Eingriff bringen zweier Behälter (**1**) zueinander entlang der Eingriffsbewegung (**36**) an einer vorbestimmten Stelle in die, z. B. als Falle ausgebildete Gegenverriegelungseinrichtung (**34**) einschnappt.

21. Grundplatte zum Bilden eines Behälterstapels aus stapelbaren Behältern nach einem der Ansprüche 1 bis 20, wobei die Grundplatte (**50**) Gegenverbindungselemente (**19**) und Gegenverriegelungselemente (**35**) aufweist, die korrespondierend zu Verbindungselementen (**11**) des Behälters (**1**) und zu Verriegelungselementen (**33**) des Behälters (**1**) ausgebildet sind.

22. Grundplatte zum Bilden eines Behälterstapels aus stapelbaren Behältern nach Anspruch 21, **dadurch gekennzeichnet**, dass die Grundplatte (**50**) Befestigungseinrichtungen zum Verankern der Grundplatte (**50**) auf einem Bodenuntergrund besitzt.

23. Grundplatte zum Bilden eines Behälterstapels aus stapelbaren Behältern nach einem der Ansprüche 21 oder 22, **dadurch gekennzeichnet,** dass die Gegenverbindungselemente (**19**) der Grundplatte (**50**) und die Gegenverriegelungselemente (**35**) der Grundplatte (**50**) identisch zu Gegenverbindungselementen (**19**) des Behälters (**1**) und zu Gegenverriegelungselementen (**35**) des Behälters (**1**) ausgebildet sind.

24. Grundplatte nach einem der Ansprüche 21 bis 23, **dadurch gekennzeichnet,** dass die Grundplatte (**50**) Gegenverbindungselemente (**19**) und Gegenverriegelungselemente (**35**) aufweist, die ein verriegeltes Aufsetzen eines Behälters (**1**) nach einem der Ansprüche 1 bis 20 in der Eingriffsrichtung (**14**) und um 180° um die Stapelachse (z-Achse) gedreht entgegen der Eingriffsrichtung (**14**) ermöglicht.

25. Zubehör zum Bilden eines oberen Abschlusses eines Behälterstapels aus stapelbaren Behältern nach einem der Ansprüche 1 bis 20, **dadurch gekennzeichnet,** dass das Zubehör zur Ausbildung einer Verbindungseinrichtung mit Gegenverbindungselementen (**19**) des Behälters (**1**) korrespondierende Verbindungselemente (**11**) besitzt und ein bezüglich des Zubehörs beweglich gelagertes Verriegelungselement (**33**) zum Zusammenwirken mit dem Gegenverriegelungselement (**35**) des Behälters (**1**) aufweist.

26. Zubehör nach Anspruch 25, **dadurch gekennzeichnet,** dass das Zubehör ein Arbeitsplattenaufsatz oder ein nach oben offener Behälter (**1**) ist.

Es folgen 5 Seiten Zeichnungen

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Anhängende Zeichnungen

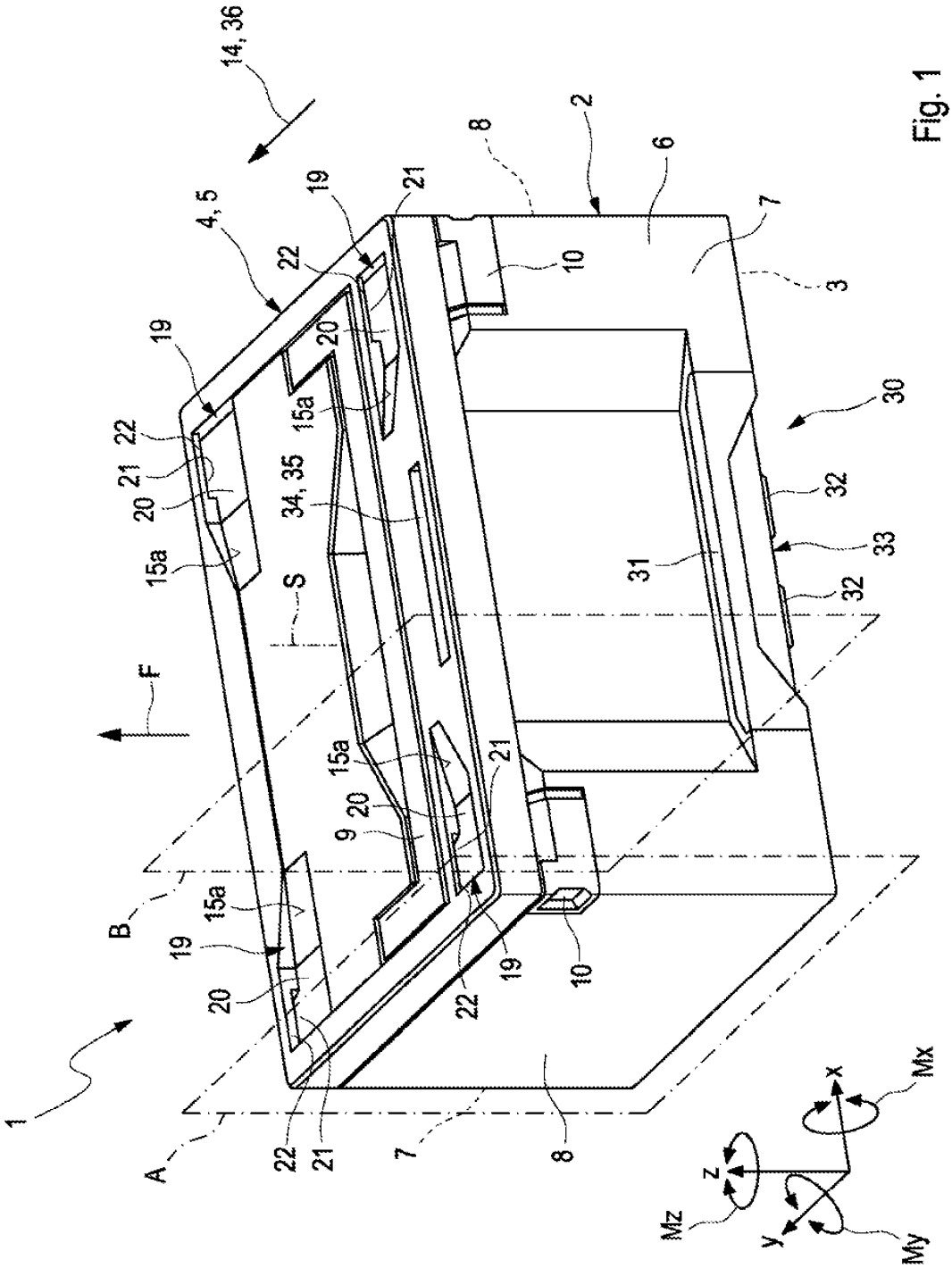


Fig. 1

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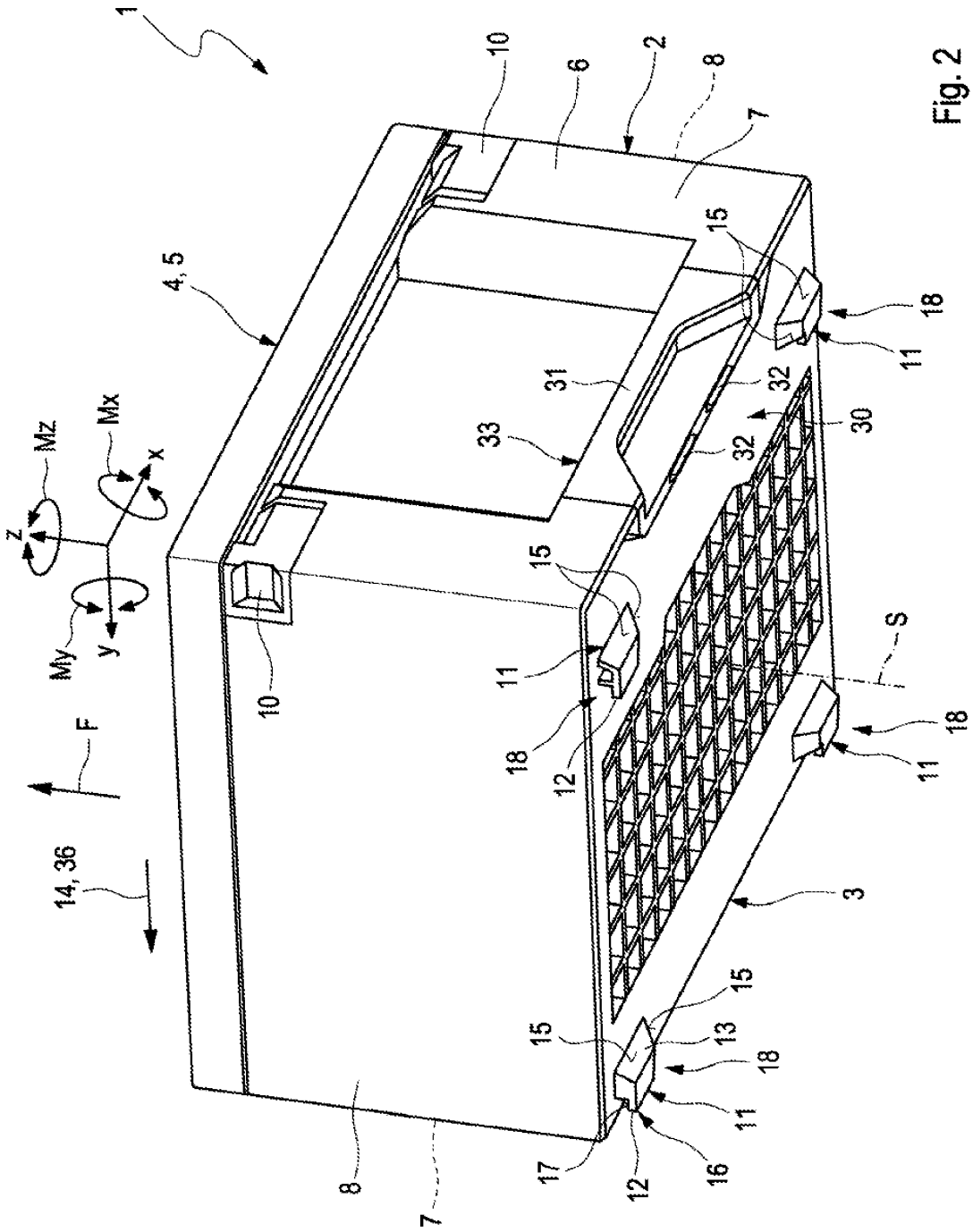


Fig. 2

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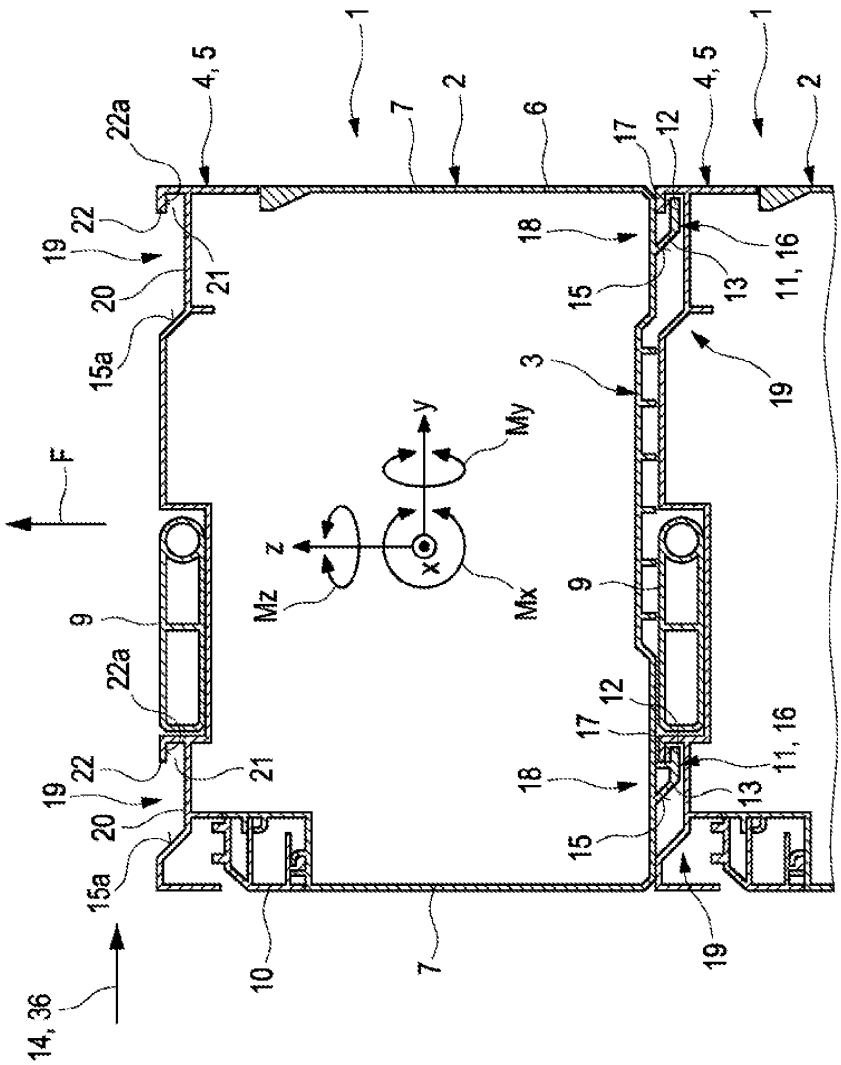


Fig. 3

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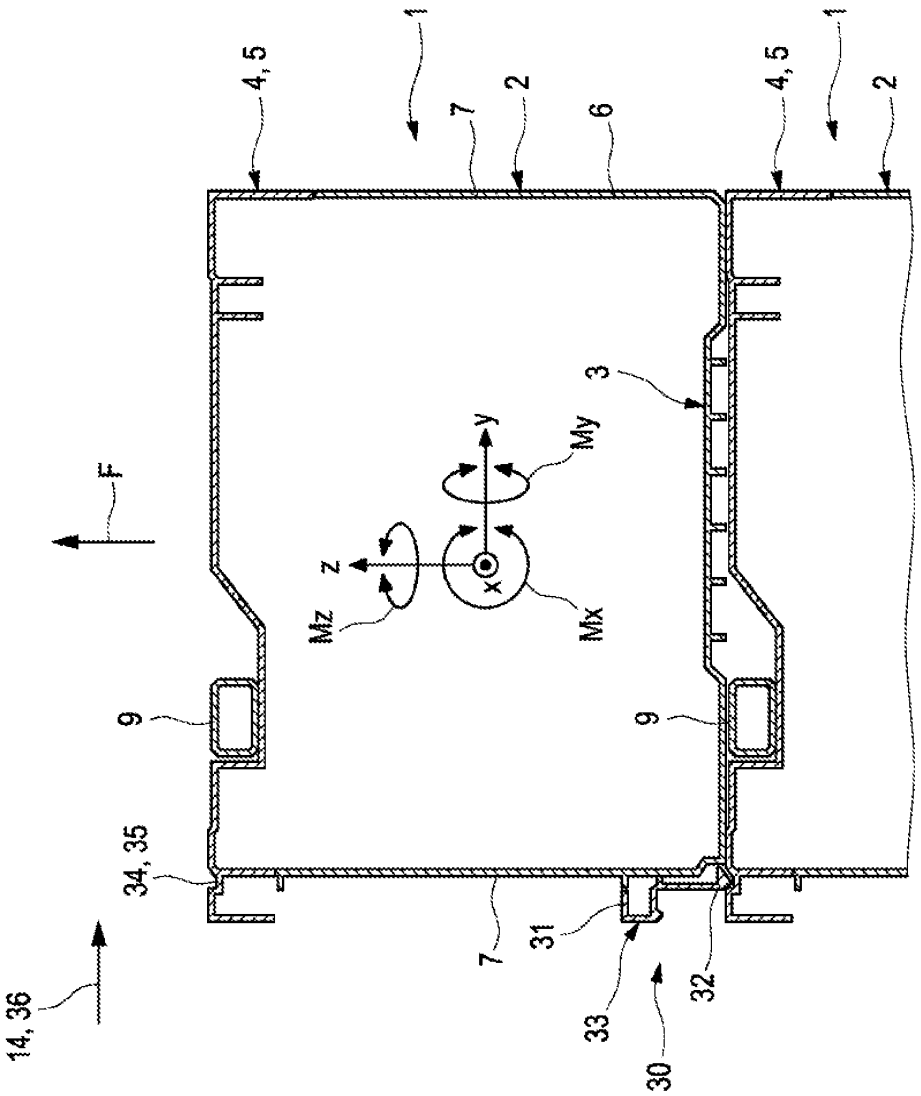


Fig. 4

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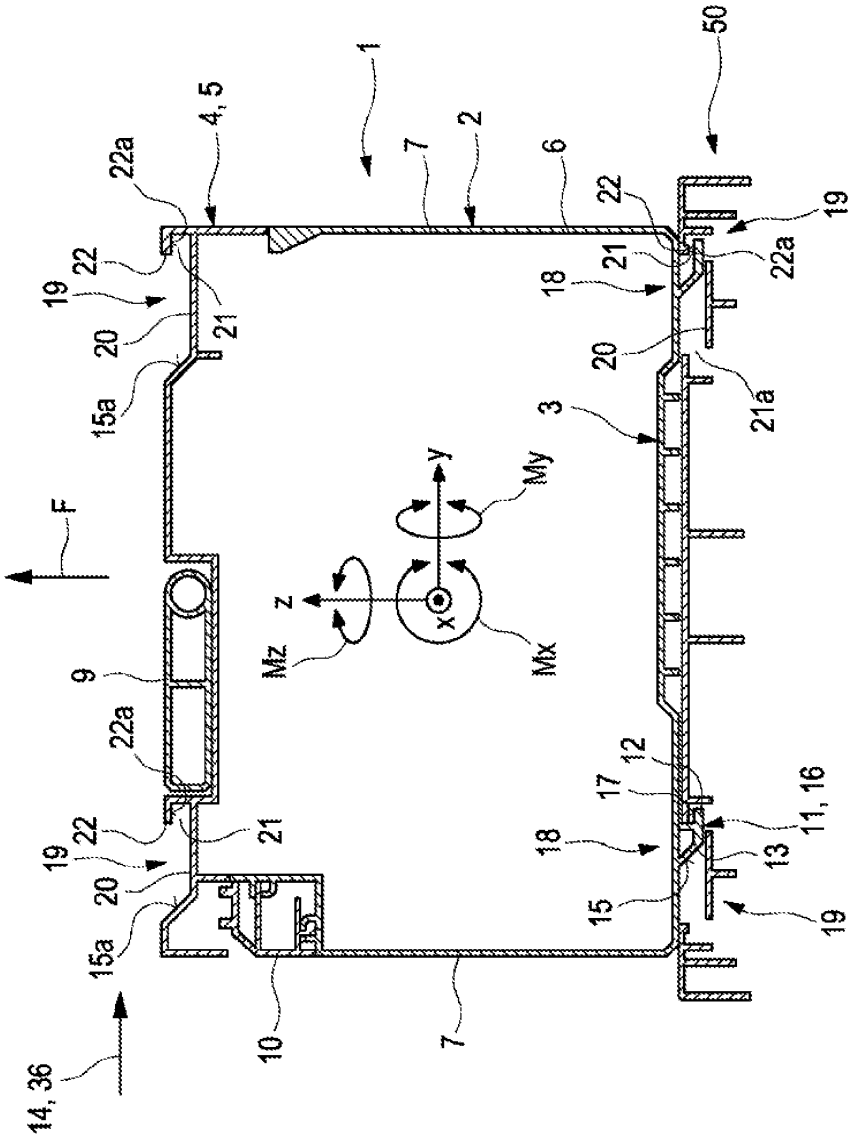


Fig. 5

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English abstract of EP2805799A2

PORTABLE BOX, ESPECIALLY FOR A HAND TOOL MACHINE

The invention relates to a portable container (10), in particular for a hand-held machine tool (86), having a container body (11) which is delimited by peripheral side walls (16-19) through a stowage receiving opening (42) on an upper side (40) of the container (10) accessible Stauaufnahme (20) for stowing articles and with its underside (41) is deposited on a substrate, the container (10) on its upper side (40) has a cover (12) for closing the accumulation receiving opening (42) and on its upper side (40) for stacking a further container (10) along a stacking direction (100) is formed and in the region of the upper side (40) first coupling means (61) for cooperation with second coupling means (62) of the upper container (10) to a in the stacking direction (100) tensile coupling of the container (10), and wherein the lid (12) on the Behaelterkorpus (11) by means of a hinge arrangement (63) bewe having mounted and / or on the container body (11) attachable cover body (43). It is envisaged that the lid (12) has a worktop (47) whose worktop top (48) consists of a material which is alternative to a lid body (43) of the lid (12) and is designed to support a work piece for a workpiece in that the cover body (43) has a receptacle (44) in which the working plate (47) is received in such a way that it allows cooperation of the first coupling means (61) with the second coupling means (62) of the upper container (10) and the containers (10) can be coupled in a tensile strength in the stacking direction (100).

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(54) Tragbarer Behälter, insbesondere für eine Hand-Werkzeugmaschine

(57) Die Erfindung betrifft einen tragbaren Behälter (10), insbesondere für eine Hand-Werkzeugmaschine (86), mit einem Behälterkorpus (11), der eine von Umfangsseitenwänden (16-19) begrenzte, durch eine Stauaufnahme-Öffnung (42) an einer Oberseite (40) des Behälters (10) zugängliche Stauaufnahme (20) zum Verstauen von Gegenständen aufweist und mit seiner Unterseite (41) auf einem Untergrund abstellbar ist, wobei der Behälter (10) an seiner Oberseite (40) einen Deckel (12) zum Verschließen der Stauaufnahme-Öffnung (42) aufweist und an seiner Oberseite (40) zum Aufstapeln eines weiteren Behälters (10) entlang einer Stapelungsrichtung (100) ausgebildet ist und im Bereich der Oberseite (40) erste Koppelmittel (61) zur Zusammenwirkung mit zweiten Koppelmitteln (62) des oberen Behälters (10) zu einem in der Stapelungsrichtung (100) zugfesten Koppeln der Behälter (10) aufweist, und wobei der Deckel (12) einen an dem Behälterkorpus (11) mittels einer Schamieranordnung (63) beweglich gelagerten und/oder an den Behälterkorpus (11) aufsteckbaren Deckelkorpus (43) aufweist. Es ist vorgesehen, dass der Deckel (12) eine Arbeitsplatte (47) aufweist, deren Arbeitsplattenoberseite (48) aus einem gegenüber einem Deckelkorpus (43) des Deckels (12) alternativen Material besteht und zur Auflage eines Werkstücks für eine Werkstück-Bearbeitung ausgestaltet ist, und dass der Deckelkorpus (43) eine Aufnahme (44) aufweist, in der die Arbeitsplatte (47) derart aufgenommen ist, dass sie eine Zusammenwirkung der ersten Koppelmittel (61) mit den zweiten Koppelmitteln (62) des oberen Behälters (10) ermöglicht und die Behälter (10) in der Stapelungsrichtung (100) zugfest koppelbar sind.

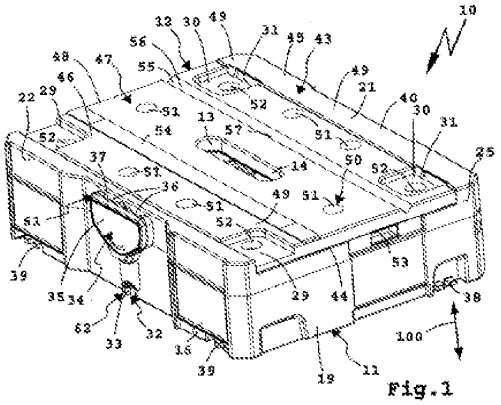


Fig.1

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Beschreibung

[0001] Die Erfindung betrifft einen tragbaren Behälter, insbesondere für eine Hand-Werkzeugmaschine, mit einem Behälterkorpus, der eine von Umfangsseitenwänden begrenzte, durch eine Stauaufnahme-Öffnung an einer Oberseite des Behälters zugängliche Stauaufnahme zum Verstauen von Gegenständen, insbesondere der Hand-Werkzeugmaschine und/oder zur Nutzung derselben geeigneter Werkzeugteile, aufweist und mit seiner Unterseite auf einem Untergrund absetzbar ist, wobei der Behälter an seiner Oberseite einen Deckel zum Verschließen der Stauaufnahme-Öffnung aufweist und an seiner Oberseite zum Aufstapeln eines weiteren Behälters entlang einer Stapelungsrichtung ausgebildet ist und im Bereich der Oberseite erste Koppelmittel zur Zusammenwirkung mit zweiten Koppelmitteln des oberen Behälters zu einem in der Stapelungsrichtung zugfesten Koppeln der Behälter aufweist, und wobei der Deckel einen an dem Behälterkorpus mittels einer Scharnieranordnung beweglich gelagerten und/oder an den Behälterkorpus aufsteckbaren Deckelkorpus aufweist.

[0002] Ein derartiger Behälter ist z.B. in WO 2011/000385 A1 erläutert. Der Behälter kann auf einen anderen Behälter gestapelt werden und/oder einen aufgestapelten anderen Behälter tragen. Anhand der Koppelungsmittel ist es möglich, den aus mehreren (mindestens zwei) Behältern bestehenden Stapel in der Stapelrichtung zugfest zu verknüpfen.

[0003] Ein Vorteil dieser Anordnung ist es, dass die miteinander verknüpften Behälter leicht getragen werden können. Sie stehen dann an einem Arbeitsort zur Verfügung, wo in der Regel ein weiterer Arbeitstisch, beispielsweise ein Tisch einer Säge oder dergleichen, zur Bearbeitung von Werkstücken genutzt wird. Diese Konfiguration ist jedoch umständlich.

[0004] Es ist daher die Aufgabe der vorliegenden Erfindung, einen tragbaren Behälter bereitzustellen, der im Zusammenhang mit einer Werkstück-Bearbeitung eine günstige Handhabung ermöglicht.

[0005] Zur Lösung der Aufgabe ist bei einem Behälter der eingangs genannten Art vorgesehen, dass der Deckel eine Arbeitsplatte aufweist, deren Arbeitsplattenoberseite zur Auflage eines Werkstücks für eine Werkstück-Bearbeitung ausgestaltet ist und aus einem gegenüber dem Deckelkorpus alternativen Material besteht, und dass der Deckelkorpus eine Aufnahme aufweist, in der die Arbeitsplatte derart aufgenommen ist, dass sie eine Zusammenwirkung der ersten Koppelmittel mit den zweiten Koppelmitteln des oberen Behälters ermöglicht und die Behälter in der Stapelungsrichtung zugfest koppelbar sind.

[0006] Die Aufnahme für die Arbeitsplatte ist oder umfasst z.B. eine Aufnahmevertiefung. Der erfindungsgemäße Behälter stellt einen Arbeitstisch oder eine Arbeitsbasis für eine Werkstückbearbeitung bereit, zum Beispiel mit der erwähnten Handwerkzeugmaschine. Bei dieser kann es sich beispielsweise um ein Schleifgerät, eine Säge, eine Bohrmaschine oder dergleichen handeln. Bei Nichtgebrauch kann die Hand-Werkzeugmaschine im Stauraum oder der Stauaufnahme des Behälters verstaut werden. Es ist ein Grundgedanke dabei, dass die Arbeitsplatte, die in der Regel aus einem etwas weicheren oder weniger maßgenauen Material besteht als der Deckelkorpus, ein separates Bauteil darstellt. Der Deckelkorpus besteht zweckmäßigerweise aus demselben Material wie der Behälterkorpus, beispielsweise aus einem Hartkunststoff, Thermoplast oder dergleichen. Die in die Koppelung mit einem Nachbar-Behälter eingebundenen Komponenten, z.B. Formschlusskonturen, Riegel, Haken, Laschen, Stützflächen oder dergleichen, sind vorteilhaft am Behälterkorpus und/oder am Deckelkorpus angeordnet. Solche Komponenten sind zweckmäßigerweise zumindest zum Teil integral mit dem Grundmaterial des Behälterkorpus' oder Deckelkorpus', beispielsweise als integral angespritzte oder ausgeformte Haltevorsprünge, Halteaufnahmen oder dergleichen ausgestaltet. Die Arbeitsplatte als solches ist sozusagen an der Koppelung mit einem benachbarten Behälter, eventuell auch einem darunter liegenden Behälter oder einem Staubsauger oder dergleichen, quasi unbeteiligt und stört diese auch nicht. Die Arbeitsplatte behindert oder verhindert nicht, dass die ersten Koppelmittel des tragbaren Behälters mit den zweiten Koppelmitteln des oben angeordneten, aufgestapelten Behälters effektiv zusammen wirken und eine zugfeste Kopplung ermöglichen.

[0007] Die Arbeitsplatte verhindert jedenfalls nicht, dass der erfindungsgemäße tragbare Behälter mit einem weiteren, oberhalb angeordneten Behälter, insbesondere einem baugleichen Behälter oder auch einem anderen Behälter, gekoppelt wird.

[0008] Die Arbeitsplatte ist zweckmäßigerweise sandwichartig zwischen dem Deckelkorpus des unteren, erfindungsgemäßen tragbaren Behälter und dem Behälterkorpus des oberen, aufgestapelten Behälters angeordnet.

[0009] Der Behälterkorpus ist vorzugsweise quaderförmig.

[0010] Der Deckelkorpus weist zweckmäßigerweise eine die Aufnahme für die Arbeitsplatte aufweisende Deckwand und vor die Deckwand vorstehende Deckel-Seitenwände oder Deckel-Umfangswände auf, die im geschlossenen Zustand des Behälters an Behälterkorpus-Seitenwänden des Behälterkorpus' abgestützt sind. Die Seitenwände des Behälterkorpus' und des Deckelkorpus' liegen beispielsweise stirnseitig aneinander an.

[0011] Die Deckel-Seitenwände begrenzen zweckmäßigerweise eine Zusatz-Stauaufnahme oder Kavität, die mit der Stauaufnahme des Behälterkorpus' zusammen eine Gesamt-Stauaufnahme bildet.

[0012] Das Material des Behälterkorpus' und/oder des Deckelkorpus' umfasst oder ist einen thermoplastischen Kunststoff oder einen Hartkunststoff, insbesondere ABS (Acrylnitril-Butadien-Styrol-Copolymerisat).

[0013] Die Aufnahme für die Arbeitsplatte ist zweck-

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mäßigerweise als eine Aufnahmevertiefung ausgestaltet. Diese Maßnahme trägt dazu bei, dass die Arbeitsplatte quasi in den Deckelkorpus vertieft eingebunden werden kann, möglichst also nicht vor eine Oberseite des Deckelkorpus' nach oben vorsteht. An dieser Stelle sei allerdings bemerkt, dass die Arbeitsplatte durchaus vor Seitenwände oder Stützwände des Deckelkorpus' nach oben vorstehen kann, beispielsweise wenn der Boden des aufzustapelnden oberen Behälters eine im Querschnitt U-förmiges Gestalt hat, d.h. dass der obere Behälter sich beispielsweise seitlich neben der Arbeitsplatte am unteren, erfindungsgemäßen tragbaren Behälter abstützen kann.

[0014] Die Aufnahme für die Arbeitsplatte ist also vorzugsweise als eine Vertiefung an der Deckwand ausgestaltet. Beispielsweise kann die Vertiefung eine Mulde sein.

[0015] Neben der Aufnahme erstreckt sich zweckmäßigerweise mindestens einen Stützabschnitt der Deckwand, der an der Oberseite des Behälters eine Stützwand zum Abstützen des aufzustapelnden oberen Behälters aufweist. Beispielsweise erstreckt sich nur ein Stützabschnitt neben der Arbeitsplatte. Die Arbeitsplatte selbst kann also auch zur Abstützung des oberen, aufzustapelnden Behälters beitragen. Es ist auch möglich, dass sich der obere Behälter zum einen an dem Stützabschnitt abstützt, zum andern an anderen Seiten der Arbeitsplatte an neben der Arbeitsplatte befindlichen, möglicherweise etwas tiefer liegenden Bereichen des erfindungsgemäßen tragbaren Behälters.

[0016] Besonders bevorzugt ist es jedoch, wenn die Arbeitsplatte zwischen zwei Stützabschnitten der Deckwand angeordnet ist. Somit kann sich der obere Behälter an den beiden Stützabschnitten, die zweckmäßigerweise an einander entgegengesetzten Seiten der Arbeitsplatte angeordnet sind, oben abstützen. Die Arbeitsplatte kann, muss aber nicht zur Abstützung des oberen abzustützenden Behälters beitragen.

[0017] Die Arbeitsplatte fluchtet vorzugsweise mit dem mindestens einen Stützabschnitt oder ist hinter den mindestens einen Stützabschnitt zurückversetzt, d.h. dass die Oberseite oder Stützseite des erfindungsgemäßen tragbaren Behälters ausschließlich oder zumindest im Wesentlichen durch den oder die Stützabschnitte gebildet ist. Auf eine besondere Maßgenauigkeit der Arbeitsplatte kommt es in diesem Fall nicht an. Insbesondere kann der Stapel bestehend aus dem erfindungsgemäßen tragbaren Behälter und mindestens einem weiteren, oben aufgestapelten Behälters maßgenau und formschlüssig gekoppelt werden.

[0018] Der Deckel weist zweckmäßigerweise mindestens eine Führungskontur zum Führen einer Hand-Werkzeugmaschine auf. Die Führungskontur kann beispielsweise am Deckelkorpus, aber auch an der Arbeitsplatte angeordnet sein. Es ist auch möglich, dass einerseits am Deckelkorpus, andererseits an der Arbeitsplatte eine Führungskontur vorhanden ist. Bei der Führungskontur kann es sich beispielsweise um eine Art Führungsschiene halt zum Führen beispielsweise einer Hand-Kreissäge oder dergleichen, handeln.

[0019] Vorzugsweise ist vorgesehen, dass mindestens eine Stirnseite der Arbeitsplatte frei zu einer sich neben der Oberseite erstreckenden Seite des Behälters, d.h. einer Umfangsseite, ausmündet. Wenn also ein Werkzeug oder Werkstück von der freien Seite der Arbeitsplatte her herangeführt wird, wird gegebenenfalls allenfalls die Arbeitsplatte beschädigt, während der Deckelkorpus dadurch nicht beeinträchtigt ist. Insbesondere in Zusammenhang mit der erwähnten Führungskontur ist diese Maßnahme vorteilhaft, d.h. dass beispielsweise eine Handwerkzeugmaschine von der freien Stirnseite her auf die Arbeitsplatte geführt wird. Vorteilhaft ist vorgesehen, dass einander entgegengesetzte freien Stirnseiten der Arbeitsplatte frei vor die jeweilige Stirnseite des Deckelkorpus' und/oder des Behälterkorpus' ausmünden.

[0020] Die ersten Koppelmittel sind vorzugsweise insgesamt am Deckel, insbesondere dem Deckelkorpus, angeordnet.

[0021] An dem Deckel vorgesehene bewegliche Koppelkomponenten der ersten Koppelmittel und/oder für einen zugfesten Halt vorgesehene Koppelkomponenten, zum Beispiel eine oder mehrere Hintergreif-Aufnahmekonturen oder auch die ersten Koppelmittel insgesamt, sind vorzugsweise ausschließlich an dem Deckelkorpus angeordnet. Die Arbeitsplatte ist also an den Koppelkomponenten quasi nicht beteiligt. Bei diesen am Deckelkorpus zumindest im Wesentlichen, vorzugsweise insgesamt angeordneten ersten Koppelkomponenten kann es sich um feststehende Koppelkomponenten, z.B. Rastvorsprünge oder -aufnahmen, handeln, aber auch um die bereits erwähnten Stützwände, die zum Tragen des oberen Behälters dienen, um Formschlusskonturen oder dergleichen handeln. Die ersten Koppelmittel, die am Deckelkorpus angeordnet sind, sind zweckmäßigerweise z. B. Haltelaschen, Drehriegel oder dergleichen.

[0022] An dieser Stelle sei bemerkt, dass selbstverständlich auch Teile der ersten Koppelkomponenten oder alle Koppelkomponenten der ersten Koppelmittel am Behälterkorpus angeordnet sein können. Jedenfalls sieht eine vorteilhafte Ausführungsform der Erfindung vor, dass an der Arbeitsplatte selbst keine Koppelkomponenten der ersten Koppelmittel vorgesehen sind. Es ist allerdings in diesem Zusammenhang vorteilhaft, dass die Arbeitsplatte zumindest eine Stützfunktion für den oberen, aufzustapelnden Behälter hat, beispielsweise eine Stützfläche bereitstellt.

[0023] An mindestens einer Deckel-Seitenwand des Deckelkorpus' ist zweckmäßigerweise mindestens eine Koppelkomponente der ersten Koppelmittel angeordnet. Beispielsweise handelt es sich hierbei um eine bewegliche Koppelkomponente, zum Beispiel einen Drehriegel, eine Lasche oder dergleichen. Die Koppelkomponente, die an der Deckel-Seitenwand angeordnet ist, ist vorzugsweise beweglich, kann aber auch ortsfest sein, zum Beispiel eine Formschlusskontur umfassen.

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[0024] Die Arbeitsplatte weist zweckmäßigerweise mindestens eine Aussparung für einen Stützfuß oder eine Koppelkomponente oder beides der zweiten Koppelmittel des oberen Behälters auf. Die Aussparung kann beispielsweise so tief oder so großflächig sein, dass der Stützfuß oder die Koppelkomponente in Kontakt oder Eingriff mit dem Deckelkorpus kommen kann. Die Aussparung kann aber auch als solche dazu dienen, beispielsweise den Stützfuß des oberen Behälters abzustützen und/oder einen Formschluss im Sinne einer Koppelung in der Stapelungsrichtung herzustellen, z.B. Beispiel eine Formschlusskontur aufweisen.

[0025] Der Deckel weist zweckmäßigerweise eine Griffausnehmung oder einen Tragegriff oder beides zum Ergreifen und Tragen des Behälters durch einen Bediener auf. Die Griffausnehmung oder der Tragegriff sind zweckmäßigerweise zentral an der Oberseite des Deckels angeordnet. Die Griffausnehmung oder der Tragegriff kann zweckmäßigerweise im Bereich der Arbeitsplatte vorgesehen sein. Eine bevorzugte Ausführungsform der Erfindung sieht nämlich vor, das die Arbeitsplatte die größte Fläche der Oberseite des Deckels überdeckt, so dass eine großflächige Nutzung möglich ist. Gerade dann ist es vorteilhaft, wenn die Arbeitsplatte die Griffausnehmung oder den Tragegriff aufweist. Die Griffausnehmung kann so vorgesehen sein, dass sie sich bis zu einer Deckelwand des Deckelkorpus' erstreckt, so dass ein Bediener durch die Griffausnehmung hindurch quasi den Deckelkorpus ergreifen kann. Die Griffausnehmung oder Aussparung kann auch so großflächig sein, dass ein am Deckelkorpus angeordneter Tragegriff, zum Beispiel ein feststehender Tragegriff oder beweglicher Tragegriff, durch den Bediener durch die Aussparung der Arbeitsplatte hindurch ergriffen werden kann.

[0026] Eine Halteeinrichtung-Widerlagerkontur, zum Beispiel eine Aussparung, eine Öffnung, die mit der Stauaufnahme kommunizieren kann oder dorthin offen sein kann, eine HintergreifKontur oder dergleichen, für eine Werkstück-Halteeinrichtung, zum Beispiel eine Zwinge, eine Klammer, eine Schraubzwinge oder dergleichen, kann ebenfalls im Bereich oder an der Arbeitsplatte und/oder einer sonstigen Stelle des Deckels, zum Beispiel auch des Deckelkorpus', angeordnet sein.

[0027] Eine bevorzugte Maßnahme sieht vor, dass an dem Deckel, zum Beispiel der Arbeitsplatte oder dem Deckel-Korpus oder beidem, eine Anordnung von in einem Rastermaß angeordneten Aussparungen und/öder Öffnungen und/oder Hintergreifkonturen für eine Werkstück-Halteeinrichtung vorgesehen ist. Somit können beispielsweise Werkstück-Halteeinrichtungen vorteilhaft weiter verwendet werden bzw. im Zusammenhang mit dem erfindungsgemäßen tragbaren Behälter verwendet werden, die bereits für einen vorhandenen Arbeitstisch genutzt werden, beispielsweise für einen Arbeitstisch des Typs MFT der Anmelderin.

[0028] An dem Deckel, zum Beispiel der Arbeitsplatte oder dem Deckelkorpus, ist eine Hafteinrichtung vorteilhaft vorgesehen. Bei der Hafteinrichtung handelt es sich beispielsweise um einen Gummistreifen, ein Haltepad oder dergleichen. Die Hafteinrichtung kann beispielsweise streifenförmig oder punktförmig sein. Selbstverständlich können mehrere Hafteinrichtungen vorgesehen sein. Weiterhin ist es vorteilhaft, wenn am Deckel, zum Beispiel der Arbeitsplatte, eine Werkstück-Aufnahmevertiefung angeordnet ist. Die Aufnahmevertiefung kann beispielsweise eine Nut sein oder eine Längsgestalt haben. In die Vertiefung kann ein Werkstück eingelegt werden, so dass ortsfest festgelegt ist, zumindest quer zu der Aufnahmevertiefung.

[0029] Die Arbeitsplatte als Ganzes oder zumindest im Bereich ihrer Arbeitsplattenoberseite besteht zweckmäßigerweise aus dem alternativen Material. Mithin muss also nicht die gesamte Arbeitsplatte aus dem zum Behälterkorpus und Deckelkorpus unterschiedlichen Material bestehen, sondern es genügt, wenn nur die Oberseite für eine Werkstückbearbeitung ausgestaltet ist. Mithin kann also die Arbeitsplatte auch beispielsweise sandwichartig ausgestaltet sein. Besonders bevorzugt ist es, wenn die Arbeitsplatte aus einer Faserplatte besteht, insbesondere einer mitteldichten Faserplatte. Ein Holzwerkstoff ist vorteilhaft. Selbstverständlich kann die Arbeitsplatte auch aus Holz sein, insbesondere aus Schichtholzmaterial (Sperrholz) oder dergleichen. Auch ein beispielsweise etwas weicherer Kunststoff als der Kunststoff des Deckelkorpus' ist bei der Arbeitsplatte vorteilhaft.

[0030] Der Behälterkorpus und/oder des Deckelkorpus' sind vorteilhaft Kunststoffspritzteile. Fest mit dem Behälterkorpus oder Deckelkorpus verbundene Koppelkomponenten der ersten und zweiten Koppelmittel, z.B. Formschlusskonturen, sind vorzugsweise integral mit den jeweiligen Grundkörpern und Wänden des Behälterkorpus' und/oder des Deckelkorpus'.

[0031] Bei dem Material des Behälterkorpus' und/oder des Deckelkorpus' handelt es sich vorzugsweise um einen thermoplastischen Kunststoff, einen Hartkunststoff, oder dergleichen. Ein bevorzugtes Ausführungsbeispiel der Erfindung sieht vor, dass der Deckelkorpus und vorzugsweise auch der Behälterkorpus aus ABS sind.

[0032] Die Arbeitsplatte ist in der Aufnahme des Deckelkorpus' vorteilhaft formschlüssig aufgenommen.

[0033] Die Arbeitsplatte ist zweckmäßigerweise anhand von Befestigungsmitteln lösbar an dem Deckelkorpus befestigbar. Eine verschlissene Arbeitsplatte kann auf diesem Wege sehr einfach entfernt und gegen eine neue, unbeschädigte Arbeitsplatte getauscht werden. Der Behälter als solches kann also ohne weiteres weiterverwendet werden. Wenn also die Arbeitsplatte beispielsweise durch Sägen, Bohren, Schleifen oder dergleichen beschädigt ist, kann man sie leicht auswechseln. Die Befestigungsmittel umfassen beispielsweise Schrauben, Rastmittel, Formschlusskonturen oder dergleichen. Auch bewegliche Halteriegel, Klemmmittel oder dergleichen sind ohne weiteres möglich.

[0034] Die Unterseite, zum Beispiel eine Bodenwand des Behälters, ist zweckmäßigerweise zum Stapeln des

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Behälters auf einen unteren Behälter oder einen Staubsauger ausgestaltet. Der Behälter hat im Bereich der Unterseite zweckmäßigerweise zweite Koppelmittel, zum Beispiel die bereits im Zusammenhang mit dem oben aufzustapelnden Behälter erwähnten Koppelmittel, zur Zusammenwirkung mit ersten Koppelmitteln des unteren Behälters oder des Staubsaugers zu einem in der Stapelungsrichtung zugfesten Koppeln des Behälters mit dem unteren Behälter oder dem Staubsauger.

[0035] Zu den ersten und zweiten Koppelmitteln ist in diesem Zusammenhang auch noch zu ablehnen, dass diese durchaus multifunktional sein können, d.h. dass die ersten Koppelmittel beispielsweise dazu ausgestaltet sein können, obere Behälter eines ersten und eines zweiten Typs zu tragen.

[0036] Selbstverständlich sind auch die unten angeordneten zweiten Koppelmittel vorteilhaft dazu ausgestaltet, unterschiedliche Typen von unter dem erfindungsgemäßen Behälter angeordneten Behältern, Staubsaugern oder dergleichen anzukoppeln.

[0037] Im Rahmen der Erfindung liegt auch eine Stapelanordnung, die einen oder mehrere der erfindungsgemäßen tragbaren Behälter umfasst, wobei oberhalb des erfindungsgemäßen Behälters oder unterhalb des erfindungsgemäßen Behälters ein weiterer Behälter oder einen Staubsauger angekoppelt ist.

[0038] Zwar sieht eine bevorzugte Ausführungsform der Erfindung vor, dass der Deckel anhand einer Scharnieranordnung, beispielsweise Schwenk-Scharnieren, Schiebe-Scharnieren oder dergleichen, am Behälterkorpus verschieblich und/oder schwenkbar angelenkt ist. Es ist aber auch möglich, dass der Deckel als ein Steck-Deckel ausgestaltet ist, der die Stauaufnahme-Öffnung verschließend oben auf den Behälterkorpus aufgesteckt oder in den Behälterkorpus eingesteckt werden kann.

[0039] Nachfolgend wird ein Ausführungsbeispiel der Erfindung anhand der Zeichnung erläutert. Es zeigen:

Figur 1 eine perspektivische Ansicht eines Behälters von schräg oben,

Figur 2 was den Behälter gemäß Figur 1 in teilweise geöffnetem Zustand,

Figur 3 den Behälter gemäß Figur 1, 2 aufgestapelt auf einen anderen Behälter,

Figur 4 den Behälter gemäß Figuren 1, 2 von unten, und

Figur 5 den Behälter-Stapel gemäß Figur 3 im Zusammenhang mit einem System umfassend einen Staubsauger, einen weiteren Behälter sowie eine Anordnung von einem Werkstück und einer Hand-Werkzeugmaschine zur Nutzung mit dem Behälter-Stapel.

[0040] In der Zeichnung sind ein Behälter 10 und ein Behälter 110 erläutert, die teilweise gleiche oder ähnliche Bauteile und Komponenten haben, die mit denselben Bezugsziffern oder um 100 verschiedenen Bezugsziffern versehen sind, um Ähnlichkeiten deutlich zu machen.

[0041] Die Behälter 10, 110 weisen gleichartige Behälterkorpusse 11 auf, an denen Deckel 12, 112 schwenkbeweglich angeordnet sind. In Figur 2 ist beispielsweise die aufgeschwenkte Stellung des Deckels 12 relativ zum Behälterkorpus 11 dargestellt, so dass man auch eine Scharnieranordnung 63 sieht, mit der der Deckel 12 schwenkbar am Behälterkorpus 11 angelenkt ist.

[0042] Am Deckel 12, 112 ist jeweils ein Tragegriff 13, 113 vorgesehen, mit dem der jeweilige Behälter 10, 110 bequem ergriffen werden kann.

[0043] Der Tragegriff 13 wird von einer Tragegriff-Aussparung 14 gebildet, beispielsweise einer Griffmulde oder einer Durchgriff-Öffnung.

[0044] Der Tragegriff 113 ist schwenkbar am Deckel 112 angelenkt und umfasst beispielsweise eine Art Schwenkbügel oder dergleichen, die bei Nichtgebrauch in eine Tragegriff-Aussparung 114 eingeschwenkt werden kann, so dass der Tragegriff 113 nicht vor eine Oberseite des Behälters 110 vorsteht und dieser zum Aufstapeln eines Behälters, nämlich beispielsweise des Behälters 10 (Figuren 3, 5) bereitsteht.

[0045] Der Behälterkorpus 11 umfasst eine Bodenwand 15 sowie eine vordere Längsseitenwand 16 und eine hintere Längsseitenwand 17, zwischen denen sich eine von vorn her gesehen linke Querseitenwand 18 und eine rechte Querseitenwand 19 erstrecken.

[0046] Die Längsseitenwände 16, 17 sowie die Querseitenwände 18, 19 stehen nach oben vor die Bodenwand 15 ab und sind Umfangswände. Die Bodenwand 15 und diese Umfangswände begrenzen eine Stauaufnahme 20, die zum Verstauen von Gegenständen, beispielsweise einer Hand-Werkzeugmaschine 86 oder einer Zwinge 81 (Figur 2) oder einer sonstigen Werkstück-Halteeinrichtung 80 oder beispielsweise auch Werkzeug-Zubehörteilen wie zum Beispiel einem Sägeblatt, Bohrern, Schleifmitteln oder dergleichen, geeignet ist.

[0047] An einer Unterseite 41, die die Bodenwand 15 des Behälterkorpus' 11 umfasst, sind zweite Koppelmittel 62 angeordnet, die mit ersten Koppelmitteln 61 an einer Oberseite 40 des Behälters 10, 110 zusammenwirken. Die Koppelmittel 61, 62 sind also komplementär. Sie ermöglichen ein Aufstapeln und zugfestes Halten von Behältern 10, 110 dergestalt, dass sie in der Stapelungsrichtung 100 zugfest gekoppelt sind.

[0048] Obwohl die Behälter 10, 110 teilweise unterschiedliche Bestandteile haben, was nachfolgend noch deutlich wird, sind sie ohne weiteres miteinander verbindbar und koppelbar.

[0049] Die zweiten Koppelmittel 62 umfassen Stützfüße 26, die nach unten vor die Bodenwand 15 des Behälterkorpus' 11 vorstehen. Die Stützfüße 26 sind im Bereich der vorderen Längsseitenwand 16 angeordnet. Hinten, im Bereich der hinteren Längsseitenwand 17 befinden sich an der Bodenwand 15 weitere Füße, aller-

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dings nicht nur zum Stützen geeignete Füße, sondern Hakenfüße 27. An den Hakenfüßen 27 ist eine Hintergreifkontur 28 vorgesehen, die zum Hintergriff mit einer Hintergreif-Aufnahmekontur 31, 131 der ersten Koppelmittel 61 ausgestaltet ist.

[0050] An den Deckeln 12, 112 sind im Bereich der vorderen Längsseitenwand 22 an der jeweiligen Deckwand 21, 121 des Deckels 12, 112 Fußvertiefungen 29, 129 vorgesehen, in die die Stützfüße 26 passen. Die Fußvertiefungen 29, 129 nehmen die Stützfüße 26 insoweit formschlüssig auf, dass der jeweils obere Behälter 10, 110 auf dem jeweils unteren Behälter 10, 110 bezüglich einer ersten Querrichtung 101 und einer zweiten Querrichtung 102, die sich quer zur Stapelungsrichtung 100 erstrecken, verschiebefest aufgenommen ist.

[0051] Die vordere Längsseitenwand 22 gegenüber liegt eine hintere Längsseitenwand 23 des Deckels 12, 112. Die Längsseitenwand 23 ist mittels der Scharnieranordnung 63, also eines Schwenklagers, an der darunter liegenden hinteren Längsseitenwand 17 des Behälterkorpus' 11 schwenkbar gelagert.

[0052] Die Hintergreif-Konturen 28 zusammen mit den Hintergreif-Aufnahmekonturen 31, 131, die an Aussparungen 30, 130 an der Deckwand 21, 121 des Deckels 12, 112 vorgesehen sind, dienen zum Verhaken der Behälter 10, 110. Die Koppelung, wie in der in WO 2011/000385 A1 detailliert beschrieben, funktioniert so, dass zunächst die Konturen 28 einerseits und andererseits die Aufnahmekonturen 31, 131 miteinander verhakt werden und dann der jeweils obere Behälter 10, 110 um die durch die Konturen 28-31, 131 definierte Schwenkachse nach unten zum unteren Behälter 10, 110 verschwenkt wird, bis die Stützfüße 26 in die Fuß-Vertiefungen 29, 129 eingreifen.

[0053] Sodann erfolgt die abschließende, zugfeste Koppelung der Behälter 10, 110 bezüglich der Stapelungsrichtung 100. Die zweiten Koppelmittel 62 umfassen Verriegelungsankerkonturen 32. Die Verriegelungsankerkonturen 32 umfassenden Vorsprünge oder Verankerungsvorsprünge 33, die nach vorn vor die vordere Längsseitenwand 16 vorstehen.

[0054] Ein bewegliches Verriegelungselement 34 der ersten Koppelmittel 61, zum Beispiel ein Drehriegel 35, ist am Deckel 12, 112 vorgesehen. Der Drehriegel 35 weist verriegelungsaufnahmekonturen 36, zum Beispiel eine Haltenut 37 auf. Wenn das Verriegelungselement 34 gedreht wird, gelangt die Haltenut 37 in Eingriff oder außer Eingriff mit den Verankerungsvorsprüngen 33 und ferner an der Behälterkorpus-Längsseitenwand 16 angeordneten Verankerungsvorsprüngen 58. Der Verriegelungselement 34 koppelt also die Behälterkorpusse 11 des oberen und des unteren Behälters 10, 110 direkt miteinander.

[0055] Dadurch ist der Behälter 10, 110 am jeweils unteren Behälter 10, 110 zugfest bezüglich der Stapelungsrichtung 100 festgelegt. Den Formschluss bzw. die Kopplung quer dazu, nämlich in der Querrichtung 101 oder 102, wird durch die ineinander eingreifenden Stützfüße 26 und Hakenfüße 27 einerseits und die zugehörigen Fuß-Vertiefungen 29, 129 bzw. die Aussparungen 30, 130 sowie die Konturen 28, 31, 131 sichergestellt.

[0056] Die Behälter 10 können zudem auch mit in der Zeichnung nicht detailliert dargestellten Behältern eines anderen Typs in Bezug auf die Stapelungsrichtung 100 und auch die Querrichtungen 101, 102 ortsfest festgelegt werden. Beispielhaft für diese derartigen weiteren Koppelmittel oder Bestandteile davon sei nachfolgendes erläutert:

> Die Behälter 10, 110 können beispielsweise auch auf einem Staubsauger 90 befestigt und angeordnet werden. An einem Gehäuse 92 des Staubsaugers 90 sind unten Rollen 91 zum Rollen auf einem Untergrund angeordnet. Eine Oberseite 93 des Gehäuses 92 weist eine Halterung 94 zum Halten eines Behälters 10 oder 110 auf.

[0057] Unterhalb der Halterung 94 befindet sich eine Aussparung 95, die beispielsweise zum Ablegen und Verstauen von Gegenständen, insbesondere einem Saugschlauch des Staubsaugers (nicht dargestellt), geeignet ist Die Halterung 94 umfasst beispielsweise eine in der Zeichnung hintere Stützwand 96 sowie eine in der Zeichnung vordere Stützwand 97, zwischen denen ein Behälter 10 oder 110 anordenbar ist. An den Stützwänden 96, 97 sind Verriegelungslaschen, jedenfalls bewegliche Verriegelungselemente 98 vorgesehen, die in Eingriff mit an den Querseitenwänden 18, 19 des Behälters 10, 110 vorgesehenen Verankerungsvorsprüngen 38 gebracht werden können.

[0058] Eine vorderseitige Abstützung und Koppelung der Behälter 10, 110 am Staubsauger 90 kann beispielsweise anhand von weiteren, an der vorderen Längsseitenwand 16 angeordneten Verankerungsvorsprüngen 39 erzielt werden, die in in der Zeichnung nicht sichtbare Aufnahmen an einer Längsstützwand 99 der Halterung 94 des Staubsaugers 90 eingreifen können.

[0059] Die Verriegelungselemente 98, z.B. Schwenklaschen, können im Prinzip auch zusätzlich zu den bereits erwähnten Komponenten der ersten Koppelmittel 61 an einem Behälter 10, 110 vorgesehen sein. Jedenfalls umfassen die zweiten Koppelmittel 62 an der Unterseite 41 eines jeweiligen Behälters 10, 110 auch die Verankerungsvorsprünge 38, 39, so dass eine Koppelung in der Stapelungsrichtung 100 mit anderen Behältern als Behälter des Typs der Behälter 10, 110 möglich ist, z.B. Behältern wie in DE 42 01 264 A1 beschrieben.

[0060] Die Stauaufnahme 20 ist durch eine Stauaufnahme-Öffnung 42 an der Oberseite des Behälterkorpus' 11, 111 zugänglich. Die Stauaufnahme-Öffnung 42 wird durch die Umfangswände, nämlich die Längsseitenwände 16, 17 und die Querseitenwände 18, 19 begrenzt.

[0061] Anhand des Deckels 12, 112 ist die Stauaufnahme-Öffnung 42 verschließbar. Man erkennt aus beispielsweise Figur 5, dass eine formschlüssige und maßgenaue Koppelung zwischen zwei Behältern 111

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ohne weiteres möglich ist, da der Deckel 112 integral die notwendigen Bestandteile der ersten Koppelmittel 61 umfasst, beispielsweise das bewegliche Verriegelungselement 34 sowie die entsprechenden Stütz- und Aufnahmekonturen, zum Beispiel die Aufnahmekonturen 31, 131. Weiterhin ist die Deckwand 121 auf ihrer Oberseite, d.h. dem jeweils aufgestapelten Behälter 10, 110 gegenüberliegend und diesen abstützend passgenau und maßgenau.

[0062] Aber auch bei dem Behälter 10, der zugleich als ein Arbeitstisch ausgestaltet sein kann, ist eine passgenaue und maßgenaue Höhenverknüpfung mit einem weiteren, oberhalb des Behälters 10 angeordneten Behälter 10, 110 oder einem anderen passenden Behälter möglich, der zu den Koppelmitteln 61 passende Koppelmittel, zum Beispiel die Koppelmittel 62, aufweist.

[0063] Der Deckel 12 umfasst einen Deckelkorpus 43, der die wesentlichen, zum Aufstapeln weiterer Behälter 10 oder 110 geeigneten Stützflächen und Koppelmittel umfasst und zudem eine Aufnahme 44 für eine Arbeitsplatte 47 hat. Die Aufnahme 44 wird von Stützabschnitten 45, 46 seitlich begrenzt. An der Oberseite der Stützabschnitte 45, 46 erstrecken sich Stützwände 49, vor die eine Oberseite der Arbeitsplatte 47, nämlich eine Arbeitsplattenoberseite 48, nicht vorsteht. Dadurch ist eine definierte Auflagefläche an der Oberseite 40 des Behälters 10 für einen aufzustapelnden weiteren Behälter 10 oder 110 vorhanden. Die Arbeitsplatte 47 stört die Kopplung mit einem oberhalb angeordneten Behälter 10, 110 nicht.

[0064] Es kann an der Oberseite 40 des Behälters 10 auch ein Behälter 210 angeordnet werden, der eine oben offene Stauaufnahme 220 und einen festen, nach oben vor seinen Behälterkorpus 211 vorstehenden Tragegriff 213 aufweist. Am Behälterkorpus 211 sind zweite Koppelmittel 62 angeordnet, die mit den Koppelmitteln 61 des Behälters 10 zusammenwirken können.

[0065] Die Arbeitsplatte 47 steht den Koppelmitteln 61 nicht im Weg.

[0066] Der Deckelkorpus 43 des Behälters 10 besteht aus vorzugsweise demselben Material wie der Behälterkorpus 11 und zweckmäßigerweise auch aus demselben Material wie der Deckel 112, nämlich ABS oder einem anderen geeigneten Hart-Kunststoff. Die Arbeitsplatte 47 hingegen besteht aus einem Fasermaterial, Holz oder einem Holzwerkstoff. Beispielsweise ist die Arbeitsplatte 47 als eine Arbeitsplatte aus mitteldichten Fasermaterial ausgestaltet oder besteht aus einer mitteldichten Faserplatte, einer sogenannten MDF-Platte.

[0067] Stirnseiten 60 der Arbeitsplatte 47 schließen bündig mit den Außenseiten der Querseitenwände 24, 25 des Deckels 12, insbesondere des Deckelkorpus' 43 ab oder sind gegenüber diesen Querseitenwänden 24,25 etwas zurückversetzt. Jedenfalls sind die Stirnseiten 60 frei stehen, so dass ein von der Seite her, das heißt von den Querseitenwänden 24, 25 her an die Arbeitsplatte 47 heran geführtes Werkzeug, zum Beispiel die Hand-Werkzeugmaschine 86 in Kontakt mit der Arbeitsplatte 47 gelangt und nicht etwa mit dem Deckelkorpus 43. Wenn also die Arbeitsplatte 47 dadurch beschädigt wird, macht dies an sich, was die Koppelung mit anderen Behältern angeht, nichts aus.

[0068] Auch sonst ist die Arbeitsplatte 47 robust und darf durchaus verschleißen. Sie ist beispielsweise mit der Bodenwand der Aufnahme 44 verschraubt, mit dieser Bodenwand verhakt oder dergleichen. Somit kann die Arbeitsplatte 47 bei Verschleiß leicht vom Rest des Behälters 10 entfernt werden und gegen eine andere, neue Arbeitsplatte 47 oder einer anders ausgestalteten, an die jeweiligen Anforderungen angepasste Arbeitsplatte ausgewechselt werden.

[0069] Der Behälter 10 eignet sich als Arbeitstisch, beispielsweise zum Auflegen eines Werkstücks W wie in Figur 5 dargestellt. Das Werkstück W umfasst beispielsweise eine Platte P, die oben auf den Behälter 10, d.h. auf dessen Oberseite 40 und somit die Arbeitsplatte 47, aufgelegt werden kann.

[0070] Für einen optimalen Halt des Werkstücks W sorgt beispielsweise eine Hafteinrichtung 54, beispielsweise ein Streifen aus Schaumstoff, Gummi oder dergleichen, der gegenüber der sonstigen Arbeitsplattenoberseite 48 eine höhere Haftreibung aufweist. Die Hafteinrichtung 54 kann auch einen Haftbeschichtung, z.B. eine Gummierung, sein. Somit rutscht beispielsweise die Platte P nicht an der Arbeitsplattenoberseite 48 entlang.

[0071] Aber auch kleinere Werkstücke, beispielsweise stangenartige Werkstücke oder dergleichen, finden auf der Arbeitsplatte 47 Halt. Beispielsweise ist eine Werkstück-Aufnahmevertiefung 55, insbesondere eine Längsnut 56, die sich entlang der Querrichtung 102 erstreckt, vorgesehen, in die ein stangenartiges oder stabartiges, auch ein im Querschnitt rundes Werkstück eingelegt werden kann. Selbstverständlich ist es auch möglich, dass beispielsweise die Platte P mit einer Kante in die Aufnahmevertiefung 55 eingeführt wird, so dass sie einen optimalen Halt finden.

[0072] Die Längsnut 56 kann auch als eine Führungskontur 57 für eine Hand-Werkzeugmaschine dienen. Beispielsweise kann ein Führungsvorsprung an einem Sägetisch einer Handkreissäge in die Längsnut 56 eingreifen.

[0073] Der Behälter 10 kann für eine ergonomische Werkstück-Bearbeitung auch beispielsweise direkt am Staubsauger 90 oder aufgestapelt auf weitere Behälter 110 oder 10 (siehe Figur 5) genutzt werden. Es ist zum Beispiel möglich, einen Stapel bestehend aus dem Staubsauger 90 und einem oder mehreren Behältern 10, 110 zu bilden, wobei der oberste Behälter 10 dann die Arbeitsplatte bereitstellt. Somit ist eine vorteilhafte Höhenanpassung möglich, so dass sich ein Bediener abhängig von seiner Körpergröße und dem jeweiligen Werkstück quasi den Arbeitstisch in der Höhe geeignet einstellen oder aufbauen kann.

[0074] Dabei ist zu berücksichtigen, dass beispielsweise die in der Zeichnung vorderen Rollen 91 des Staubsaugers 90 ortsfest festlegbar sein können oder dass beispielsweise eine Fixiereinrichtung 89 am Staubsau-

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ger 90 vorgesehen ist, die zum ortsfesten Festlegen des Staubsaugers 90 geeignet ist. Der Arbeitstisch mit dem Staubsauger 90 als Basis und oben dem Behälter 10 ist somit ortsfest festlegbar und kann bei Bedarf anhand der Rollen 91 bequem an einen anderen Ort verfahren werden. Die Handhabung ist also besonders günstig.

[0075] Der Arbeitstisch umfassend jedenfalls den Behälter 10, gegebenenfalls darunter befindliche Behälter 10, 110 und/oder den Staubsauger 90, eignet sich auch zum ortsfesten Fixieren von Werkstücken. Beispielsweise kann die im Innenraum des Behälterkorpus' 11 verstaubare Zwinge 81, also eine Werkstück-Halteeinrichtung 80, zum Klemmen und Halten beispielsweise des Werkstücks W (Platte P) genutzt werden.

[0076] Die Zwinge 81 hat beispielsweise einen Grundschenkel 83, von dem in bekannter Weise ein Halteschenkel 82 absteht, gegenüber dem ein ebenfalls am Grundschenkel 83 angeordneter, jedoch längsbeweglicher Stellschenkel 84 in eine geeignete Längsposition verstellt werden kann. Anhand eines Handgriffes 85 ist eine Fixierschraube der Schraub-Zwinge 81 betätigbar. Der Halteschenkel 82 kann an verschiedenen Positionen des Behälters 10 eingehakt werden, vorzugsweise beispielsweise in eine seitliche Öffnung 53 an einer jeweiligen Querseitenwand 24, 25 des Deckelkorpus' 43. Der Stellschenkel 84 wird dann der Höhe nach verstellt, bis er oben auf dem Werkstück W aufliegt, jedenfalls mit der durch den Handgriff 85 verstellbaren Stellschraube oder deren Kopf, so dass die Zwinge 81 das Werkstück W gegen die Arbeitsplatte 47 spannt.

[0077] Die Öffnung 53 bildet eine Halteeinrichtung-Widerlagerkontur 50 für die Zwinge 81. In der Zeichnung nicht dargestellte andere Werkstück-Halteeinrichtungen können den Öffnungen 51, 52 oben an der Arbeitsplatte 47 eingehakt oder eingesteckt werden. Die Öffnungen 51 befinden sich direkt an der Arbeitsplattenoberseite 48. Demgegenüber sind die Öffnungen 52 etwas tiefer angeordnet und befinden sich beispielsweise an den Fuß-Vertiefungen 29 und den Aussparungen 30. Ein Rastermaß der Öffnungen 51, 52 entspricht vorzugsweise einem an sich bekannten Arbeitstisch des Typs MFT der Anmelderin.

[0078] Der Deckel 12 kann auch an einem höheren oder niedrigeren Behälterkorpus als dem Behälterkorpus 11 angeordnet sein.

Patentansprüche

1. Tragbarer Behälter (10), insbesondere für eine Hand-Werkzeugmaschine (86), mit einem Behälterkorpus (11), der eine von Umfangsseitenwänden (16-19) begrenzte, durch eine Stauaufnahme-Öffnung (42) an einer Oberseite (40) des Behälters (10) zugängliche Stauaufnahme (20) zum Verstauen von Gegenständen, insbesondere der Hand-Werkzeugmaschine (86) und/oder zur Nutzung derselben geeigneter Werkzeugteile, aufweist und mit seiner Unterseite (41) auf einem Untergrund abstellbar ist, wobei der Behälter (10) an seiner Oberseite (40) einen Deckel (12) zum Verschließen der Stauaufnahme-Öffnung (42) aufweist und an seiner Oberseite (40) zum Aufstapeln eines weiteren Behälters (10) entlang einer Stapelungsrichtung (100) ausgebildet ist und im Bereich der Oberseite (40) erste Koppelmittel (61) zur Zusammenwirkung mit zweiten Koppelmitteln (62) des oberen Behälters (10) zu einem in der Stapelungsrichtung (100) zugfesten Koppeln der Behälter (10) aufweist, und wobei der Deckel (12) einen an dem Behälterkorpus (11) mittels einer Scharnieranordnung (63) beweglich gelagerten und/oder an den Behälterkorpus (11) aufsteckbaren Deckelkorpus (43) aufweist, **dadurch gekennzeichnet, dass** der Deckel (12) eine Arbeitsplatte (47) aufweist, deren Arbeitsplattenoberseite (48) zur Auflage eines Werkstücks für eine Werkstück-Bearbeitung ausgestaltet ist und aus einem gegenüber dem Deckelkorpus (43) alternativen Material besteht, und dass der Deckelkorpus (43) eine Aufnahme (44) aufweist, in der die Arbeitsplatte (47) derart aufgenommen ist, dass sie eine Zusammenwirkung der ersten Koppelmittel (61) mit den zweiten Koppelmitteln (62) des oberen Behälters (10) ermöglicht und die Behälter (10) in der Stapelungsrichtung (100) zugfest koppelbar sind.

2. Behälter nach Anspruch 1, **dadurch gekennzeichnet, dass** der Deckelkorpus (43) eine die Aufnahme (44) für die Arbeitsplatte (47) aufweisende Deckwand (21) und vor die Deckwand (21) vorstehende Deckel-Seitenwände (22-25) aufweist, die im geschlossenen Zustand des Behälters (10) an Behälterkorpus-Seitenwänden des Behälterkorpus' (11) abgestützt sind.

3. Behälter nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Aufnahme (44) für die Arbeitsplatte (47) als eine Vertiefung an der Deckwand (21) ausgestaltet ist.

4. Behälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sich neben der Aufnahme (44) mindestens ein Stützabschnitt (45, 46) der Deckwand (21) erstreckt, der an der Oberseite (40) des Behälters (10) eine Stützwand zum Abstützen des aufzustapelnden oberen Behälters (10) aufweist.

5. Behälter nach Anspruch 4, **dadurch gekennzeichnet, dass** die Arbeitsplatte (47) mit mindestens einem Stützabschnitt (45, 46) fluchtet oder hinter den mindestens einen Stützabschnitt (45, 46) zurückversetzt ist und/oder zwischen zwei Stützabschnitten (45, 46) der Deckwand (21) angeordnet ist.

6. Behälter nach einem der vorhergehenden Ansprü-

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che, **dadurch gekennzeichnet, dass** der Deckel (12), insbesondere an der Arbeitsplatte (47), eine Führungskontur (57) zum Führen der Hand-Werkzeugmaschine (86) aufweist und/oder mindestens eine Stirnseite der Arbeitsplatte (47) frei zu einer sich neben der Oberseite erstreckenden Seite des Behälters (10) ausmündet.

7. Behälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** an dem Deckel (12) vorgesehene bewegliche Koppelkomponenten der ersten Koppelmittel (61), insbesondere eine schwenkbare Haltelasche oder ein Drehriegel (35), und/oder für einen zugfesten Halt vorgesehene Koppelkomponenten, insbesondere eine Hintergreif-Aufnahmekontur, oder die ersten Koppelmittel (61) insgesamt ausschließlich an dem Deckelkorpus (43) angeordnet sind.

8. Behälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** an mindestens einer Deckel-Seitenwand (22-25) des Deckelkorpus' (43) eine insbesondere bewegliche Koppelkomponente der ersten Koppelmittel (61) angeordnet ist.

9. Behälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Arbeitsplatte (47) mindestens eine Aussparung für einen Stützfuß (26) des oberen Behälters (10) und/oder eine Koppelkomponente der zweiten Koppelmittel (62) des oberen Behälters (10) aufweist.

10. Behälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Deckel (12), insbesondere im Bereich der Arbeitsplatte (47), eine Griffausnehmung oder einen Tragegriff (13) zum Ergreifen und Tragen des Behälters (10) durch einen Bediener und/oder eine Halteeinrichtungs-Widerlagerkontur (50), insbesondere eine Aussparung und/oder eine insbesondere mit der Stauaufnahme (20) kommunizierende Öffnung (51-53) und/oder eine Hintergreifkontur, für eine Werkstück-Halteeinrichtung (80), insbesondere eine Zwinge (81), aufweist.

11. Behälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** an dem Deckel (12), insbesondere der Arbeitsplatte (47), eine Anordnung von in einem Rastermaß angeordneter Aussparungen und/oder Öffnungen (51-53) und/oder Hintergreifkonturen für eine Werkstück-Halteeinrichtung (80) und/oder eine insbesondere streifenförmige Hafteinrichtung (54) und/oder eine Werkstück-Aufnahmevertiefung (55) vorgesehen ist.

12. Behälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Arbeitsplatte (47) als Ganzes oder zumindest im Bereich ihrer Arbeitsplattenoberseite (48) aus dem alternativen Material besteht und/oder dass das Material der Arbeitsplatte (47) Holz oder einen Holzwerkstoff, eine Faserplatte, insbesondere eine mitteldichte Faserplatte, und/oder ein Schichtholzmaterial und/oder Vollholz und/oder Kunststoff umfasst oder ist und/oder ein Material des Behälterkorpus' (11) und/oder des Deckelkorpus' (43) einen thermoplastischen Kunststoff oder einen Hartkunststoff, insbesondere ABS (Acrylnitril-Butadien-Styrol-Copolymerisat), umfasst oder ist.

13. Behälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Arbeitsplatte (47) anhand von lösbaren Befestigungsmitteln, insbesondere mindestens einer Schraube und/oder Rastmitteln und/oder Formschlusskonturen, insbesondere einer Hakenanordnung, an dem Deckelkorpus (43) lösbar befestigbar.

14. Behälter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Unterseite (41), insbesondere eine Bodenwand, des Behälters (10) zum Stapeln des Behälters (10) auf einen unteren Behälter (10) oder einen Staubsauger (90) ausgestaltet ist und der Behälter (10) im Bereich der Unterseite (41) zweite Koppelmittel (62) zur Zusammenwirkung mit ersten Koppelmitteln (61) des unteren Behälters (10) oder des Staubsaugers (90) zu einem in der Stapelungsrichtung (100) zugfesten Koppeln des Behälters (10) mit dem unteren Behälter (10) oder dem Staubsauger (90) aufweist.

15. Stapelanordnung (34), die mindestens einen tragbaren Behälter (10) nach einem der vorhergehenden Ansprüche und mindestens einen weiteren Behälter (10; 110) und/oder ein Sauggerät (90) umfasst, das insbesondere direkt unterhalb des Behälters (10) angeordnet oder anordenbar ist.

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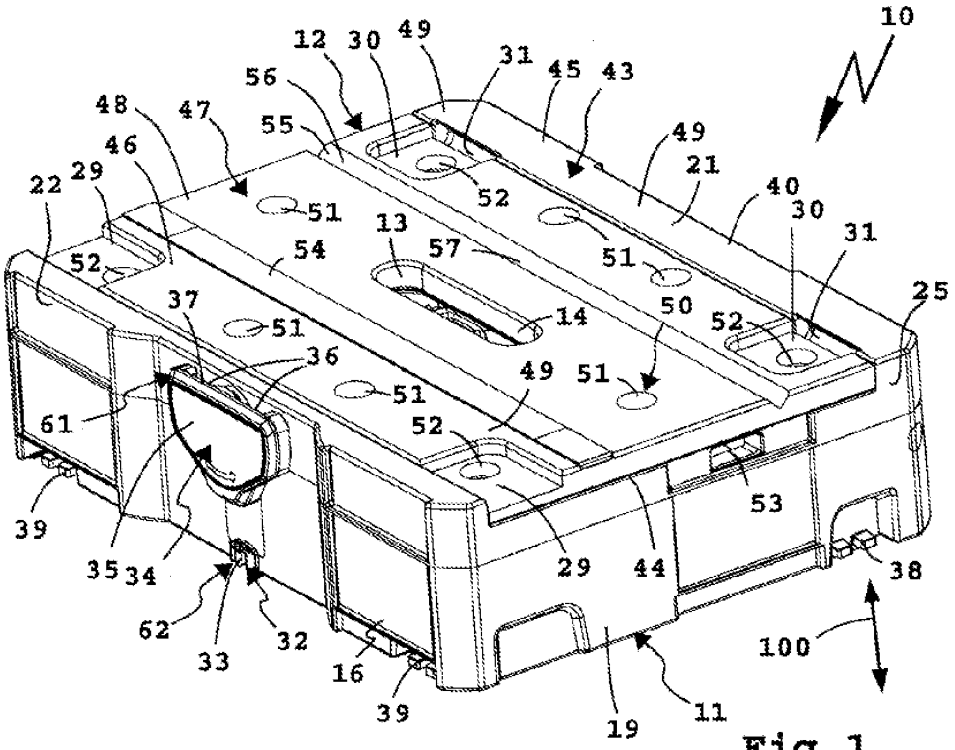


Fig.1

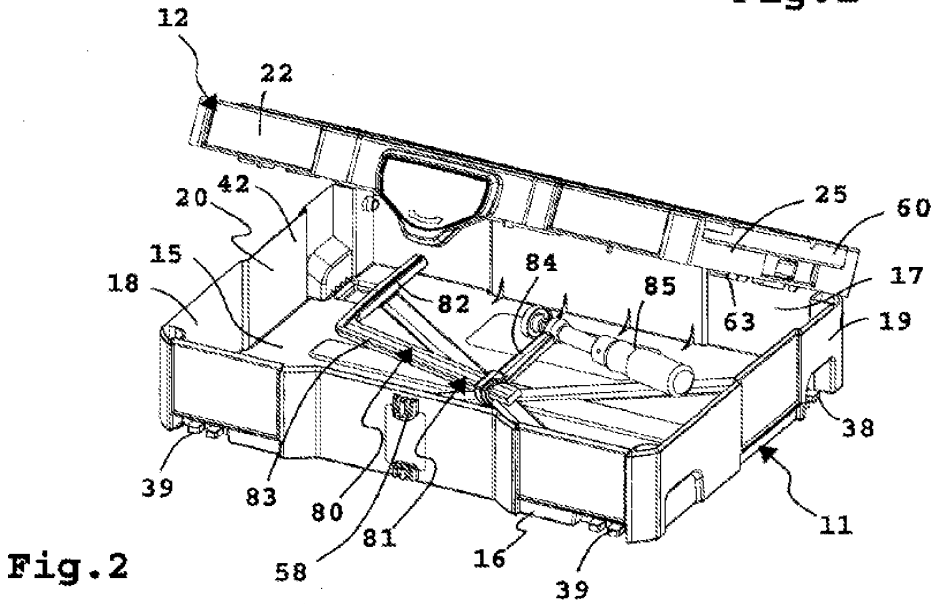


Fig.2

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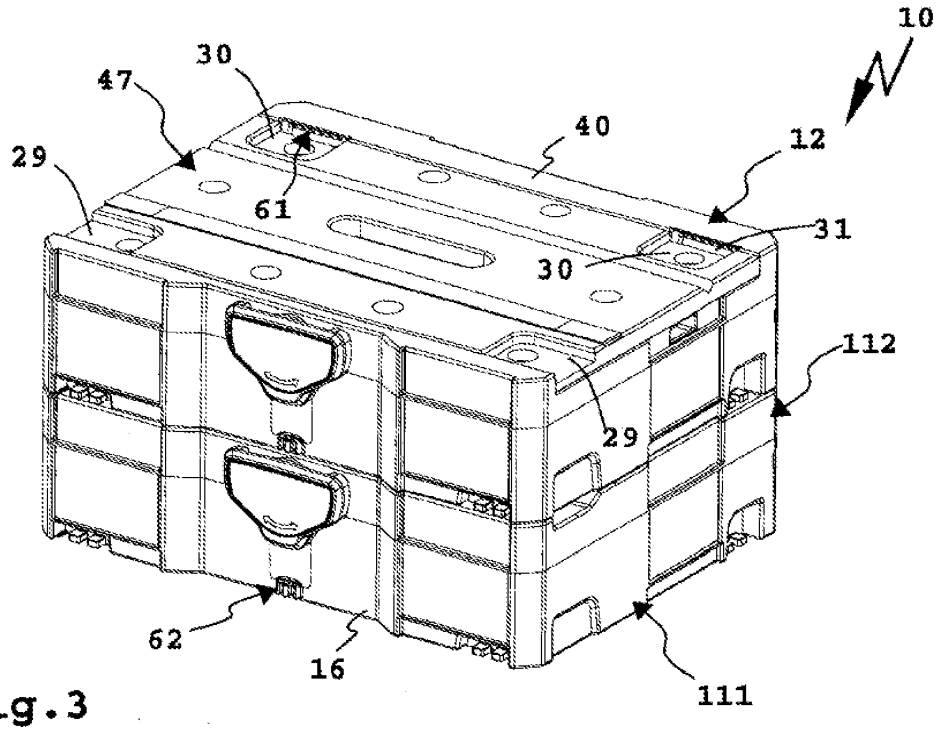


Fig.3

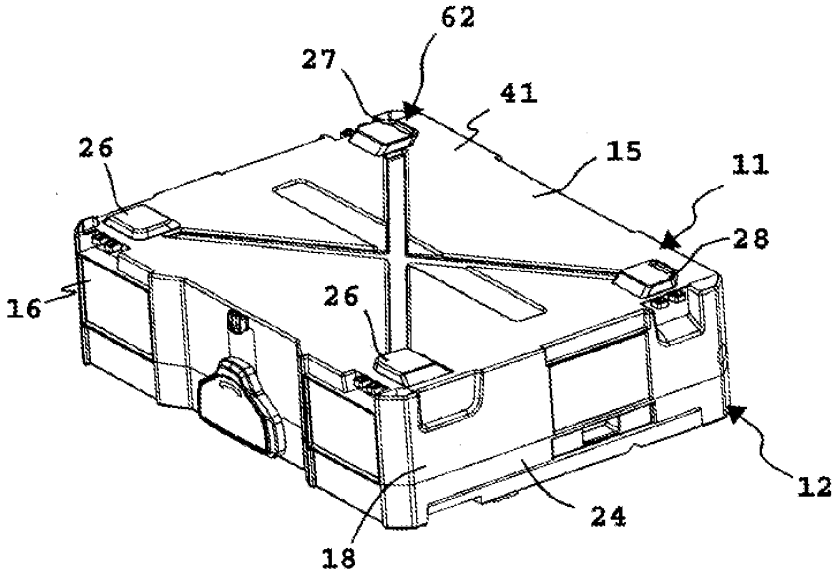


Fig.4

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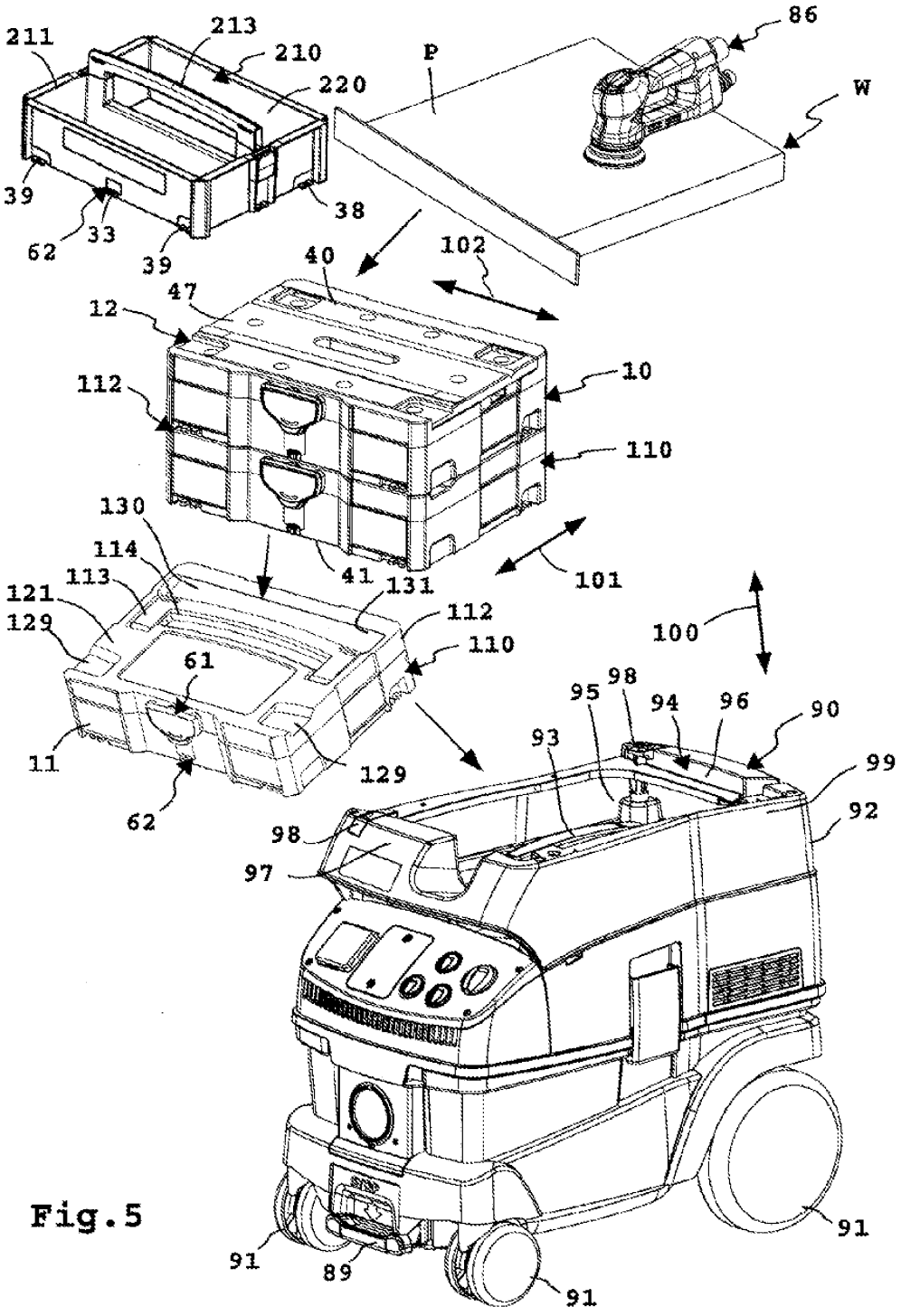


Fig.5

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IN DER BESCHREIBUNG AUFGEFÜHRTE DOKUMENTE

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In der Beschreibung aufgeführte Patentdokumente

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- DE 4201264 A1 **[0059]**

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1) Family number: 64979288 (EP3141354B1) © PatBase

Title: EXTENSION DEVICE FOR EXPANDING THE SPACE OF A HOLDER AREA OF AN ADAPTER DEVICE DISPOSITIF DESTINE A L'ELARGISSEMENT SPATIAL D'UNE SURFACE DE RECEPTION D'UN DISPOSITIF D'ADAPTATE

Priority: DE201510113597 20150817

Family:

Publication number	Publication date	Application number	Application date
DE102015113597 A1	20170223	DE201510113597	20150817
EP3141354 A1	20170315	EP20160184463	20160817
EP3141354 B1	20190501	EP20160184463	20160817

Probable Assignee: ADOLF WUERTH GMBH AND CO KG

Assignee(s):(std): ADOLF WUERTH GMBH AND CO KG ; WUERTH ADOLF GMBH AND CO KG ; WUERTH INT AG

Inventor(s):(std): STARKE JOHANNES ; KOCH SIMON ; HOHL WOLFGANG

Agent(s): DILG HAEUSLER SCHINDELMANN PATENTANWALTSGESELLSCHAFT MBH

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

International class (IPC 8-9): B25H3/02 B65D21/02 B65D21/032 (Advanced/Invention)

CPC: B25H3/021

Classification Explorer

Cited documents: WO14177830 A1, WO14177830 A1, WO14125488 A2, WO14125488 A2, WO11103635 A1, WO11103635 A1, US7367571 BA, US2014375181 AA, US2014375181 AA, US2008314903 AA, EP2599726 A1, EP2456341 A1, EP2456341 A1, EP2315701 A1, EP2315701, EP2253432 A2, EP2253432 A2, EP1238602 A2, EP1238602,

DE602005004081 T2

DE19900361 A1, DE19900361,

Abstract:

Source: EP3141354A1 [DE]

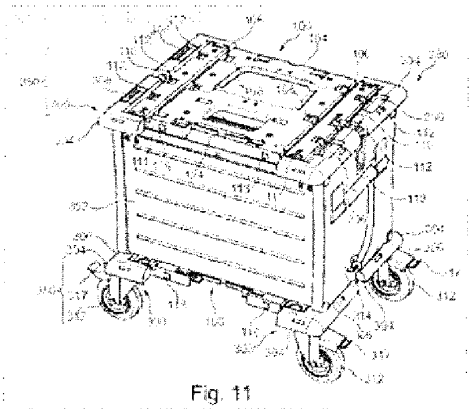


Fig. 11

Erweiterungseinrichtung (300) zum raeumlichen Erweitern einer Aufnahmeflaeche einer Adaptervorrichtung (100) zum Befestigen von Aufnahmekoerpern (10, 102), wobei die Erweiterungseinrichtung (200) eine Stuetzstruktur (302), die zum zumindest teilumfaenglichen Stuetzen der Adaptervorrichtung (100) eingerichtet ist, eine Erweiterungsstruktur (304), die dazu eingerichtet ist, in einem mittels der Stuetzstruktur (302) gestuetzten Zustand der Adaptervorrichtung (100) die Aufnahmeflaeche der Adaptervorrichtung (100) zumindest teilumfaenglich ueber deren raeumliche Begrenzung hinaus zu erweitern und Befestigungsstrukturen (306) an einer Erweiterungsoberflaeche der Erweiterungsstruktur (304) aufweist, wobei die

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Befestigungsstrukturen (306) zum Befestigen eines Aufnahmekoerpers (10, 102, 352) eingerichtet sind.

Machine translation: Extension Setup (300) to spatial extend of a recording surface of an adapter device (100) for the mounting of inclusion bodies (10, 102), with the extension device (200) a support structure (302), which is set up for at least part of comprehensive support of the adapter device (100), an extension structure (304), that is set up in a State of the adapter device supported by means of the support structure (302) (100) to expand the recording surface of the adapter device (100) at least part of their extent beyond their spatial boundary and mounting structures (306) on an extension surface of the extension structure (304) has, where the mounting structures (306) to attach a host body (10, 102, 352) are furnished.

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(11) EP 3 141 354 A1

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(54) ERWEITERUNGSEINRICHTUNG ZUM RÄUMLICHEN ERWEITERN EINER AUFNAHMEFLÄCHE EINER ADAPTERVORRICHTUNG

(57) Erweiterungseinrichtung (300) zum räumlichen Erweitern einer Aufnahmefläche einer Adaptervorrichtung (100) zum Befestigen von Aufnahmekörpern (10, 102), wobei die Erweiterungseinrichtung (200) eine Stützstruktur (302), die zum zumindest teilumfänglichen Stützen der Adaptervorrichtung (100) eingerichtet ist, eine Erweiterungsstruktur (304), die dazu eingerichtet ist, in einem mittels der Stützstruktur (302) gestützten Zustand der Adaptervorrichtung (100) die Aufnahmefläche der Adaptervorrichtung (100) zumindest teilumfänglich über deren räumliche Begrenzung hinaus zu erweitern und Befestigungsstrukturen (306) an einer Erweiterungsoberfläche der Erweiterungsstruktur (304) aufweist, wobei die Befestigungsstrukturen (306) zum Befestigen eines Aufnahmekörpers (10, 102, 352) eingerichtet sind.

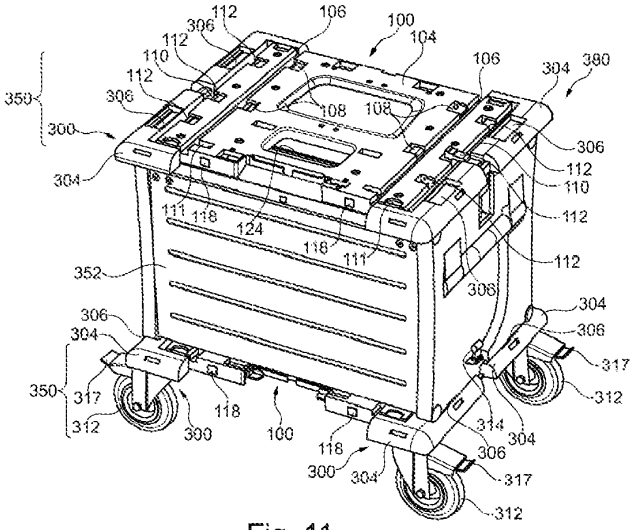


Fig. 11

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Beschreibung

[0001] Die Erfindung betrifft eine Erweiterungseinrichtung und ein Verfahren zum Erweitern einer Adaptervorrichtung zum Befestigen von Aufnahmekörpern, eine Erweiterungsvorrichtung und eine Erweiterungsanordnung.

[0002] Für bestimmte Anwendungszwecke ist es wünschenswert, Koffer für den Transport zu sichern. Für diesen Zweck gibt es verschiedene Lösungen. Zum einen werden die Bodenseiten der Koffer aneinander gehalten und an der Griffseite über einen Drehmechanismus miteinander verrastet, wodurch zwei Koffer aneinandergehalten sind (siehe zum Beispiel EP 2315701). Zum anderen können bei einem Koffer seitliche Klammern vorgesehen sein, die bei Anordnen eines weiteren Koffers auf dem bereits vorhandenen betätigt werden und dann zwei Koffer miteinander verrasten (siehe zum Beispiel DE 19900361, EP 1238602). Die bestehenden Verrastungen und Verriegelungen sind aufwändig und fehleranfällig. Ferner ist zum Teil nachteilig, dass auftretende Kräfte über den Kofferdeckel und einen Drehmechanismus abgeführt werden, wodurch diese fehleranfällig sind.

[0003] Das Handhaben und Befestigen von Koffern oder anderen Aufnahmekörpern unterschiedlicher Größe in benutzerfreundlicher Weise ist immer noch schwierig.

[0004] Es ist eine Aufgabe der vorliegenden Erfindung, in flexibler Weise ein benutzerfreundliches Montieren unterschiedlicher Aufnahmekörper zu ermöglichen.

[0005] Diese Aufgabe wird durch die Gegenstände mit den Merkmalen gemäß den unabhängigen Patentansprüchen gelöst. Weitere Ausführungsbeispiele sind in den abhängigen Ansprüchen gezeigt.

[0006] Gemäß einem Ausführungsbeispiel der vorliegenden Erfindung ist eine Erweiterungseinrichtung zum räumlichen Erweitern einer Aufnahmefläche (d.h. einer durch Vorsehen entsprechender Kopplungsstrukturen funktional zum AD:nm

[0007] Aufnehmen von Aufnahmekörpern konfigurierte Fläche) einer Adaptervorrichtung zum Befestigen von Aufnahmekörpern geschaffen, wobei die Erweiterungseinrichtung eine Stützstruktur, die zum zumindest teilumfänglichen Stützen (insbesondere unter Aufnahme einer Stützlast, die von Adaptervorrichtung und mindestens einem ggf. daran aufgenommenen Aufnahmekörper erzeugt wird sowie zum Einleiten entsprechender Kräfte in den Untergrund) der Adaptervorrichtung eingerichtet ist, eine Erweiterungsstruktur, die dazu eingerichtet ist, in einem mittels der Stützstruktur gestützten Zustand der Adaptervorrichtung die Aufnahmefläche der Adaptervorrichtung zumindest teilumfänglich über deren räumliche Begrenzung hinaus zu erweitern (insbesondere innerhalb einer, weiter insbesondere horizontalen, der Aufnahmefläche zugeordneten Ebene zu erweitern) und Befestigungsstrukturen an einer Erweiterungsoberfläche (d.h. einer durch Vorsehen entsprechender Befestigungsstrukturen funktional zum Aufnehmen eines weiteren oder anderen Aufnahmekörpers konfigurierte Fläche) der Erweiterungsstruktur aufweist, wobei die Befestigungsstrukturen zum (insbesondere alleinigen) Befestigen eines Aufnahmekörpers (insbesondere eines anderen Aufnahmekörpers als jener oder jene, der oder die an der Adaptervorrichtung allein befestigbar ist oder sind) eingerichtet sind.

[0008] Gemäß einem weiteren Ausführungsbeispiel der vorliegenden Erfindung ist eine Erweiterungsvorrichtung bereitgestellt, die eine Adaptervorrichtung zum Befestigen von Aufnahmekörpern und eine Erweiterungseinrichtung mit den oben beschriebenen Merkmalen aufweist, an der (insbesondere an deren Stützstruktur) die Adaptervorrichtung montiert oder montierbar ist.

[0009] Gemäß einem weiteren Ausführungsbeispiel der vorliegenden Erfindung ist eine Erweiterungsanordnung bereitgestellt, die eine Erweiterungsvorrichtung mit den oben beschriebenen Merkmalen und mindestens einen Aufnahmekörper aufweist, der an der Adaptervorrichtung und/oder (d.h. "simultan an beiden", d.h. teils an Adaptervorrichtung und teils an Erweiterungseinrichtung, oder "exklusiv oder", d.h. nur an Adaptervorrichtung oder nur an Erweiterungseinrichtung) an der Erweiterungsstruktur befestigt ist.

[0010] Gemäß noch einem anderen Ausführungsbeispiel der vorliegenden Erfindung ist ein Verfahren zum räumlichen Erweitern einer Aufnahmefläche einer Adaptervorrichtung zum Befestigen von Aufnahmekörpern geschaffen, wobei bei dem Verfahren die Adaptervorrichtung zumindest teilumfänglich an einer Stützstruktur einer Erweiterungseinrichtung gestützt wird, in einem mittels der Stützstruktur gestützten Zustand der Adaptervorrichtung die Aufnahmefläche der Adaptervorrichtung zumindest teilumfänglich über deren räumliche Begrenzung hinaus mittels einer Erweiterungsstruktur der Erweiterungseinrichtung erweitert wird (wobei insbesondere das Erweitern zwangsläufiges Ergebnis des Stützens sein kann, d.h. ein Benutzer bloß die Adaptervorrichtung an der Stützstruktur anzubringen hat und dadurch ohne weitere Maßnahme auch den Erweiterungserfolg herbeiführt), und ein Aufnahmekörper an Befestigungsstrukturen an einer Erweiterungsoberfläche der Erweiterungsstruktur und/oder an der Adaptervorrichtung befestigt wird.

[0011] Gemäß einem exemplarischen Ausführungsbeispiel der Erfindung ist eine Möglichkeit geschaffen, die Funktionalität einer Adaptervorrichtung zum Befestigen unterschiedlicher Aufnahmekörper (insbesondere zum alternativen Befestigen eines von unterschiedlichen Aufnahmekörpern direkt an der Adaptervorrichtung) bedarfsweise dadurch zu erhöhen, dass die Aufnahmefläche der Adaptervorrichtung durch ein insbesondere zumindest teilumfängliches Anstücken mindestens einer Erweiterungsstruktur an die Adaptervorrichtung räumlich ausgeweitet wird, wobei die Stützstruktur der Erweiterungseinrichtung dann simultan ein Stützen der Adaptervorrichtung unter Beibehalten von deren Adapterfunkti-

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onalität übernimmt. Dadurch kann eine stabile Erweiterungsvorrichtung mit einer hohen Beladekapazität und einer (gegenüber der Adaptervorrichtung allein) erhöhten Anzahl von Befestigungsmöglichkeiten von Aufnahmekörpern erhalten werden. Sollte dagegen eine kompakte Aufnahmekonfiguration gewünscht sein, kann die Adaptervorrichtung mit wenigen Handgriffen von der Erweiterungseinrichtung getrennt werden und separat zum kompakten Aufnehmen von (zum Beispiel weniger oder kleineren) Aufnahmekörpern eingesetzt werden. Es wird also ein Baukastensystem geschaffen, aus dem ein Benutzer anwendungsspezifisch eine Auswahl geeigneter Komponenten treffen kann, um Aufnahmekörper zu handhaben. An der Erweiterungsstruktur kann mindestens eine zusätzliche Befestigungsstruktur ausgebildet sein, die speziell zum Aufnehmen eines bestimmten Aufnahmekörpers ausgebildet (insbesondere geformt und/oder dimensioniert) werden kann. Durch solche Befestigungsstrukturen kann nicht nur ermöglicht werden, eine größere Anzahl von Aufnahmekörpern an einer Erweiterungsvorrichtung aus der Erweiterungseinrichtung und der daran montierten Adaptervorrichtung montieren zu können, sondern es ist alternativ oder ergänzend auch möglich, die um die Erweiterungseinrichtung vergrößerte Adaptervorrichtung zur Aufnahme von an der Adaptervorrichtung allein nicht montierbaren Aufnahmekörpern auszugestalten. Für die Stabilität besonders vorteilhaft kann die Montage eines Aufnahmekörpers an der Erweiterungsvorrichtung entweder ausschließlich an der Adaptervorrichtung oder ausschließlich an der Erweiterungsstruktur erfolgen.

[0012] Im Weiteren werden zusätzliche exemplarische Ausführungsbeispiele der Erweiterungseinrichtung, der Erweiterungsvorrichtung, der Erweiterungsanordnung und des Verfahrens beschrieben.

[0013] Vorteilhaft kann eine im Wesentlichen planare Aufnahmefläche der Adaptervorrichtung um eine im Wesentlichen planare Erweiterungsfläche der Erweiterungseinrichtung erhöht werden, wobei besonders vorteilhaft die dadurch erhaltene Gesamtmontagefläche ebenfalls im Wesentlichen planar sein kann. Anders ausgedrückt kann eine plattenartige Montagelogik der Adaptervorrichtung bei Erweiterung durch die Erweiterungseinrichtung erhalten bleiben.

[0014] Gemäß einem exemplarischen Ausführungsbeispiel kann die Stützstruktur eingerichtet sein, die Adaptervorrichtung, insbesondere ausschließlich, im Bereich von zwei einander gegenüberliegenden Seitenkanten bzw. in (insbesondere vier) Eckbereichen der Adaptervorrichtung zu stützen. Zum Beispiel kann die Stützstruktur (insbesondere vier) federnd gelagerte Auflageklötze als Auflageflächen im Bereich zweier gegenüberliegender Seitenkanten der Adaptervorrichtung definieren, auf denen die Adaptervorrichtung gezielt linienartig oder punktartig aufliegt. Die Krafteinleitung von der Adaptervorrichtung auf die Erweiterungseinrichtung kann somit vorzugsweise nur in Seiten- oder Eckbereichen der Erweiterungseinrichtung erfolgen. Da in diesem Bereich auch Rollen oder andere Bodenelemente an der Unterseite der Erweiterungseinrichtung vorgesehen werden können, kann auf diese Weise eine effiziente Einleitung der Kraft in den Untergrund erfolgen. Durch die Anbindung der Stützstruktur an die Adaptervorrichtung nur im Bereich der Seitenkanten bzw. im Bereich von Ecken verbleibt die Aufnahmefunktionalität der Adaptervorrichtung in ihrem Zentralbereich vorteilhaft ungestört.

[0015] Gemäß einem exemplarischen Ausführungsbeispiel kann die Stützstruktur eingerichtet sein, die Adaptervorrichtung, insbesondere ausschließlich, an einer Unterseite der Adaptervorrichtung zu stützen und die oberseitige Aufnahmefläche der Adaptervorrichtung dadurch vollständig zum Befestigen von Aufnahmekörpern freizuhalten. Auf diese Weise kann eine besonders effiziente Nutzung der Aufnahmefläche der Adaptervorrichtung erfolgen, ohne dass diese durch die Stützung an der Erweiterungseinrichtung unerwünscht beeinflusst wird.

[0016] Gemäß einem exemplarischen Ausführungsbeispiel kann die Erweiterungsstruktur eingerichtet sein, die Adaptervorrichtung, insbesondere ausschließlich, im Bereich von zwei einander gegenüberliegenden Seitenkanten und angrenzenden Eckbereichen der Adaptervorrichtung zu erweitern. Zum Beispiel kann die Erweiterungsstruktur durch zwei identische und zum Beispiel U-förmige Erweiterungsprofile oder Erweiterungsstücke ausgebildet werden, die an gegenüberliegende Seitenkanten der Adaptervorrichtung angesetzt werden können, um dadurch zwei gegenüberliegende Seiten der vorteilhaft rechteckigen Adaptervorrichtung in Eingriff zu nehmen. Vorteilhaft können die beiden Erweiterungsstücke nach außen über diese kurzen Seiten hinausstehen, um dadurch die Erweiterungsfläche zu schaffen und als (vorzugsweise auch die Ecken der Adaptervorrichtung umgebender) Anstoßschutz für die Adaptervorrichtung und die Aufnahmekörper zu dienen.

[0017] Gemäß einem exemplarischen Ausführungsbeispiel kann die Erweiterungsstruktur derart eingerichtet sein, dass in einem mittels der Stützstruktur gestützten Zustand der Adaptervorrichtung die Aufnahmefläche der Adaptervorrichtung im Wesentlichen stetig, fluchtend oder bündig (vorzugsweise ohne vertikale Stufe) mit einer Befestigungsoberfläche der Erweiterungsstruktur abschließt. Dadurch kann eine im Wesentlichen durchgängige ebene Gesamtmontagefläche bereitgestellt werden, was die Fähigkeit der Erweiterungsvorrichtung erhöht, eine große Anzahl unterschiedlicher Aufnahmekörper aufnehmen zu können.

[0018] Gemäß einem exemplarischen Ausführungsbeispiel kann die Stützstruktur aus Stützelementen (zum Beispiel Auflageklötze), insbesondere aus Kunststoff, in direktem Berührkontakt mit der Adaptervorrichtung und die Stützelemente verbindenden Verbindungsstreben, insbesondere aus Metall, gebildet sein. Die Stützelemente können einstückig mit der Erweiterungsstruktur oder zumindest einem jeweils zugehörigen Erweiterungsstück der Erweiterungsstruktur ausgebildet sein und kön-

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nen aus einem jeweiligen Erweiterungsstück innenseitig herauswachsen. Derart ausgestaltete Auflageklötze erlauben eine kraftverteilende Mehrpunktmontage der Adaptervorrichtung und können selbst federnd oder zum Vollführen einer Ausgleichsbewegung zum Abbauen mechanischer Spannungsspitzen fähig konfiguriert sein. Oberseitig können die Stützelemente die Adaptervorrichtung aufnehmen und können unterseitig oder randseitig selbst durch die Verbindungsstreben und in gewissem Maße auch durch die Erweiterungsstücke gestützt werden, um die Kraftableitung aus der Erweiterungsvorrichtung heraus zu fördern. Dies erlaubt eine hohe Stabilität bei einer kompakten Konfiguration.

[0019] Gemäß einem exemplarischen Ausführungsbeispiel kann die Erweiterungseinrichtung Rollen zum rollenden Fortbewegen der Erweiterungseinrichtung samt (d.h. bei daran montierter) Adaptervorrichtung aufweisen, wobei die Rollen an einer Unterseite der Stützstruktur und/oder der Erweiterungsstruktur angebracht sein können. Das Vorsehen von Rollen an der Unterseite der Erweiterungseinrichtung erlaubt eine bequemen Transport, selbst wenn an der Adaptervorrichtung und/oder der Erweiterungsstruktur ein oder mehrere Aufnahmekörper hoher Masse angekoppelt sind. Das Vorsehen der Rollen direkt unterhalb der Eckbereiche der Erweiterungseinrichtung erlaubt eine im Wesentlichen vertikale Kraftableitung von einem aufgenommenen Aufnahmekörper bzw. eines an der Erweiterungsvorrichtung montierten Aufnahmekörpers in den Boden.

[0020] Gemäß einem exemplarischen Ausführungsbeispiel können die Befestigungsstrukturen, insbesondere vier, Aufnahmennuten aufweisen, die zum gemeinsamen Befestigen eines entsprechend konfigurierten Aufnahmekörpers, insbesondere ausschließlich, an den Befestigungsstrukturen der Erweiterungsstruktur eingerichtet sind. Das weit außenseitige Anbringen dieser Befestigungsstrukturen, vorteilhaft verteilt auf mehrere Erweiterungsstücke, erlaubt das Aufnehmen eines besonders großen Aufnahmekörpers, wie zum Beispiel einer Aufbewahrungsbox (etwa einer Orsy-Aufbewahrungsbox). Als besonders stabil hat sich das Montieren eines Aufnahmekörpers entweder vollständig auf der Adaptervorrichtung oder vollständig auf der Erweiterungsstruktur herausgestellt.

[0021] Gemäß einem exemplarischen Ausführungsbeispiel kann die Erweiterungsstruktur sich horizontal soweit nach außen erstrecken, dass bei Befestigung des Aufnahmekörpers an den Befestigungsstrukturen sich die Erweiterungsstruktur weiter nach außen erstreckt als der aufgenommene Aufnahmekörper. Dadurch kann die Erweiterungsstruktur simultan als Anstoßschutz für den aufgenommenen Aufnahmekörper dienen.

[0022] Gemäß einem exemplarischen Ausführungsbeispiel kann die Erweiterungseinrichtung eine Verriegelungsstruktur an der Erweiterungsstruktur aufweisen, wobei die Verriegelungsstruktur eingerichtet sein kann, mit einem Aufnahmekörper verriegelt zu werden, der an der Erweiterungsstruktur und/oder an der Adapterplatte aufgenommen ist. Eine besonders stabile Konfiguration ist durch das Anordnen von Verriegelungsstrukturen an zwei einander gegenüberliegenden Erweiterungsstücken möglich, wobei weiter vorteilhaft die jeweilige Verriegelungsstruktur zwischen einem Paar von Aufnahmenuten an einem jeweiligen Erweiterungsstück angeordnet ist. Wenn der angesprochene Aufnahmekörper mit vier Füßen oder vier Bodenbereichen auf die vier Aufnahmenuten an der Erweiterungsstruktur aufgesetzt ist, kann die Verriegelungsstruktur mit einer Gegenstruktur an einer jeweiligen Seitenfläche des Aufnahmekörpers verriegelt werden, um die Stabilität weiter zu erhöhen. Diese Verriegelung kann mittels Spannens von Verbindungsgurten oder Gummielementen zwischen Aufnahmekörper und Erweiterungseinrichtung erfolgen. Vorteilhaft erfolgt dies an zwei gegenüberliegenden Seite des Aufnahmekörpers, d.h. entsprechend mittels Verriegelungsstrukturen an zwei seitlich an die Adaptervorrichtung angestückten (zum Beispiel U-förmigen) Erweiterungsstücken.

[0023] Gemäß einem exemplarischen Ausführungsbeispiel kann die Erweiterungseinrichtung eine Verbindungsstruktur aufweisen, die zum Verbinden der Erweiterungseinrichtung mit der Adaptervorrichtung eingerichtet ist, insbesondere mittels Aufsteckens oder Verschraubens. Somit kann die Verbindungsstruktur insbesondere als Aufsteckstruktur oder Verschraubstruktur ausgebildet sein. Vorteilhaft kann zum Beispiel zwischen der Stützstruktur (vorteilhaft gebildet aus Auflageklötzen und Verbindungsstreben) und den (vorteilhaft U-förmigen) Erweiterungsstücken ein Aufnahmeraum mit Hinterschnitt zum Aufnehmen eines entsprechenden Seitenbereichs der Adaptervorrichtung gebildet sein. Die Erweiterungsvorrichtung kann dann montiert werden, indem zunächst die Adaptervorrichtung auf die Verbindungsstreben aufgesetzt wird und nachfolgend Auflageklötze und Erweiterungsstücke (vorzugsweise einstückig) seitlich aufgeschoben werden, sodass die Adaptervorrichtung davon randseitig teils überdeckt wird. Dann kann eine Schraubverbindung (oder eine sonstige Verbindung, zum Beispiel eine Klemmverbindung oder eine Rastverbindung) zwischen der Adaptervorrichtung und der so zusammengesetzten Erweiterungseinrichtung ausgebildet werden. Auf diese Weise ist eine kompakte Erweiterungsvorrichtung geschaffen, in der eine Krafteinleitung ohne mechanische Kraftspitzen ermöglicht ist.

[0024] Gemäß einem exemplarischen Ausführungsbeispiel kann die Adaptervorrichtung zum Befestigen von Aufnahmekörpern unterschiedlicher Größe ausgebildet sein. Dies erhöht weiter die Flexibilität in der Befestigung unterschiedlicher Aufnahmekörper an der Adaptervorrichtung.

[0025] Insbesondere kann die Adaptervorrichtung eine Trägereinrichtung zum Tragen eines befestigten Aufnahmekörpers, erste Kopplungsstrukturen an der Trägereinrichtung, die zum Befestigen eines ersten Aufnahmekörpers einer ersten Größe mittels Aufschiebens und Verriegelns an den ersten Kopplungsstrukturen ausge-

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bildet ist, und zweite Kopplungsstrukturen an der Trägereinrichtung aufweisen, die zum Befestigen eines zweiten Aufnahmekörpers einer zweiten Größe mittels Aufschiebens und Verriegelns an den zweiten Kopplungsstrukturen ausgebildet ist. Gemäß einem exemplarischen Ausführungsbeispiel der Erfindung ist somit eine Adaptervorrichtung bereitgestellt, die von einem Benutzer einfach handhabbar ist und mit unterschiedlich großen Aufnahmekörpern (zum Beispiel Koffern) in intuitiver Weise in unterschiedliche Verbindungszustände verbringbar ist. Mit einer einfachen Handhabung kann ein Benutzer einen in einem Verbindungszustand mit der Adaptervorrichtung befindlichen Aufnahmekörper auch wieder in einen anderen Verbindungszustand oder einen Trennzustand bringen. Insbesondere wenn dieser Aufnahmekörper von der Adaptervorrichtung wieder getrennt ist, ist diese frei zum Aufnehmen eines anderen, zum Beispiel anders dimensionierten Aufnahmekörpers. Dies kann mit einer einfachen und intuitiven Aufschiebe- und Verriegelungsbewegung bewerkstelligt werden, die zum Trennen der Verbindung in gleichartiger, inverser Weise gehandhabt wird. Mit einer einzigen plattenförmigen Adaptervorrichtung können somit unterschiedliche Aufnahmekörper unterschiedlicher Größe durch ein universelles System von Kopplungsstrukturen vorübergehend befestigt werden. Dies erlaubt es einem Benutzer, in modularer bzw. baukastenartiger Weise beliebige Kombinationen von Adaptervorrichtungen und Aufnahmekörpern zu einem gemeinsamen Körper zusammenzustellen.

[0026] Gemäß einem exemplarischen Ausführungsbeispiel kann die Trägereinrichtung als Trägerplatte ausgebildet sein. Dann kann die Trägereinrichtung als flache und vertikal kompakte Aufnahmeplattform mit einer großen Montagefläche zum Tragen des oder der Aufnahmekörper dienen.

[0027] Gemäß einem exemplarischen Ausführungsbeispiel können die ersten Kopplungsstrukturen mindestens eine erste Führungsschiene, insbesondere zwei zueinander parallele und in einem ersten Abstand voneinander beabstandete erste Führungsschienen, aufweisen, wobei entlang der mindestens einen ersten Führungsschiene der erste Aufnahmekörper bis zu einer ersten Verriegelungsposition aufschiebbar ist. Die mindestens eine erste Führungsschiene, besonders vorteilhaft aber ein Paar von zueinander parallelen ersten Führungsschienen, bietet einem Benutzer eine intuitive Möglichkeit, den ersten Aufnahmekörper mit korrekter Positionierung und somit fehlerrobust an der Adapterplatte zu montieren.

[0028] Gemäß einem exemplarischen Ausführungsbeispiel können die zweiten Kopplungsstrukturen mindestens eine zweite Führungsschiene, insbesondere zwei zueinander parallele und in einem von dem ersten Abstand unterschiedlichen zweiten Abstand voneinander beabstandete zweite Führungsschienen, aufweisen, wobei entlang der mindestens einen zweiten Führungsschiene der zweite Aufnahmekörper bis zu einer zweiten Verriegelungsposition aufschiebbar ist. Vorzugsweise ist die mindestens eine zweite Führungsschiene, bevorzugt ein Paar zueinander paralleler zweiter Führungsschienen, in entsprechender Weise zu der mindestens einen ersten Führungsschiene ausgebildet, trägt aber gleichzeitig der anderen Größe des zweiten Aufnahmekörpers Rechnung. Für einen Benutzer ist dadurch auf einen Blick erkennbar, wie die mindestens eine zweite Führungsschiene in Relation zu der mindestens einen ersten Führungsschienen zum Montieren des jeweiligen Aufnahmekörpers zu handhaben ist. Das Paar zweiter Führungsschienen kann parallel zu dem Paar erster Führungsschienen angeordnet und Letzteres seitlich einschließend angeordnet werden.

[0029] Gemäß einem exemplarischen Ausführungsbeispiel können die ersten Kopplungsstrukturen mindestens einen ersten Verriegelungskörper, insbesondere mindestens zwei entlang der mindestens einen ersten Führungsschiene beabstandete Verriegelungskörper, aufweisen, wobei bei Aufschieben des ersten Aufnahmekörpers entlang der mindestens einen ersten Führungsschiene bis zu der ersten Verriegelungsposition der mindestens eine erste Verriegelungskörper zum an der ersten Verriegelungsposition vertikal unabnehmbaren Verriegeln des ersten Aufnahmekörpers an der Adaptervorrichtung ausgebildet ist. Der mindestens eine erste Verriegelungskörper kann zum Beispiel derart oberhalb der mindestens einen ersten Führungsschiene über diese eingeschoben werden, dass korrespondierende Kopplungsstrukturen des aufgeschobenen ersten Aufnahmekörpers in der mindestens einen ersten Führungsschiene angeordnet sind und durch den darüber angeordneten mindestens einen ersten Verriegelungskörper vor einem vertikalen Abnehmen gehindert werden. Das Einschieben des mindestens einen ersten Verriegelungskörpers über die mindestens eine erste Führungsschiene erfolgt vorzugsweise vor dem Einschieben des ersten Aufnahmekörpers, kann alternativ dazu aber auch erst nach dem Einschieben des ersten Aufnahmekörpers durchgeführt werden.

[0030] Gemäß einem exemplarischen Ausführungsbeispiel können die zweiten Kopplungsstrukturen mindestens einen zweiten Verriegelungskörper, insbesondere zwei oder mehr entlang der mindestens einen zweiten Führungsschiene beabstandete Verriegelungskörper, aufweisen, wobei bei Aufschieben des zweiten Aufnahmekörpers entlang der mindestens einen zweiten Führungsschiene bis zu der zweiten Verriegelungsposition der mindestens eine zweite Verriegelungskörper zum an der zweiten Verriegelungsposition vertikal unabnehmbaren Verriegeln des zweiten Aufnahmekörpers an der Adaptervorrichtung ausgebildet ist. Der mindestens eine zweite Verriegelungskörper kann zum Beispiel derart oberhalb der mindestens einen zweiten Führungsschiene über diese eingeschoben werden, dass korrespondierende Kopplungsstrukturen des aufgeschobenen zweiten Aufnahmekörpers in der mindestens einen zweiten Führungsschiene angeordnet sind und durch den

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darüber angeordneten mindestens einen zweiten Verriegelungskörper vor einem vertikalen Abnehmen gehindert werden. Das Einschieben des mindestens einen zweiten Verriegelungskörpers über die mindestens eine zweite Führungsschiene erfolgt vorzugsweise vor dem Einschieben des zweiten Aufnahmekörpers, kann alternativ dazu aber auch erst nach dem Einschieben des zweiten Aufnahmekörpers durchgeführt werden.

[0031] Die Anzahl erster Verriegelungskörper und die Anzahl zweiter Verriegelungskörper kann unterschiedlich sein und zum Beispiel basierend darauf ausgewählt werden, welches Gewicht der jeweilige Aufnahmekörper hat. Je höher dieses Gewicht ist, umso höher kann die Anzahl erster bzw. zweiter Verriegelungskörper gewählt werden.

[0032] Gemäß einem exemplarischen Ausführungsbeispiel kann oder können der mindestens eine erste Verriegelungskörper und/oder der mindestens eine zweite Verriegelungskörper (insbesondere vor einem Verriegeln oder zum Verriegeln des jeweiligen Aufnahmekörpers) winkelig (insbesondere senkrecht) zu einer jeweiligen Führungsschiene verschiebbar sein (insbesondere unter Freilassen eines vertikalen Spalts zwischen einem Boden der jeweiligen Führungsschiene und dem jeweiligen Verriegelungskörper in die jeweilige Führungsschiene hinein verschiebbar sein). Mehrere erste bzw. zweite Verriegelungskörper können auch an einer jeweiligen gemeinsamen (insbesondere starren) Stützstruktur angebracht sein, um von einem Benutzer unter weiterer Vereinfachung der Handhabung kollektiv verschoben zu werden.

[0033] Gemäß einem exemplarischen Ausführungsbeispiel können die ersten Kopplungsstrukturen und/oder die zweiten Kopplungsstrukturen ausgebildet sein, dass der erste Aufnahmekörper oder der zweite Aufnahmekörper mittels der Kopplungsstrukturen auf der Adaptervorrichtung selektiv vertikal abnehmbar verschiebegesichert stapelbar ist, und/oder dass der jeweilige Aufnahmekörper und die Adaptervorrichtung mittels des Aufschiebens und des Verriegelns an den ersten Kopplungsstrukturen und/oder an den zweiten Kopplungsstrukturen vertikal unabnehmbar miteinander koppelbar sind. Der jeweilige Aufnahmekörper ist somit in Kombination mit der Adaptervorrichtung selektiv stapelbar oder koppelbar. Vorteilhaft kann ein Aufnahmeraum des Aufnahmekörpers im gestapelten oder gekoppelten Zustand immer noch von extern zugänglich sein. Insbesondere kann ein als Koffer ausgebildeter Aufnahmekörper im gestapelten oder gekoppelten Zustand immer noch zwischen einem Öffnungszustand und einem Schließzustand überführbar sein. Dadurch kann selbst im gekoppelten oder gestapelten Zustand ein Benutzer Zugang zum Inneren des Aufnahmekörpers der Aufnahmeanordnung erlangen.

[0034] In dem vertikal abnehmbaren, aber in einer Horizontalebene verschiebegesicherten Stapel-Zustand ist es möglich, dass ein Benutzer den Aufnahmekörper der miteinander verbundenen Körper (d.h. Aufnahmekörper und Adaptervorrichtung) durch bloßes vertikales Abheben von der Adaptervorrichtung trennt. Andererseits ist in diesem Zustand aber verunmöglicht, dass ein Körper gegenüber dem anderen Körper horizontal verschoben wird. Die Körper sind somit in diesem Betriebszustand verrutschfest gegeneinander gesichert, aber durch eine einzige Handbewegung sofort voneinander trennbar. Dieser Betriebszustand ist somit geeignet, um die beiden Körper vorübergehend zu stapeln.

[0035] Alternativ können die Körper (d.h. Aufnahmekörper und Adaptervorrichtung) aber auch vertikal unabnehmbar miteinander koppelbar sein, das heißt miteinander so verbunden sein, dass bei einer bloß vertikalen Abhebebewegung die Trennung der beiden Körper nicht ermöglicht ist. Eine Trennung der beiden Körper voneinander ist in diesem Betriebszustand nur durch Relativverschiebung der beiden Körper entlang einer horizontalen Verschieberichtung ermöglicht. Es ist ferner möglich, dass ausgehend von diesem durch Ausübung einer reinen Vertikalkraft unabnehmbar gekoppelten Verbindungszustand die gekoppelten Körper auch in einer Horizontalebene immobilisiert werden, indem zum Beispiel eine senkrecht zu einer Verschieberichtung der Körper wirkende Befestigungskraft ausgeübt wird, zum Beispiel mittels einer Rastverbindung zum dann auch horizontal verschiebegesicherten Koppeln der beiden Körper.

[0036] Gemäß einem exemplarischen Ausführungsbeispiel kann oder können der mindestens eine erste Verriegelungskörper und/oder der mindestens eine zweite Verriegelungskörper ausgebildet sein, dass der erste Aufnahmekörper oder der zweite Aufnahmekörper mittels eines jeweiligen der Verriegelungskörper auf der Adaptervorrichtung vertikal abnehmbar verschiebegesichert stapelbar ist. Hierzu ist es vorteilhaft möglich, dass der jeweilige mindestens eine Verriegelungskörper vertikal erhaben über einen ihn umgebenden Bereich der jeweiligen Führungsschiene hervorsteht, damit (vorteilhaft ausgehend von dem Aufnahmekörper unterseitig hervorstehende) Rastfüße (oder dergleichen) des zum Stapeln aufzunehmenden Aufnahmekörpers auf diese erhaben überstehenden Verriegelungskörper aufsetzen können. Dies erlaubt eine besonders kompakte Ausgestaltung der Adaptervorrichtung, da die Verriegelungskörper dann funktional sowohl zum Koppeln als auch zum Stapeln beitragen können.

[0037] Gemäß einem exemplarischen Ausführungsbeispiel kann die Adaptervorrichtung mindestens eine, insbesondere gegenüber der Trägereinrichtung ein- und ausklappbare, Anschlagstruktur aufweisen, die eingerichtet ist, dass nach Aufschieben des ersten Aufnahmekörpers und/oder des zweiten Aufnahmekörpers der jeweilige Aufnahmekörper an der mindestens einen Anschlagstruktur in einer Verriegelungsposition anschlägt, in welcher der jeweilige Aufnahmekörper an der Adaptervorrichtung verriegelbar oder verriegelt ist. Eine solche Anschlagstruktur hat den Vorteil, dass sie selbst ohne Blickkontakt (zum Beispiel bei einer Montage in einem schlecht beleuchteten oder optisch nicht zugänglichen

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Kofferraum eines Kraftfahrzeugs) einem Benutzer intuitiv anzeigt, wann ein an der Adaptervorrichtung zu montierender Aufnahmekörper seine gewünschte Befestigungsposition erreicht hat. Dies erhöht den Benutzerkomfort und verringert die Gefahr einer Fehlbedienung. Die Einklappbarkeit bzw. Versenkbarkeit solcher Anschlagstrukturen erlaubt es aber auch, bei Kopplung mehrerer Adaptervorrichtung hintereinander, einen Aufnahmekörper selbst ohne Blickkontakt zu einer hinteren Adaptervorrichtung durchzuschieben, ohne hierbei durch eine Anschlagstruktur gestört zu werden.

[0038] Gemäß einem exemplarischen Ausführungsbeispiel kann oder können die ersten Kopplungsstrukturen und/oder die zweiten Kopplungsstrukturen ferner eine erste Zusatzverriegelungseinrichtung zum zusätzlichen verschiebegesicherten Verriegeln des ersten Aufnahmekörpers aufweisen, wenn dieser an der Trägereinrichtung aufgeschoben und verriegelt ist, und/oder eine zweite Zusatzverriegelungseinrichtung zum zusätzlichen verschiebegesicherten Verriegeln des zweiten Aufnahmekörpers aufweisen, wenn dieser an der Trägereinrichtung aufgeschoben und verriegelt ist. Durch mindestens eine weitere Zusatzverriegelungseinrichtung an zumindest einem der zu verbindenden Körper (d.h. Adaptervorrichtung und Aufnahmekörper), vorzugsweise durch korrespondierende Kopplungsstrukturen an den beiden miteinander gekoppelten Körpern, kann hiermit ein dritter Verbindungszustand definiert werden, der im vertikal unabnehmbar gekoppelten Zustand der beiden Körper zusätzlich ein Relativverschieben derselben gegeneinander ermöglicht (zum Beispiel durch Deaktivierung der Zusatzverriegelungseinrichtung) oder ein Relativverschieben derselben gegeneinander verunmöglicht (zum Beispiel durch Aktivierung der Zusatzverriegelungseinrichtung). Um die zwei Körper (zum Beispiel für eine Autofahrt) zuverlässig aneinander zu sichern, können somit die beiden Zusatzverriegelungseinrichtung reversibel miteinander verriegelt werden.

[0039] Gemäß einem exemplarischen Ausführungsbeispiel kann die Adaptervorrichtung Befestigungslöcher zum Aufnehmen von Montagebolzen zum Befestigen der Adaptervorrichtung an Befestigungslöchern der Stützstruktur aufweisen. Zum Beispiel kann eine Befestigung zwischen Adaptervorrichtung und Erweiterungseinrichtung in vier Eckbereichen der Adaptervorrichtung und in vier korrespondierenden Eckbereichen der Erweiterungseinrichtung erfolgen.

[0040] Gemäß einem exemplarischen Ausführungsbeispiel kann der Aufnahmekörper ein Koffer zum Transportieren von Transportgut, ein erster Koffer einer ersten Größe und ein zweiter Koffer einer zweiten Größe, eine weitere Adaptervorrichtung und/oder eine Aufbewahrungsbox sein. Diese und andere Aufnahmekörper können aufgrund des Baukastensystems gemäß einem exemplarischen Ausführungsbeispiel der Erfindung in annähernd beliebiger Weise miteinander kombiniert werden.

[0041] Im Folgenden werden exemplarische Ausführungsbeispiele der vorliegenden Erfindung mit Verweis auf die folgenden Figuren detailliert beschrieben.

Figur 1 zeigt einen Koffer als Aufnahmekörper einer Aufnahmeanordnung gemäß einem exemplarischen Ausführungsbeispiel der Erfindung in einem Öffnungszustand.

Figur 2 und Figur 3 zeigen den Koffer gemäß Figur 1 in einem geschlossenen Zustand.

Figur 4 zeigt einen Koffer, wie er in Figur 1 bis Figur 3 dargestellt ist, in einem mit einem anderen gleichartigen Koffer gekoppelten Zustand.

Figur 5 zeigt eine Oberseite und Figur 6 zeigt eine Unterseite einer Adaptervorrichtung gemäß einem exemplarischen Ausführungsbeispiel der Erfindung.

Figur 7 zeigt Komponenten zum Ausbilden von Kopplungsstrukturen der Adaptervorrichtung gemäß Figur 5 und Figur 6.

Figur 8 zeigt eine Verrutschschutzleiste mit einer Anordnung von Spikes der Adaptervorrichtung gemäß Figur 5 und Figur 6.

Figur 9 zeigt eine räumliche Ansicht einer Montageeinrichtung mit einer daran montierten Adaptervorrichtung, gemeinsam montiert an einem Kraftfahrzeugsitz, gemäß einem exemplarischen Ausführungsbeispiel der Erfindung.

Figur 10 zeigt eine unterseitige Ansicht einer Montageeinrichtung mit daran montierter Adaptervorrichtung gemäß einem exemplarischen Ausführungsbeispiel der Erfindung.

Figur 11 zeigt eine Erweiterungsanordnung gemäß einem exemplarischen Ausführungsbeispiel der Erfindung aus einer Erweiterungseinrichtung zum räumlichen Erweitern der Adaptervorrichtung gemäß Figur 5 und Figur 6 und der daran montierten Adaptervorrichtung sowie einer hieran befestigten Aufbewahrungsbox als Aufnahmekörper, an dem oberseitig eine weitere Adaptervorrichtung montiert ist.

Figur 12 zeigt eine Aufnahmeanordnung aus einem Aufnahmekörper und einer zu dessen Befestigung ausgebildeten Adaptervorrichtung gemäß einem exemplarischen Ausführungsbeispiel der Erfindung, wobei die Adaptervorrichtung ihrerseits an der Montageeinrichtung gemäß Figur 10 montiert ist.

Figur 13 zeigt die Aufnahmeanordnung gemäß Figur 12 in einem Betriebszustand, in dem der Aufnahmekörper vertikal abnehmbar verschiebegesichert auf der Adaptervorrichtung angeordnet ist.

Figur 14 zeigt die Aufnahmeanordnung gemäß Figur 12 in einem Betriebszustand, in dem der Aufnahmekörper vertikal unabnehmbar, aber verschiebbar, mit der Adaptervorrichtung gekoppelt angeordnet ist.

Figur 15 zeigt die Aufnahmeanordnung gemäß Figur 12 in einem Betriebszustand, in dem der Aufnahmekörper vertikal unabnehmbar und verschiebegesichert mit der Adaptervorrichtung gekoppelt angeord-

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net ist.

Figur 16 zeigt eine räumliche Ansicht einer Erweiterungsvorrichtung aus einer Erweiterungseinrichtung und einer Adapterplatte gemäß einem exemplarischen Ausführungsbeispiel der Erfindung.

Figur 17 zeigt die Erweiterungsvorrichtung gemäß Figur 16 in einer unterseitigen Ansicht.

Figur 18 zeigt die Erweiterungsvorrichtung gemäß Figur 16 mit einem Aufnahmekörper, der an der Adapterplatte befestigt ist.

Figur 19 zeigt die Erweiterungsvorrichtung gemäß Figur 18 mit einem weiteren Aufnahmekörper geringerer Größe und mit einer weiteren Adaptervorrichtung, wobei die weitere Adaptervorrichtung auf dem Aufnahmekörper gemäß Figur 18 befestigt und der weitere Aufnahmekörper auf der weiteren Adaptervorrichtung befestigt ist.

Figur 20 zeigt eine räumliche Ansicht einer teilweise demontierten Erweiterungseinrichtung ohne Adaptervorrichtung.

[0042] Gleiche oder ähnliche Komponenten in unterschiedlichen Figuren sind mit gleichen Bezugsziffern versehen.

[0043] Bevor bezugnehmend auf die Figuren exemplarische Ausführungsbeispiele der Erfindung beschrieben werden, sollen noch einige allgemeine Aspekte der Erfindung erläutert werden.

[0044] Gemäß einem exemplarischen Ausführungsbeispiel der Erfindung ist eine Erweiterungseinrichtung zum Erweitern einer Adaptervorrichtung zum Befestigen eines besonders großen Aufnahmekörpers bereitgestellt. Eine solche Erweiterungseinrichtung kann zum Erweitern einer Adaptervorrichtung derart eingesetzt werden, dass darauf ein kleiner Koffer, ein größerer Koffer oder ein noch größerer Körper (zum Beispiel eine Orsy-Box) als Aufnahmekörper gehalten werden kann. Zu diesem Zweck können an der Erweiterungseinrichtung (zum Beispiel vier) Aufnahmenuten vorgesehen sein, auf die ein noch größerer Aufnahmekörper aufgesetzt werden kann. Ferner können an der Erweiterungseinrichtung (insbesondere zwei) Verriegelungsnuten vorgesehen sein, mit denen auch ein noch größerer Koffer an der Erweiterungseinrichtung verriegelt werden kann. An der Erweiterungseinrichtung können Rollfüße angeschraubt werden. Die Erweiterungseinrichtung kann aus zwei beanstandeten Kunststoffkörpern als Seitenhalterungen und einem diese verbindenden metallischen Rahmen gebildet sein. Die Erweiterungseinrichtung kann Schienen und sonstige Kopplungsstrukturen der Adaptervorrichtung so freihalten, dass auch im an der Erweiterungseinrichtung montierten Zustand der Adaptervorrichtung ein Koffer oder sonstiger Aufnahmekörper aufschiebbar ist. Die Adaptervorrichtung kann zum Befestigen unterschiedlich großer Aufnahmekörper aneinander bereitgestellt werden. Eine solche Adaptervorrichtung ist auf einem größeren Körper in Form der Erweiterungseinrichtung montierbar. Auf der Adaptervorrichtung ist wahlweise ein großer Koffer oder ein kleiner Koffer oder ein anderer Aufnahmekörper durch Aufschieben und Verriegeln mittels verschiebbarer Verriegelungselemente an der Adaptervorrichtung montierbar. Ebenso kann es möglich sein, auf der Adaptervorrichtung wahlweise den großen Koffer oder den kleinen Koffer oder einen anderen Aufnahmekörper durch Aufsetzen zu stapeln, wobei Verriegelungselemente in Stellung gebracht werden können, dass diese formschlüssig Stapelfüße des Koffers aufnehmen können.

[0045] Eine Adaptervorrichtung, die gemäß einem exemplarischen Ausführungsbeispiel der Erfindung Teil einer Erweiterungsvorrichtung bilden kann, kann auch alleine zur Verbindung unterschiedlich großer Koffer eingesetzt werden. Ein jeweiliger Koffer kann auch zwischen zwei hintereinander angeordnete Adaptervorrichtungen geschoben werden. Die Adaptervorrichtung kann mit einem Tragegriff zum Tragen versehen und an einer Wand befestigbar sein. Befestigungsöffnungen zum Befestigen der Adaptervorrichtung an einer Wand können dieselben sein, mit denen die Adaptervorrichtung auch an einem Basiskörper verschraubt werden kann. Die Adaptervorrichtung kann mit Stahlversteifungen versehen sein, um die Steifigkeit der Adaptervorrichtung zu erhöhen. Ferner können zum Beispiel pilzförmige Überstände an der Adaptervorrichtung vorgesehen sein, die zum Ineingriffnehmen von invers geformten Nuten an einer anderen, gleichartigen Adaptervorrichtung eingerichtet sein können. Auf diese Weise können mehrere Adaptervorrichtungen aneinander gesetzt werden.

[0046] Eine solche Adaptervorrichtung kann mit Erweiterungsstücken räumlich erweitert werden. Eine entsprechende Erweiterungseinrichtung kann unterseitig Rollen aufweisen, sodass die erweiterte Adaptervorrichtung verfahrbar sein kann. Eine Aufbewahrungsbox kann auf die Anordnung aus Adaptervorrichtung und Erweiterungseinrichtung aufgesetzt und somit daran befestigt werden. Einzelne Erweiterungsstücke können seitlich auf die zum Beispiel als Adapterplatte ausgebildete Adaptervorrichtung aufgesteckt oder an dieser festgeschraubt werden. Es ist möglich, einzelne Erweiterungsstücke mit Stahlstreben oder dergleichen miteinander zu verbinden, um eine einstückige Erweiterung zu schaffen. Die Erweiterungseinrichtung kann als Kantenschutz an einem Koffer, einer Aufbewahrungsbox oder einem anderen Aufnahmekörper dienen.

[0047] **Figur 1** zeigt einen als Koffer ausgebildeten Aufnahmekörper 10 gemäß einem exemplarischen Ausführungsbeispiel der Erfindung in einem Öffnungszustand. **Figur 2** und **Figur 3** zeigen den Aufnahmekörper 10 gemäß Figur 1 in einem geschlossenen Zustand bzw. Schließzustand. **Figur 4** zeigt einen Aufnahmekörper 10, wie er in Figur 1 bis Figur 3 dargestellt ist, in einem mit einem anderen gleichartigen, als Koffer ausgebildeten Aufnahmekörper 10' gekoppelten Zustand. Figur 4 zeigt somit eine Anordnung 99, die den Aufnahmekörper 10 und den zusätzlichen gleichartigen Aufnahmekörper 10' in einem Verbindungszustand zeigt.

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[0048] Der Aufnahmekörper 10 dient zum Transportieren von Transportgut. Solches Transportgut kann lose oder befestigt bzw. gesichert im Inneren des Aufnahmekörpers 10 aufgenommen sein und kann insbesondere in Aufnahmebehältern (nicht gezeigt) aufgenommen sein, die wiederum im geschlossenen Zustand des Aufnahmekörpers 10 in dessen Inneren sicher untergebracht sind. Beispiele für derartiges Transportgut sind Verbrauchsmaterialien (wie Schrauben, Nägel, Dübel, Schüttgut oder Flüssigkeiten) oder Werkzeuge (wie zum Beispiel Schraubendreher oder Bits), etc.

[0049] Der Aufnahmekörper 10 weist einen Korpus 12 und einen mit dem Korpus 12 verbundenen oder verbindbaren Deckel 14 auf. An den Innenseiten des Korpus 12 sind Verstärkungsrippen 28 zum mechanischen Verstärken des Aufnahmekörpers 10 gebildet. Diverse Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 sind gemäß dem gezeigten Ausführungsbeispiel ausschließlich an dem Korpus 12, nicht hingegen an dem Deckel 14 angebracht. In dem Schließzustand zwischen dem Korpus 12 und dem Deckel 14 ist ein Aufnahmeraum zum Aufnehmen von Transportgut von außen unzugänglich zwischen dem Korpus 12 und dem Deckel 14 eingeschlossen. In dem Öffnungszustand ist der Aufnahmeraum von außen zugänglich, zum Beispiel um Transportgut aus dem Aufnahmekörper 10 zu entnehmen oder in den Aufnahmekörper 10 einzubringen.

[0050] Die Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 sind derart ausgebildet, dass der Aufnahmekörper 10 und der identische andere Aufnahmekörper 10' mittels der Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 (die somit in identischer Weise auch an dem anderen Aufnahmekörper 10' vorgesehen sind) wahlweise übereinander vertikal abnehmbar und horizontal verschiebegesichert stapelbar sind (Zustand I), oder vertikal unabnehmbar und horizontal verschiebbar miteinander koppelbar sind (Zustand II). Ferner können die Aufnahmekörper 10, 10' vertikal unabnehmbar und horizontal unverschiebbar miteinander gekoppelt sein (Zustand III). Die Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44, die sowohl das Stapeln (Zustand I) als auch das Koppeln (Zustand II, Zustand III) der mehreren Aufnahmekörper 10, 10' bewerkstelligen, sind ausschließlich mittels Vorkehrungen an dem jeweiligen Korpus 12 (siehe Rastnocken 30 und Aufnahmenuten 36 von Rastfüßen 34, Koppelnasen 38 an den Rastfüßen 34, eine Führungsschiene 30, 32 zwischen den Rastnocken 30 und Stufen 32 sowie miteinander zusammenwirkende Rastschieber 40 und Aufnahmenuten 44) realisiert, ohne dass hierfür aber Vorkehrungen an dem Deckel 14 getroffen sind.

[0051] Um den Zustand I zu aktivieren, wird der andere Aufnahmekörper 10' vertikal über dem Aufnahmekörper 10 angeordnet und nachfolgend so auf den Aufnahmekörper 10 abgesenkt, dass die Aufnahmenuten 36 an den Rastfüßen 34 des anderen Aufnahmekörpers 10' in Eingriff mit den Rastnocken 30 des Aufnahmekörpers 10 geraten. Die Aufnahmenuten 36 an den Rastfüßen 34 des anderen Aufnahmekörpers 10' sowie die Rastnocken 30 des Aufnahmekörpers 10 sorgen dann dafür, dass der andere Aufnahmekörper 10' jederzeit wieder vertikal von dem Aufnahmekörper 10 abgehoben werden kann (das heißt durch eine zur Stapelbewegung inverse Bewegung), aber durch den Formschluss zwischen den Aufnahmenuten 36 an den Rastfüßen 34 des anderen Aufnahmekörpers 10' und den Rastnocken 30 des Aufnahmekörpers 10 vor einer Verschiebbarkeit in horizontaler Ebene geschützt ist.

[0052] Um den Zustand II zu aktivieren, wird der andere Aufnahmekörper 10' in der Horizontalebene vor dem Aufnahmekörper 10 angeordnet und vertikal leicht gegenüber dem Aufnahmekörper 10 angehoben, so dass die Kopplungsnasen 38 des anderen Aufnahmekörpers 10' auf Höhe zwischen den Rastnocken 30 und den Stufen 32, mithin auf Höhe der Führungsschienen 30, 32 des Aufnahmekörpers 10 angeordnet sind. Dann wird die Aktivierung des Zustands II abgeschlossen, indem der andere Aufnahmekörper 10' so über den Aufnahmekörper 10 aufgeschoben wird, dass die Koppelnasen 38 des anderen Aufnahmekörpers 10' zwischen die Rastnocken 30 und die Stufen 32, mithin in die Führungsschienen 30, 32 des Aufnahmekörpers 10 einfahren. In dem Zustand II ist ein Abheben des anderen Aufnahmekörpers 10' von dem Aufnahmekörper 10 aufgrund des Formschlusses zwischen den Koppelnasen 38 einerseits und den Rastnocken 30 bzw. den Stufen 32, daher mit dem Führungsschienen 30, 32 andererseits, verunmöglicht. Gleichzeitig ist ein Trennen des Aufnahmekörpers 10 von dem anderen Aufnahmekörper 10' durch ein horizontales Abschieben des anderen Aufnahmekörpers 10' von dem Aufnahmekörper 10 möglich, nämlich mit einer inversen Verschiebebewegung im Vergleich zu jener, mit der der Zustand II abgeschlossen wurde.

[0053] Um ausgehend von dem Zustand II den Zustand III zu aktivieren, werden im aufeinander aufgeschobenen Zustand der Aufnahmekörper 10, 10' durch eine vertikale Verschiebebewegung die Rastschieber 40 des anderen Aufnahmekörpers 10' in die Aufnahmenuten 44 des Aufnahmekörpers 10' eingeführt. In dem dadurch abgeschlossenen Zustand III ist nun auch eine Verschiebesicherung zwischen den Aufnahmekörpern 10, 10' ausgebildet, sodass nun weder ein vertikales Abheben noch ein horizontales Abschieben der Aufnahmekörper 10, 10' voneinander möglich ist.

[0054] Ein Teil der Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 (nämlich die Kopplungsstrukturen mit den Bezugszeichen 30, 34 mit 38) tragen sowohl zum vertikal abnehmbar verschiebegesicherten Stapeln als auch zum vertikal unabnehmbar miteinander Koppeln bei.

[0055] Wie bereits beschrieben, sind die Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 ausgebildet, dass der Aufnahmekörper 10 und der andere Aufnahmekörper 10' mittels der Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 in dem übereinander vertikal unabnehmbar miteinander gekoppelten Zustand selektiv gegeneinander verschiebbar (Zustand II, in dem Kopplungsstrukturen

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40, 44 miteinander nicht in Eingriff sind) oder mittels Betätigens der Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 gegeneinander verschiebesicherbar sind (Zustand III, in dem zusätzlich Kopplungsstrukturen 40, 44 miteinander in Eingriff sind). Ein Teil der Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 (nämlich die Kopplungsstrukturen mit den Bezugszeichen 40 und 44), der in dem übereinander vertikal unabnehmbar miteinander verschiebegesichert gekoppelten Zustand III zum Verschiebesichern beiträgt, ist unabhängig von einem anderen Teil (nämlich den Kopplungsstrukturen mit den Bezugszeichen 30, 32, 34, 36, 38) der Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 ausgebildet und betätigbar, der zum vertikal abnehmbar verschiebegesicherten Stapeln bzw. zum vertikal unabnehmbar miteinander Koppeln beiträgt (Zustand I bzw. Zustand II).

[0056] Der Teil der Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44, mit dem der Aufnahmekörper 10 und der andere Aufnahmekörper 10' übereinander vertikal abnehmbar verschiebegesichert stapelbar sind, ist in Form der Rastnocken 30 an äußeren oberseitigen Kantenbereichen des Korpus 12 sowie in Form der Rastfüße 34 mit mit den Rastnocken 30 im gestapelten Zustand zusammenwirkenden unterseitigen Aufnahmenuten 36 an äußeren unterseitigen Kantenbereichen des Korpus 12 ausgebildet.

[0057] Der Teil der Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44, mit dem der Aufnahmekörper 10 und der andere Aufnahmekörper 10' übereinander vertikal unabnehmbar miteinander koppelbar sind, ist in Form der Führungsschienen 30, 32 an äußeren oberseitigen Kantenbereichen des Korpus 12 sowie in Form der mit den Führungsschienen 30, 32 im gekoppelten Zustand zusammenwirkenden unterseitigen Koppelnasen 38 an äußeren unterseitigen Kantenbereichen des Korpus 12 ausgebildet. Dabei bilden die Rastnocken 30 einen Teil der Führungsschienen 30, 32 und bilden die Koppelnasen 38 Teil der Rastfüße 34. Die Rastfüße 34 erstrecken sich vertikal über eine Bodenfläche des Korpus 12 hinaus nach unten (siehe Figur 2), sodass der Aufnahmekörper 10 mit den Rastfüßen 34 auf einem Untergrund abstellbar ist.

[0058] Der Teil der Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44, mit dem der Aufnahmekörper 10 und der andere Aufnahmekörper 10' in dem übereinander vertikal unabnehmbar miteinander gekoppelten Zustand gegeneinander verschiebesicherbar sind (Zustand III), ist in Form der Aufnahmenuten 44 und der damit zusammenwirkenden Rastschieber 40 ausgebildet. Wie mit einem Pfeil 42 in Figur 1 angedeutet, sind die Rastschieber 40 an dem Korpus 12 des anderen Aufnahmekörpers 10' in die Aufnahmenuten 44 an dem Korpus 12 des Aufnahmekörpers 10 einschiebbar (wenn der andere Aufnahmekörper 10' oberhalb des Aufnahmekörpers 10 angeordnet wird, wie in Figur 4), oder umgekehrt (wenn der Aufnahmekörper 10 oberhalb des anderen Aufnahmekörpers 10' angeordnet wird).

[0059] Alle Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 sind an Seitenflächen des Korpus 12 vorgesehen (siehe zum Beispiel Figur 1). Im Gegensatz dazu ist der Deckel 14 von den Kopplungsstrukturen 30, 32, 34, 36, 38, 40, 44 frei.

[0060] Der Aufnahmekörper 10 weist ferner Griffmulden 26 in Form von Vertiefungen an einander gegenüberliegenden Seitenflächen des Korpus 12 auf.

[0061] Darüber hinaus kann eine optionale Abschließeinrichtung 46, 48, 50, 52 zum Verschließen des Deckels 14 an dem Korpus 12 in dem Schließzustand vorgesehen sein. In dem Schließzustand des Aufnahmekörpers 10 kann mittels eines Schlüssels 50 in einem Drehschloss 52 in einem Aufnahmeelement 46 des Korpus 12 eine Verriegelung mit einem Gegenstück 48 des Deckels 14 bewerkstelligt werden. Wenn der Deckel 14 mittels eines Scharniers 16 umgeschwenkt wird, um das Innere des Korpus 12 zu verschließen, so verrasten Verschlusselemente des Drehschlosses 52 an dem Korpus 12 mit dem Gegenstück 48 an dem Deckel 14. Das mittels des abziehbaren Schlüssels 50 betätigbare Drehschloss 52 an dem Korpus 12 enthält einen Schwenkbügel, der in dem Gegenstück 48 an dem Deckel 14 einfährt.

[0062] Ein Griff 54 ist in einer Mulde an einer im Tragezustand oberen Seitenfläche des Korpus 12 angebracht und zwischen einem an der Seitenfläche des Korpus 12 angeklappten Zustand (siehe Figur 1) und einem von der Seitenfläche abgeklappten Zustand verkippbar. Einen Übergang zwischen diesen beiden Zuständen kann der Benutzer durch Handhabung des Griffs 54 herbeiführen. Der Griff 54 ist aus einer Hartkomponente 56 zum Stabilisieren und Lagern des Griffs 54 und einer Weichkomponente 58 zum bequemen Berühren des Aufnahmekörpers 10 durch einen Benutzer beim Tragen des Aufnahmekörpers 10 ausgebildet. Der Griff 54 an dem Korpus 12 kann an Letzteren angelegt werden und verbleibt dort in kompakter Stellung durch die Wirkung einer den Griff 54 im eingezogenen Zustand verrastenden Rastnocke. Im Bereich des Griffs 54 ist ein Etikettenfeld 75 vorgesehen, in das ein zum Beispiel für den Inhalt des Aufnahmekörpers 10 indikativer Kennzeichnungsträger einschiebbar ist.

[0063] Der Aufnahmekörper 10 weist darüber hinaus das Scharnier 16 auf, das den Korpus 12 und den Deckel 14 klappbar miteinander verbindet und ausgebildet ist, den Aufnahmekörper 10 zwischen dem Schließzustand und dem Öffnungszustand umklappen zu können. Die Rastfüße 34 und das Scharnier 16 sind strukturell derart aufeinander angepasst und positioniert, dass das Scharnier 16 berührungsfrei gegenüber dem Untergrund beabstandet verbleibt, wenn der Aufnahmekörper 10 mittels der Rastfüße 34 auf dem Untergrund aufliegt.

[0064] Wie in Figur 1 erkennbar ist, ist an einer Innenseite des Deckels 14 ein Dokumentenhalter 68 angebracht, mit dem in Figur 1 nicht gezeigte Dokumente vorübergehend angeklemmt und somit während des Transports befestigt werden können.

[0065] Sowohl der Korpus 12 als auch der Deckel 14 sind jeweils herstellungstechnisch einfach als Spritz-

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gussteil ausgebildet. An das jeweilige Spritzgussteil sind nachfolgend weitere Komponenten angebracht (zum Beispiel der Rastschieber 40 an dem Korpus 12 oder der Dokumentenhalter 68 an den Deckel 14).

[0066] Die Aufnahmekörper 10, 10' sind auch zum Aufnehmen von Sortimentboxen (nicht gezeigt) ausgebildet, in denen zum Beispiel Werkzeugmaterialien wie Schrauben, Dübel oder anderes aufgenommen werden können. Im Schließzustand des jeweiligen Aufnahmekörpers 10, 10' sind die Sortimentboxen für einen Benutzer unzugänglich im Inneren des jeweiligen Aufnahmekörpers 10, 10' gesichert, wohingegen ein Benutzer im Öffnungszustand des jeweiligen Aufnahmekörpers 10, 10 auf die Sortimentboxen zugreifen kann.

[0067] Wie in Figur 1 und Figur 2 gezeigt, stehen an einer Innenseite des Korpus 12 sich kreuzförmig schneidende Längsstreben 18 und Querstreben 20 erhaben über einer ebenen Unterlage hervor. In Schnittbereichen der Längsstreben 18 und der Querstreben 20 sind zusätzlich erhaben überstehende Rahmen 22 gebildet, die in jedem Schnittbereich gemeinsam mit Längsstreben 18 und Querstreben 20 vier Aufnahmevertiefungen 24 zum Aufnehmen von im Wesentlichen invers zu den Aufnahmevertiefungen 24 geformten Füßen von Sortimentboxen bilden.

[0068] Eine ringförmige Vertiefung an einer Innenseite des Deckels 14 ist mit einem ringförmigen Passepartout 64 bedeckt, das umfänglich an dem Deckel 14 ultraschallverschweißt ist. An dem Passepartout 64 ist mittels Kunststoffclips 66 der aus Kunststoff gebildete Dokumentenhalter 68 zum Klemmbefestigen von nicht gezeigten Dokumenten angebracht.

[0069] **Figur 5** zeigt eine Oberseite und **Figur 6** zeigt eine Unterseite einer plattenförmigen Adaptervorrichtung 100 gemäß einem exemplarischen Ausführungsbeispiel der Erfindung. Während zwei gleichartige und gleichgroße Aufnahmekörper 10, 10' direkt aneinander befestigt werden können (vergleiche Figur 4), erlaubt es die Adaptervorrichtung 100, zum Beispiel als Koffer ausgebildete unterschiedlich große Aufnahmekörper 10, 102 (siehe zum Beispiel Figur 13, Figur 18) befestigend aufzunehmen, zum Befestigen eines als Aufbewahrungsbox ausgebildeten Aufnahmekörpers 352 (siehe zum Beispiel Figur 11) beizutragen oder auch zwischen zwei unterschiedlich großen Aufnahmekörpern 10, 102 (siehe zum Beispiel Figur 19) als eine Befestigung herstellendes Zwischenstück zu fungieren. Es ist es auch möglich, zwei gleich große Aufnahmekörper 10, 102 (zum Beispiel Koffer) aneinander zu befestigen.

[0070] Die Adaptervorrichtung 100 weist hierfür eine als Trägerplatte aus Kunststoff ausgebildete Trägereinrichtung 104 zum Tragen eines befestigten Aufnahmekörpers 10, 102 auf. Ferner enthält die Adaptervorrichtung 100 erste Kopplungsstrukturen 106 bis 108 an der Trägereinrichtung 104, die zum Befestigen eines ersten Aufnahmekörpers 10 einer ersten Größe mittels Aufschiebens und Verriegelns an den ersten Kopplungsstrukturen 106 bis 108 ausgebildet sind (siehe zum Beispiel Figur 13). Des Weiteren weist die Adaptervorrichtung 100 zweite Kopplungsstrukturen 110 bis 112 an der Trägereinrichtung 104 auf, die zum Befestigen eines zweiten Aufnahmekörpers 102 einer (im Vergleich zu der ersten Größe größeren) zweiten Größe mittels Aufschiebens und Verriegelns an den zweiten Kopplungsstrukturen 108 bis 110 ausgebildet sind (siehe zum Beispiel Figur 18).

[0071] Die ersten Kopplungsstrukturen 106 bis 108 enthalten zwei zueinander parallele und in einem ersten Abstand voneinander beabstandete erste Führungsschienen 106. Wie in Figur 13 gezeigt, kann entlang der beiden ersten Führungsschienen 106 der erste Aufnahmekörper 10 bis zu einer ersten Verriegelungsposition aufgeschoben werden, wobei die Rastfüße 34 des ersten Aufnahmekörpers 10 entlang der ersten Führungsschienen 106 gleiten. Entsprechend weisen die zweiten Kopplungsstrukturen 110 bis 112 zwei zueinander parallele und gegenüber dem ersten Abstand mit einem größeren zweiten Abstand voneinander beabstandete zweite Führungsschienen 110 auf, welche die ersten Führungsschienen 106 seitlich umgeben. Wie in Figur 18 gezeigt, kann entlang der zweiten Führungsschienen 110 der (im Vergleich zu dem ersten Aufnahmekörper 10 größere) zweite Aufnahmekörper 102 bis zu einer zweiten Verriegelungsposition auf die Trägereinrichtung 104 aufgeschoben werden, wobei die Rastfüße 34 des zweiten Aufnahmekörpers 102 entlang der zweiten Führungsschienen 110 gleiten.

[0072] Darüber hinaus enthalten die ersten Kopplungsstrukturen 106 bis 108 jeweils zwei entlang der jeweiligen ersten Führungsschiene 106 beabstandete erste Verriegelungskörper 108. Entsprechend enthalten die zweiten Kopplungsstrukturen 110 bis 112 jeweils drei entlang der jeweiligen zweiten Führungsschiene 110 beabstandete zweite Verriegelungskörper 112.

[0073] In der in Figur 5 gezeigten Stellung der Verriegelungskörper 108, 112, kann ein jeweiliger Aufnahmekörper 10, 102 auf die Adaptervorrichtung 100 durch vertikales Absenken aufgesetzt werden, wodurch die jeweiligen Verriegelungskörper 108, 112 in die Aufnahmenuten 36 an den Rastfüßen 34 des jeweiligen Aufnahmekörpers 10, 102 eintauchen und dabei einen vertikal abnehmbar verschiebegesicherten Zustand 1 (in Analogie zu dem obigen Zustand I zwischen zwei gleichartigen Aufnahmekörpern 10, 10') einnehmen. Anders ausgedrückt fungieren die jeweiligen Verriegelungskörper 108, 11 2 in Zustand 1 ähnlich wie die Rastnocken 30 der Aufnahmekörper 10, 10' in Zustand I.

[0074] Bei Aufschieben des ersten Aufnahmekörpers 10 entlang der beiden ersten Führungsschienen 106 bis zu der ersten Verriegelungsposition (die durch eine unten näher beschriebene Anschlagstruktur 114 intuitiv angezeigt sein kann, an die eine Seitenfläche des ersten Aufnahmekörpers 10 beim Aufschieben anschlagen kann, wenn die erste Verriegelungsposition erreicht ist) bewirken die beiden Paare von ersten Verriegelungskörpern 108 hingegen ein vertikal unabnehmbares Verriegeln

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des ersten Aufnahmekörpers 10 an der Adaptervorrichtung 100 (wobei diese Position in Analogie zu dem obigen Zustand II als Zustand 2 bezeichnet werden kann). Bei Aufschieben des zweiten Aufnahmekörpers 102 entlang der beiden zweiten Führungsschienen 110 bis zu der zweiten Verriegelungsposition (die wiederum durch die unten näher beschriebene Anschlagstruktur 114 definiert ist) wird der zweite Aufnahmekörper 102 an der zweiten Verriegelungsposition durch die zweiten Verriegelungskörper 112 vertikal unabnehmbar an der Adaptervorrichtung 100 verriegelt (Zustand 2 des zweiten Aufnahmekörpers 102).

[0075] Wie mit Pfeilen auf den jeweiligen Verriegelungskörpern 108, 112 in Figur 5 angedeutet, sind die ersten und zweiten Verriegelungskörper 108, 112 zum Verriegeln des jeweiligen Aufnahmekörpers 10, 102 zuvor senkrecht zu den Erstreckungsrichtungen der Führungsschienen 106, 110 verschiebbar und zum Einnehmen einer Verriegelungsposition in eine jeweilige Führungsschiene 106, 110 - unter Freilassung eines vertikalen Zwischenraums zwischen dem jeweiligen Verriegelungskörper 108, 112 und der jeweiligen Führungsschiene 106, 110 zum Aufnehmen eines jeweiligen Rastfußes 34 des jeweiligen Aufnahmekörpers 10, 102 - hinein verschiebbar. In Figur 5 sind die Verriegelungskörper 108, 112 alle in die jeweils zugehörige Führungsschiene 106, 110 hineinragend verschoben und in dieser Position verrastet worden. Um zum Beispiel zum Durchschieben eines Aufnahmekörpers 10, 102 entlang fluchtender Führungsschienen 106, 110 zwischen mehreren aneinander angestückten Adaptervorrichtungen 100 die Führungsschienen 106, 110 vollständig freizuhalten, können die Verriegelungskörper 108, 112 durch eine Bewegung entgegen der angezeigten Pfeilrichtung auch vollständig aus den Führungsschienen 106, 110 herausgefahren werden. Wie in Figur 6 und **Figur 7** zu erkennen ist, sind jeweilige Sätze von Verriegelungskörpern 108 bzw. 112 an gemeinsamen Trägerbalken 187, 189 starr bzw. als integraler Teil davon vorgesehen, sodass die Trägerbalken 187, 189 zwischen einer äußeren Rastposition (durch Einfahren der jeweiligen Verriegelungskörper 108, 112 in die jeweiligen Führungsschienen 106, 110, um die Adaptervorrichtung 100 in eine verriegelungsfähige Position zu bringen) und einer inneren Rastposition (durch Herausfahren der jeweiligen Verriegelungskörper 108, 112 aus der jeweiligen Führungsschiene 106, 110, um die Führungsschienen 106, 110 vollständig freizuhalten) verschoben werden können.

[0076] Die beschriebene Konfiguration der ersten Kopplungsstrukturen 106 bis 108 und der zweiten Kopplungsstrukturen 110 bis 112 erlaubt es, dass wahlweise nur der erste Aufnahmekörper 10 oder nur der zweite Aufnahmekörper 102 mittels der Kopplungsstrukturen 106 bis 108, 110 bis 112 auf der Adaptervorrichtung 100 entweder in einen vertikal abnehmbar verschiebegesichert stapelbaren Zustand (Zustand 1) überführbar ist oder mittels des Aufschiebens und des Verriegelns an den ersten Kopplungsstrukturen 106 bis 108 oder den zweiten Kopplungsstrukturen 110 bis 112 in einen vertikal unabnehmbar miteinander koppelbaren Zustand (Zustand 2) überführbar sind:

[0077] Wenn der in Figur 1 bis Figur 4 gezeigte Aufnahmekörper 10 durch vertikales Absenken auf die Adaptervorrichtung 100 in der Position der Verriegelungskörper 108, 112 gemäß Figur 5 aufgesetzt wird, geraten die Aufnahmenuten 36 an den Rastfüßen 34 des Aufnahmekörpers 10 (vergleiche Figur 3) in Eingriff mit vertikalen Überständen der ersten Verriegelungskörper 108 der Adaptervorrichtung 100, die gemäß Figur 5 teilweise in die ersten Führungsschienen 106 eingefahren sind. Die Aufnahmenuten 36 an den Rastfüßen 34 des Aufnahmekörpers 10 sowie die Überstände der ersten Verriegelungskörper 108 der Adaptervorrichtung 100 sorgen dann dafür, dass der Aufnahmekörper 10 jederzeit wieder vertikal von der Adaptervorrichtung 100 abgehoben werden kann (das heißt durch eine zur Stapelbewegung inverse Bewegung), aber durch den Formschluss zwischen den Aufnahmenuten 36 an den Rastfüßen 34 des Aufnahmekörpers 10 und den Überständen der ersten Verriegelungskörper 108 vor einer Verschiebbarkeit in horizontaler Ebene geschützt ist (Zustand 1).

[0078] Um stattdessen den vertikal unabnehmbar miteinander gekoppelten Zustand 2 zu aktivieren, kann der Aufnahmekörper 10 (zum Beispiel gegenüber der Horizontalebene leicht verkippt) vor die Adaptervorrichtung 100 gemäß Figur 5 angeordnet werden, so dass die vorderseitigen Koppelnasen 38 des Aufnahmekörpers 10 in den ersten Führungsschienen 106 zwischen den jeweils vorderseitigen ersten Verriegelungskörpern 108 und den jeweils rückseitigen ersten Verriegelungskörpern 108 der Adaptervorrichtung 100 angeordnet sind. Dann wird die Aktivierung des vertikal unabnehmbar miteinander gekoppelten Zustands 2 abgeschlossen, indem der Aufnahmekörper 10 vollständig in die horizontale Ebene abgesenkt wird, so dass auch die rückseitigen Koppelnasen 38 des Aufnahmekörpers 10 in die ersten Führungsschienen 106 eintauchen. Nachfolgend wird der so positionierte Aufnahmekörper 10 entlang der ersten Führungsschienen 106 so weit verschoben, bis sowohl die vorderseitigen Koppelnasen 38 als auch die rückseitigen Koppelnasen 38 unterhalb der jeweiligen ersten Verriegelungskörper 108 positioniert sind. In diesem Zustand 2 ist ein Abheben des Aufnahmekörpers 10 von der Adaptervorrichtung 100 aufgrund des Formschlusses zwischen den Koppelnasen 38 einerseits und den ersten Verriegelungskörpern 108 bzw. den ersten Führungsschienen 106 andererseits verunmöglicht. Gleichzeitig ist ein Trennen des Aufnahmekörpers 10 von der Adaptervorrichtung 100 durch ein horizontales Abschieben des Aufnahmekörpers 10 von der Adaptervorrichtung 100 möglich, nämlich mit einer inversen Verschiebebewegung im Vergleich zu jener, mit der der vertikal unabnehmbar miteinander gekoppelte Zustand 2 aktiviert wurde.

[0079] Die ersten Kopplungsstrukturen 106 bis 108 enthalten ferner eine erste Zusatzverriegelungseinrich-

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tung 107 in Form von Aufnahmenuten in der Trägereinrichtung 104 zum zusätzlichen verschiebegesicherten Verriegeln des ersten Aufnahmekörpers 10, wenn dieser an der Trägereinrichtung 104 aufgeschoben und verriegelt ist und somit in Zustand 2 befindlich ist. Wenn die Koppelnasen 38 des ersten Aufnahmekörpers 10 unterhalb der Überstände der ersten Verriegelungskörper 108 angeordnet sind, ist immer noch ein lineares Verschieben des ersten Aufnahmekörpers 10 entlang der ersten Führungsschienen 106 möglich. Um ausgehend von diesem nicht verschiebegesicherten Zustand 2 einen verschiebegesicherten Zustand 3 (in Analogie zu dem oben beschriebenen verschiebegesicherten Zustand III zwischen den gleichartigen Aufnahmekörpern 10, 10') zu aktivieren, werden im aufeinander aufgeschobenen Zustand 2 des ersten Aufnahmekörpers 10 und der Adaptervorrichtung 100 durch eine vertikale Verschiebebewegung die Rastschieber 40 des Aufnahmekörpers 10 in die Aufnahmenuten der ersten Zusatzverriegelungseinrichtung 107 eingeführt. Dann ist auch eine Verschiebesicherung zwischen dem ersten Aufnahmekörper 10 und der Adaptervorrichtung 100 ausgebildet, sodass nun weder ein vertikales Abheben noch ein horizontales Abschieben des ersten Aufnahmekörpers 10 von der Adaptervorrichtung 100 möglich ist. In entsprechender Weise weisen die zweiten Kopplungsstrukturen 110 bis 112 eine zweite Zusatzverriegelungseinrichtung 111 in Form von Aufnahmenuten in der Trägereinrichtung 104 zum zusätzlichen verschiebegesicherten Verriegeln des zweiten Aufnahmekörpers 102 auf, wenn dieser an der Trägereinrichtung 104 aufgeschoben und verriegelt ist.

[0080] Wenn der erste Aufnahmekörper 10 nicht auf der Adaptervorrichtung 100 montiert ist, ist Platz für die Aufnahme des zweiten, größeren Aufnahmekörpers 102. Die Montage und Demontage des größeren Aufnahmekörpers 102 auf der Adaptervorrichtung 100 erfolgt in entsprechender Weise wie für den ersten Aufnahmekörper 10 beschrieben, wobei anstelle der ersten Kopplungsstrukturen 106 bis 108 die zweiten Kopplungsstrukturen 110 bis 112 eingesetzt werden.

[0081] Um den Benutzerkomfort weiter zu erhöhen, weist die Adaptervorrichtung 100 gegenüber der Trägereinrichtung 104 ein- und ausklappbare Anschlagstrukturen 114 auf, die eingerichtet sind, dass nach Aufschieben des ersten Aufnahmekörpers 10 oder des zweiten Aufnahmekörpers 102 auf die Trägereinrichtung 104 der jeweilige Aufnahmekörper 10, 102 an den Anschlagstrukturen 114 in einer Verriegelungsposition anschlägt, in welcher der jeweilige Aufnahmekörper 10, 102 an der Adaptervorrichtung 100 verriegelt oder fähig zum Verriegeln ist. Schlägt also der jeweilige Aufnahmekörper 10, 102 vorderseitig an den Anschlagstrukturen 114 an, befindet er sich in der richtigen Position, dass die Rastfüße 34 unter den jeweiligen Verriegelungskörpern 108, 112 befindlich sind und die Rastschieber 40 des jeweiligen Aufnahmekörpers 10, 102 an der Position der jeweiligen Zusatzverriegelungseinrichtung 107, 111 befindlich sind. Dadurch ist ein fehlerrobustes und intuitives Bedienen der Adaptervorrichtung 100 ermöglicht.

[0082] An einander gegenüberliegenden vorder- und rückseitigen Kanten der Trägereinrichtung 104 sind pilzförmige Adapterverbindungsstrukturen 118, 120 integral vorgesehen. Die Adapterverbindungsstrukturen 118 sind pilzförmige Überstände, wohingegen die Adapterverbindungsstrukturen 120 korrespondierend geformte und dimensionierte pilzförmige Hinterschnitte bzw. Aussparungen sind. Mehrere Adaptervorrichtungen 100 des in Figur 5 und Figur 6 gezeigten Typs können seriell aneinandergesteckt werden, indem ein jeweiliger pilzförmiger Überstand in einen jeweiligen pilzförmigen Hinterschnitt formschlüssig eingeführt wird. In diesem gekoppelten Zustand fluchten auch die jeweiligen Führungsschienen 106 bzw. 110 der gekoppelten Adaptervorrichtungen 100 miteinander, sodass in einem entsprechenden, die Führungsschienen 106 bzw. 110 freihaltenden, Verschiebezustand der Verriegelungskörper 108 bzw. 112 ein entsprechender Aufnahmekörper 10, 102 über mehrere Adaptervorrichtungen 100 hinweg zu einer gewünschten Zielposition durchgeschoben werden kann.

[0083] Die Trägereinrichtung 104 vertikal durchdringende Befestigungsstrukturen 122, die gemäß Figur 5 und Figur 6 in Form von durchgehenden Befestigungslöchern zum Aufnehmen von Befestigungsschrauben ausgebildet sind, dienen zum Befestigen der Adaptervorrichtung 100 an einem Befestigungskörper, wie zum Beispiel an einer Montageeinrichtung 200 (siehe Figur 9), einer Erweiterungseinrichtung 300 (siehe Figur 11), einer Wand (nicht gezeigt), etc.

[0084] Mittels Betätigens von in Figur 5 gezeigten Betätigungselementen 193 an einer Frontseite der Adaptervorrichtung 100 kann ein Benutzer einen zweiten Aufnahmekörper 102, der an der Adaptervorrichtung 100 in Zustand 3 montiert ist, von der Verschiebesicherung befreien und somit in Zustand 2 rückführen, da durch diese Betätigung Hebelarme 195 (siehe Figur 6) auf die in den Aufnahmenuten der Zusatzverriegelungseinrichtung 111 des Koffers eingefahrene Rastschieber 40 des zweiten Aufnahmekörpers 102 einwirken können.

[0085] Eine Aussparung in der Trägereinrichtung 104 bildet einen Tragegriff 124 zum Tragen der Adaptervorrichtung 100 durch einen Benutzer.

[0086] Nun bezugnehmend auf Figur 6 weist die Adaptervorrichtung 100 ferner Versteifungsstrukturen 126 auf, die zum Versteifen der aus Kunststoff gebildeten Trägereinrichtung 104 ausgebildet sind. Dies erhöht die Stabilität der Adaptervorrichtung 100.

[0087] Eine bodenseitige Verrutschschutzeinrichtung 116 zum Schützen der Adaptervorrichtung 100 vor einem Verrutschen auf einem Teppichuntergrund (zum Beispiel in einem mit Teppich ausgekleideten Kofferraum eines Kraftfahrzeugs) ist in Figur 6 in einem an der Trägereinrichtung 104 inaktiv verstauten Zustand und im Detail in Figur 8 gezeigt.

[0088] **Figur 8** zeigt eine Verrutschschutzleiste der Verrutschschutzeinrichtung 116 mit einer Anordnung von Spikes 118 der Adaptervorrichtung 100 gemäß Figur

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5 und Figur 6. Gemäß Figur 6 ist die Verrutschschutzeinrichtung 116 in einem deaktivierten Zustand an einer Bodenfläche der Trägereinrichtung 104 angeklemmt und dadurch verstaut. Die Verrutschschutzeinrichtung 116 enthält eine zweidimensionale Anordnung bodenseitiger Spikes 118, die eingerichtet sind, beim Aufsetzen der Adaptervorrichtung 100 auf den Teppich-Untergrund in diesen einzudringen. Die Verrutschschutzeinrichtung 116 ist selektiv an der Trägereinrichtung 104 deaktiviert verstaubar (siehe Figur 6) oder zum Aktivieren des Verrutschschutzes gegenüber der Trägereinrichtung 104 umpositionierbar. Die Verrutschschutzeinrichtung 116 ist aus zwei bodenseitig an der Trägereinrichtung 104 angeordneten Verrutschleisten gebildet, die im aktivierten Zustand V-förmig aufeinander zuweisend an einer Unterseite der Trägereinrichtung 104, diese unterseitig überragend, angeordnet werden können. Um die Verrutschschutzeinrichtung 116 in einen aktivierten Zustand zu überführen, werden die Verrutschleisten aus der in Figur 6 gezeigten inaktiven und an der Trägereinrichtung 104 verklemmten Stellung heraus- und von der Trägereinrichtung 104 zeitweise abgenommen und in zueinander winkelig angeordnete Leistenaufnahmen 191 an der Unterseite der Trägereinrichtung 104 so aufgesteckt, dass die Spikes 118 unterseitig über die Trägereinrichtung 104 hervorstehen und sich dadurch unter Bereitstellung eines Verrutschschutzes in einen Teppichuntergrund (nicht gezeigt) einkrallen können. Die Verrutschleisten sind so konstruiert, dass sie sowohl mit ihrer Schmalseite an den Leistenaufnahmen 191 unter Ausbildung einer Steckverbindung formschlüssig aufgenommen werden können und andererseits mit ihrer Breitseite an den Verstauaufnahmen der Trägereinrichtung 104 unter Ausbildung einer Steckverbindung vertikal zurückversetzt werden können.

[0089] **Figur 9** zeigt eine räumliche Ansicht einer an einem Kraftfahrzeugsitz 202 montierten Montagevorrichtung 250 aus einer im Weiteren näher zu beschreibenden Montageeinrichtung 200 und einer daran montierten Adaptervorrichtung 100 gemäß einem exemplarischen Ausführungsbeispiel der Erfindung. Ferner zeigt Figur 9 ein Detail 277, das die Montage von Steckelementen 206 der Montageeinrichtung 200 an Fixierstrukturen 208 des Kraftfahrzeugsitzes 202 zeigt, die mit einer Karosserie eines Kraftfahrzeugs verbunden sind, das den Kraftfahrzeugsitz 202 enthält. Einige der Merkmale der Montagevorrichtung 250 gemäß Figur 9 sind auch in einer anderen, in Figur 10 und Figur 12 bis Figur 15 dargestellten Montagevorrichtung 250 enthalten und dort zum Teil besser sichtbar, so dass in der folgenden Beschreibung zu Figur 9 zum Teil auch auf Figur 10 und Figur 12 bis Figur 15 Bezug genommen wird.

[0090] Die in Figur 9 gezeigte Montagevorrichtung 250 ist aus der Montageeinrichtung 200 als Montagebasis und der Adaptervorrichtung 100 (insbesondere der in Figur 5 und Figur 6 gezeigten Adaptervorrichtung 100) zum Befestigen von Aufnahmekörpern 10, 102 an dem Kraftfahrzeugsitz 202 gebildet.

[0091] Die Adaptervorrichtung 100 ist unter Verwendung von vier Schraubbolzen in vier Eckbereichen ihrer Trägereinrichtung 104 an einer Montagestruktur 210 der Montageeinrichtung 200 montiert. Die Schraubbolzen sind durch die Befestigungsstrukturen 122 der Adaptervorrichtung 100 hindurchgeführt und in die Montagestruktur 210 eingeführt und schraubbefestigt. Die Montagestruktur 210 dient somit zum Montieren der Adaptervorrichtung 100 in einer Weise, dass deren Aufnahmefläche zum Befestigen von Aufnahmekörpern 10, 102 oberseitig für eine benutzerdefinierte Montage frei zugänglich bleibt. Die Montagestruktur 210 ist, wie besser in Figur 13 bis Figur 15 zu erkennen, durch vertikale und hohle Metallrohrstücke gebildet, wobei die mit Gewinde versehenen Schraubbolzen durch die Adaptervorrichtung 100 und die Metallrohrstücke geführt und dort verschraubt werden. Jeder der vier Schraubbolzen hat an einer Oberfläche des Bolzenkopfes einen entsprechenden Antrieb (zum Beispiel einen Imbus-Antrieb) zum Eingreifen eines Antriebswerkzeugs (zum Beispiel ein Imbus-Schlüssel).

[0092] Die Montageeinrichtung 200 umfasst einen Basiskörper 204 in Form einer schlittenartigen Metallgestängekonstruktion zum Aufsetzen auf den Kraftfahrzeugsitz 202 und zum Halten der Adaptervorrichtung 100 in einem Abstand von dem Kraftfahrzeugsitz 202.

[0093] Der Basiskörper 204 ist als metallische Gestängekonstruktion aus hohlen gebogenen und teils verschweißten Rohren ausgebildet. Diese Gestängekonstruktion enthält einander gegenüberliegende und zueinander parallel verlaufende erste Gestänge 212, die sich zum Beispiel im Wesentlichen horizontal entlang einer Sitzfläche 214 des Kraftfahrzeugsitzes 202 erstrecken. Die ersten Gestänge 212 sind in Figur 9 nur zum Teil zu sehen, da sie sich im montierten Zustand der Adaptervorrichtung 100 unterhalb der Adaptervorrichtung 100 befinden. Dadurch wird eine oberseitige Arbeitsfläche der Adaptervorrichtung 110 zum Montieren oder Demontieren von Aufnahmekörpern 10, 102 auch im einem an dem Kraftfahrzeugsitz 202 montierten Zustand der Montagevorrichtung 250 für einen Benutzer zugänglich freigehalten. Ferner weist die Gestängekonstruktion zwei einander gegenüberliegende und gemäß Figur 9 schlaufenförmige zweite Gestänge 216 auf, die sich jeweils abschnittsweise in Richtung entlang bzw. parallel zu einer Rückenlehne 218 des Kraftfahrzeugsitzes 202 erstrecken. Wie in Figur 9 gut zu erkennen ist, erstreckt sich im montierten Zustand der Adaptervorrichtung 100 eines der beiden schlauchförmigen zweiten Gestänge 216 über die Adaptervorrichtung 100 vertikal hinaus entlang einem Großteil der Rückenlehne 218. Dadurch kann selbst dann, wenn an der Adaptervorrichtung 200 ein oder sogar mehrere relativ hohe Aufnahmekörper 10, 102 montiert sind, der oder die Aufnahmekörper 10, 102 beanstandet von der Rückenlehne 218 verbleiben, so dass das zweite Gestänge 216 in Berührkontakt mit der Rückenlehne 218 als Abstandshalter oder Anstoßschutz zu solchen Aufnahmekörpern 10, 102 fungiert. Gleich-

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zeitig hemmt das zweite Gestänge 216 in Kontakt mit der Rückenlehne 218 ein Verkippen der Montagevorrichtung 250. Das zweite Gestänge 216 angrenzend an die Rückenlehne 218 erstreckt sich, wie in Figur 9 gezeigt, wesentlich weiter vertikal nach oben als das gegenüberliegende andere der zweiten Gestänge 216, das ein von der Rückenlehne 218 am weitesten entferntes Ende des Basiskörpers 204 bildet. Dadurch bleibt die gesamte Aufnahmefläche der Adaptervorrichtung 100 für einen Benutzer gut zugänglich.

[0094] Ferner enthält die Montageeinrichtung 200 zwei gemäß dem Isofix-Standard (entsprechend der Norm ISO 13216, insbesondere in der Fassung von 1999 oder 2004 oder 2006) ausgebildete Steckelemente 206, die mittels einer jeweiligen, an den Basiskörper 204 angeschraubten und hier aus Kunststoff gebildeten Führungsaufnahme 224 (siehe Figur 10) zum Aufnehmen eines jeweiligen Steckelements 206 angebracht sind. Wenn ein jeweiliges der Steckelemente 206 formschlüssig in eine jeweilige der Führungsaufnahmen 224 eingeführt ist (was auch durch Straffen von unten näher beschriebenen flexiblen Verbindungselementen 220 erfolgen kann), befinden sich die Steckelemente 206 in einer wohldefinierten Stellung, in der eine verkippfreie Fixierung der Montagevorrichtung 250 an dem Kraftfahrzeugsitz 202 erreicht ist. Die Steckelemente 206 dienen zum Verankern der Montageeinrichtung 200 an den Fixierstrukturen 208 des Kraftfahrzeugsitzes 202, wie in dem Detail 277 dargestellt ist.

[0095] Nun bezugnehmend auf das Detail 277 sind die Steckelemente 206 der Montageeinrichtung 200 als Isofix-Steckelemente ausgebildet, die zum Verankern an mit der Kraftfahrzeugkarosserie starr verbundenen Isofix-Fixierstrukturen 208 des Kraftfahrzeugsitzes 202 eingerichtet sind. Die Steckelemente 206 sind in die jeweiligen Führungsaufnahmen 224 einführbar. Durch die jeweiligen Führungsaufnahmen 224 sind als Gurte ausgebildete flexible Verbindungselemente 220 durchgeführt, an deren einem Ende die Steckelemente angebracht sind. Durch die jeweiligen Führungsaufnahmen 224 und eine Spannvorrichtung 222 sind die an den Gurten montierten Steckelemente 206 an dem Basiskörper 204 befestigt. Ein Benutzer zieht zum Montieren der Montagevorrichtung 250 an dem Kraftfahrzeugsitz 202 also die Steckelemente 206 aus den Führungsaufnahmen 224 heraus und bewegt diese dank der Flexibilität der Verbindungselemente 220 zu einer gewünschten Position zwischen Sitzfläche 214 und Rückenlehne 218 des Kraftfahrzeugsitzes 202. Die Steckelemente 206 weisen Rasthaken auf, die bei Einführen in die als U-förmige Haken ausgebildeten Fixierstrukturen 208 in diese einrasten und dabei eine zuverlässige Klickverbindung ausbilden.

[0096] Die Montageeinrichtung 200 weist ferner die in Figur 10 gut erkennbare Spannvorrichtung 222 auf, die starr an dem lehnenfernen der zweiten Gestänge 216 des Basiskörpers 204 angebracht ist. Ein der Rückenlehne 218 abgewandtes Ende der flexiblen Verbindungselemente 220 kann durch die Spannvorrichtung 222 geführt werden. In diesem Zustand können die flexiblen Verbindungselemente 220 durch Ausüben einer Zugkraft auf das Ende der flexiblen Verbindungselemente 220 gestrafft werden und kann die Spannvorrichtung 222 von einem Benutzer betätigt werden, um nach dem Verankern der Steckelemente 206 an den Fixierstrukturen 208 die flexiblen Verbindungselemente 220 durch Einklemmen an der Spannvorrichtung 222 im gespannten Zustand zu fixieren. Wie in Figur 1 erkennbar ist, können die flexiblen Verbindungselemente 220 aus einem ersten Gurt gebildet sein, an dessen beiden Enden die Steckelemente 206 angebracht sind, und der durch eine Schlaufe an einem Ende eines zweiten Gurts der flexiblen Verbindungselemente 220 durchgeführt ist, wobei das gegenüberliegende zweite Ende des zweiten Gurts durch die Spannvorrichtung 222 durchgeführt ist. Durch diese Gurtkonstruktion sind eine einfache Handhabung, eine zuverlässige Montage, eine Verkippfreiheit und eine günstige Kraftübertragung erreicht.

[0097] Obgleich dies in der Figur nicht gezeigt ist, kann die Montageeinrichtung 200 eine Einstelleinrichtung aufweisen, die zum Einstellen einer Höhe und/oder eines Neigungswinkels der an der Montageeinrichtung 200 montierten Adaptervorrichtung 100 eingerichtet ist. Dadurch kann bei einer geneigten Sitzfläche 214 dennoch eine horizontale Arbeitsfläche der Adaptervorrichtung 100 bereitgestellt werden.

[0098] Ebenfalls können an der Montageeinrichtung 200 bodenseitig (zum Beispiel anschraubbare) Rollen (nicht gezeigt) angebracht werden, um die Montageeinrichtung 200 in einem von dem Kraftfahrzeugsitz 202 getrennten Zustand rollend fortzubewegen. Ein solches Anbringen von Rollen an der Montageeinrichtung 200 kann in ähnlicher Weise erfolgen, wie in Figur 17 für Rollen 312 einer Erweiterungseinrichtung 300 gezeigt.

[0099] **Figur 10** zeigt eine unterseitige Ansicht einer Montageeinrichtung 200, die ähnlich zu der Montageeinrichtung 200 gemäß Figur 9 ausgestaltet ist, mit daran montierter Adaptervorrichtung 100. Figur 10 ist insbesondere zu entnehmen, dass die flexiblen Verbindungselemente 220 einen ersten Gurt aufweisen, der die beiden Steckelemente 206 miteinander verbindet, und einen zweiten Gurt mit einem schlauchförmigen Ende aufweisen, durch das der erste Gurt hindurchgeführt ist. Ein gegenüberliegendes Ende des zweiten Gurts ist durch die Spannvorrichtung 222 hindurchgeführt.

[0100] **Figur 11** zeigt eine Erweiterungsanordnung 380 gemäß einem exemplarischen Ausführungsbeispiel der Erfindung aus einer unterseitigen Erweiterungsvorrichtung 350, einer hieran befestigten Aufbewahrungsbox als Aufnahmekörper 352 und einer oberseitig an dem Aufnahmekörper 352 montierten oberseitigen Erweiterungsvorrichtung 350. Die unterseitige Erweiterungsvorrichtung 350 ist aus einer unterseitigen Erweiterungseinrichtung 300 und einer daran montierten Adaptervorrichtung 100 gemäß Figur 5 und Figur 6 aufgebaut. Die oberseitige Erweiterungsvorrichtung 350 ist aus einer ober-

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seitigen Erweiterungseinrichtung 300 und einer weiteren Adaptervorrichtung 100 gemäß Figur 5 und Figur 6 aufgebaut und auf der Oberseite des Aufnahmekörper 352 zum Beispiel mittels Schraubverbindungen befestigt. Obgleich dies in Figur 11 nicht gezeigt ist, kann an den Kopplungsstrukturen 106 bis 108, 110 bis 112 auf der oberseitigen Adaptervorrichtung 100 mindestens ein weiterer Aufnahmekörper 10, 102 (nicht gezeigt) montiert werden, zum Beispiel ein Koffer.

[0101] Mit Bezugszeichen 304, 306, 312, 314 und 317 sind in Figur 11 einige Komponenten der Erweiterungseinrichtung 300 dargestellt bzw. angedeutet. Diese Komponenten werden unten bezugnehmend auf Figur 16 bis Figur 20 näher erläutert.

[0102] **Figur 12** zeigt eine Aufnahmeanordnung 150 aus einem als Koffer (siehe Figur 1 bis Figur 4) zum Transportieren von Transportgut ausgebildeten Aufnahmekörper 10 und einer zu dessen Befestigung ausgebildeten Adaptervorrichtung 100 (siehe Figur 5 und Figur 6) gemäß einem exemplarischen Ausführungsbeispiel der Erfindung, wobei die Adaptervorrichtung 100 (und damit die Aufnahmeanordnung 150) ihrerseits an der Montageeinrichtung 200 gemäß Figur 10 montiert ist. Gemäß Figur 12 ist der Aufnahmekörper 10 noch nicht an der Adaptervorrichtung 100 montiert. Alternativ zu dem Aufnahmekörper 10 kann auch ein größerer Koffer (siehe Aufnahmekörper 102 gemäß Figur 18 oder Figur 19) auf der Adaptervorrichtung 100 montiert werden. Mittels Verschlusseinrichtungen 197 kann ein jeweiliger der Aufnahmekörper 10, 102 benutzerdefiniert geöffnet werden, um Zugang zu einem Inneren zu erhalten, oder verriegelnd verschlossen werden.

[0103] Der erste Aufnahmekörper 10 weist weitere erste Kopplungsstrukturen 34, 36, 38, 40 auf (siehe Beschreibung zu Figur 1 bis Figur 4), die ausschließlich am Korpus 12 des ersten Aufnahmekörpers 10 vorgesehen sind, und zum Koppeln mit den ersten Kopplungsstrukturen 106 bis 108 der Adaptervorrichtung 100 positioniert und dimensioniert sind. Der alternativ zu dem ersten Aufnahmekörper 10 an der Adaptervorrichtung 100 montierbare zweite Aufnahmekörper 102 weist weitere zweite Kopplungsstrukturen 34, 36, 38, 40 (siehe Beschreibung zu Figur 1 bis Figur 4) ausschließlich an seinem Korpus 12 auf (siehe Figur 18 oder Figur 19), die zum Koppeln mit den zweiten Kopplungsstrukturen 110 bis 112 der Adaptervorrichtung 100 positioniert und dimensioniert sind.

[0104] Die weiteren ersten Kopplungsstrukturen 34, 36, 38, 40 und die weiteren zweiten Kopplungsstrukturen 34, 36, 38, 40 sind ausgebildet, sowohl zum vertikal abnehmbar verschiebegesicherten Stapeln des ersten Aufnahmekörpers 10 bzw. des zweiten Aufnahmekörpers 102 an der Adaptervorrichtung 100 gemäß Zustand 1 als auch zum vertikal unabnehmbar miteinander Koppeln des ersten Aufnahmekörpers 10 bzw. des zweiten Aufnahmekörpers 102 an der Adaptervorrichtung 100 gemäß Zustand 2 (ohne Verschiebesicherung) oder Zustand 3 (mit Verschiebesicherung) beizutragen.

[0105] **Figur 13** zeigt die Aufnahmeanordnung 150 gemäß Figur 12 in Zustand 1, in dem der Aufnahmekörper 10 vertikal abnehmbar verschiebegesichert auf der Adaptervorrichtung 100 angeordnet ist. Das übereinander vertikal abnehmbar verschiebegesicherte Stapeln wird durch unterseitige Aufnahmenuten 36 von Rastfüßen 34 an äußeren unterseitigen Kantenbereichen des ersten Aufnahmekörpers 10 (bzw. des zweiten Aufnahmekörpers 102) und durch korrespondierende Überstände der Verriegelungsstrukturen 108 bzw. 112 der Adaptervorrichtung 100 bewerkstelligt. Es sei erwähnt, dass die Adaptervorrichtung 100, der Aufnahmekörper 10 und die Montageeinrichtung 200 gemeinsam eine Montageanordnung 280 gemäß einem exemplarischen Ausführungsbeispiel der Erfindung bilden.

[0106] **Figur 14** zeigt die Aufnahmeanordnung 150 gemäß Figur 12 in einem Betriebszustand, in dem der Aufnahmekörper 10 gemäß Zustand 2 vertikal unabnehmbar, aber horizontal verschiebbar mit der Adaptervorrichtung 100 gekoppelt angeordnet ist. Das übereinander vertikal unabnehmbare Koppeln wird durch unterseitige Koppelnasen 38 von Rastfüßen 34 an äußeren unterseitigen Kantenbereichen des ersten Aufnahmekörpers 10 (bzw. des zweiten Aufnahmekörpers 102) in Zusammenwirken mit den Verriegelungsstrukturen 108 bzw. 112 der Adaptervorrichtung 100 bewerkstelligt.

[0107] Ferner sind die weiteren ersten Kopplungsstrukturen 34, 36, 38, 40 und die weiteren zweiten Kopplungsstrukturen 34, 36, 38, 40 ausgebildet, dass in Zusammenwirkung mit den ersten Kopplungsstrukturen 106 bis 108 oder den zweiten Kopplungsstrukturen 110 bis 112 der Adaptervorrichtung 100 der erste Aufnahmekörper 10 oder der zweite Aufnahmekörper 102 einerseits und die Adaptervorrichtung 100 andererseits in dem übereinander vertikal unabnehmbar miteinander gekoppelten Zustand selektiv gegeneinander verschiebbar sind (siehe Zustand 2 gemäß Figur 14) oder mittels Betätigens speziell der Kopplungsstrukturen 40, 107, 111 gegeneinander verschiebesicherbar sind. **Figur 15** zeigt die Aufnahmeanordnung 150 gemäß Figur 12 in Zustand 3, in dem der Aufnahmekörper 10 vertikal unabnehmbar und horizontal verschiebegesichert mit der Adaptervorrichtung 100 gekoppelt angeordnet ist. Das Verschiebesichern in dem übereinander vertikal unabnehmbar miteinander gekoppelten Zustand wird durch die als Aufnahmenuten in der Trägereinrichtung 104 ausgebildeten Zusatzverriegelungseinrichtungen 107, 111 der Adaptervorrichtung 100 und korrespondierende Rastschieber 40 des ersten Aufnahmekörpers 10 bzw. des zweiten Aufnahmekörpers 102 bewirkt, wenn die Rastschieber 40 in die Aufnahmenuten 107, 111 eingeschoben werden. Gemäß Figur 14 befinden sich die Rastschieber 40 außer Eingriff mit der Zusatzverriegelungseinrichtung 107 und lassen daher ein Verschieben zwischen Adaptervorrichtung 100 und Aufnahmekörper 10 in horizontaler Richtung zu. Gemäß Figur 15 befinden sich die nun nach unten geschobenen Rastschieber 40 in Eingriff mit der Zusatzverriegelungseinrichtung 107 und verhindern

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daher ein Verschieben zwischen Adaptervorrichtung 100 und Aufnahmekörper 10 in horizontaler Richtung.

[0108] Der Teil der Kopplungsstrukturen 40, 107, 111, die in dem übereinander vertikal unabnehmbar miteinander gekoppelten Zustand 3 zum Verschiebesichern beitragen (siehe Figur 15), ist unabhängig von einem anderen Teil der Kopplungsstrukturen 34, 36, 38, 106, 108, 110, 112 ausgebildet und betätigbar, die zum vertikal abnehmbar verschiebegesicherten Stapeln gemäß Zustand 1 (siehe Figur 13) als auch zum vertikal unabnehmbar miteinander Koppeln gemäß Zustand 2 und 3 beitragen (siehe Figur 14 und Figur 15).

[0109] **Figur 16** zeigt eine räumliche Ansicht einer Erweiterungsvorrichtung 350 aus einer Erweiterungseinrichtung 300 und einer Adapterplatte 100 gemäß einem exemplarischen Ausführungsbeispiel der Erfindung. **Figur 17** zeigt die Erweiterungsvorrichtung 350 gemäß Figur 16 in einer unterseitigen Ansicht. **Figur 18** zeigt eine Erweiterungsanordnung 380 aus der Erweiterungsvorrichtung 350 gemäß Figur 16 und einem daran montierten Aufnahmekörper 102 (in Form eines gegenüber dem den Aufnahmekörper 10 bildenden Koffer größeren Koffer), der mittels der zweiten Kopplungsstrukturen 110 bis 112 an der Adaptervorrichtung 100 befestigt ist. **Figur 19** zeigt die Erweiterungsanordnung 380 gemäß Figur 18 mit einem weiteren Aufnahmekörper 10 geringerer Größe und mit einer weiteren Adaptervorrichtung 100, wobei die weitere Adaptervorrichtung 100 auf dem Aufnahmekörper 102 gemäß Figur 18 befestigt und der weitere Aufnahmekörper 10 mittels der ersten Kopplungsstrukturen 106 bis 108 auf der weiteren Adaptervorrichtung 100 befestigt ist. **Figur 20** schließlich zeigt eine räumliche Ansicht der teilweise demontierten Erweiterungseinrichtung 300 ohne Adaptervorrichtung 100.

[0110] Die Erweiterungseinrichtung 300 dient zum räumlichen Erweitern einer Aufnahmefläche der Adaptervorrichtung 100, d.h. der aktiven Oberfläche der Adaptervorrichtung 300, an der die Kopplungsstrukturen 106 bis 108, 110 bis 112 zum Ankoppeln der verschiedenen Aufnahmekörper 10, 102 angeordnet sind, um dadurch ausgehend von der Adaptervorrichtung 100 die Möglichkeit der bedarfsweisen Befestigung eines noch größeren Aufnahmekörpers 352 (zum Beispiel einer Aufbewahrungsbox, vergleiche Figur 11) zu erschließen.

[0111] Die Erweiterungseinrichtung 300 weist hierzu eine Stützstruktur 302 auf, die zum Stützen der Adaptervorrichtung 100 in vier umfänglichen Eckbereichen ihrer Trägereinrichtung 104 eingerichtet und am besten in Figur 17 und Figur 20 erkennbar ist. Wie in Figur 20 erkennbar ist, sind hierfür als Teil der Stützstruktur 302 vier Auflageklötze 331 vorgesehen, auf denen die Adaptervorrichtung 100 mit physischem Kontakt aufliegt. Die Stützstruktur 302 ist strukturell ausgestaltet, die Adaptervorrichtung 100 ausschließlich im Bereich von zwei einander gegenüberliegenden Seitenkanten 188 der Adaptervorrichtung 100 zu stützen, genauer gesagt in den vier Eckbereichen der Adaptervorrichtung 100. Dadurch bleiben die anderen beiden Seitenkanten der Adaptervorrichtung 100 weitestgehend frei zugänglich, was insbesondere ein Aufschieben eines jeweiligen Aufnahmekörpers 10, 102 auf die jeweiligen Führungsschienen 106, 110 im an der Erweiterungseinrichtung 300 montierten Zustand der Adaptervorrichtung 100 begünstigt (siehe zum Beispiel Figur 16). Die Stützstruktur 302 ist ferner eingerichtet, die Adaptervorrichtung 100 ausschließlich mittels der Auflageklötze 331 und somit ausschließlich an einer Unterseite der Adaptervorrichtung 100 zu stützen und die oberseitige Aufnahmefläche der Adaptervorrichtung 100 dadurch vollständig zum Befestigen von Aufnahmekörpern 10, 102 freizuhalten. Gemäß Figur 16 bis Figur 20 ist die Stützstruktur 302 aus Stützelementen 308 in Form der vier leicht federnd gelagerten Auflageklötze 331 und die Stützelemente 308 verbindenden Verbindungsstreben 310 gebildet. Die Stützelemente 308 sind aus Kunststoff, wohingegen die Verbindungsstreben 310 aus Metall hergestellt sind.

[0112] Eine aus Kunststoff gebildete Erweiterungsstruktur 304 der Erweiterungseinrichtung 300 ist dazu eingerichtet, in einem mittels der Stützstruktur 302 gestützten Zustand der Adaptervorrichtung 100 die Aufnahmefläche der Adaptervorrichtung 100 teilumfänglich über deren räumliche Begrenzung hinaus zu erweitern. Zwei U-förmige Erweiterungsstücke der Erweiterungseinrichtung 300, an deren beiden Enden sich jeweils zwei der Auflageklötze 331 befinden, schmiegen sich hierfür im montierten Zustand an eine jeweilige der Seitenkanten 188 der Adaptervorrichtung 100 an und setzen diese daher seitlich fort. Wie in Figur 17 erkennbar ist, ist die Unterseite der beiden U-förmigen Erweiterungsstücke der Erweiterungseinrichtung 300 mit Verstärkungsstreben 324 ausgestattet, um die Tragekapazität der Erweiterungseinrichtung 300 zu erhöhen. Eine gemäß Figur 16, Figur 18 bis Figur 20 obere Oberfläche (auch Erweiterungsoberfläche genannt) der beiden U-förmigen Erweiterungsstücke dient der Erweiterung der Aufnahmefläche der Adaptervorrichtung 100. Die Erweiterungsstruktur 304 ist somit ausgebildet, die Adaptervorrichtung 100 ausschließlich im Bereich der zwei einander gegenüberliegenden Seitenkanten 188 und in angrenzenden Eckbereichen 190 der Adaptervorrichtung 100 zu erweitern (vergleiche Figur 16). Ferner ist die Erweiterungsstruktur 304 so ausgebildet, dass in einem mittels der Stützstruktur 302 gestützten Zustand der Adaptervorrichtung 100 die aktive Aufnahmefläche der Adaptervorrichtung 100 im Wesentlichen bündig mit der aktiven Erweiterungsoberfläche der Erweiterungsstruktur 304 abschließt (siehe Figur 16).

[0113] Die Erweiterungsstruktur 304 erstreckt sich so weit nach außen, dass bei Befestigung des Aufnahmekörpers 352 ausschließlich an Befestigungsstrukturen 306 der Erweiterungseinrichtung 300 sich die Erweiterungsstruktur 304 weiter nach außen erstreckt als der aufgenommene Aufnahmekörper 352. Somit dienen die U-förmigen Erweiterungsstücke auch als Anstoßschutz für den Aufnahmekörper 352.

[0114] Die Befestigungsstrukturen 306, die gemäß Fi-

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gur 16 bis Figur 20 in Form von vier Aufnahmenuten in der Erweiterungsoberfläche der U-förmigen Erweiterungsstücke ausgebildet sind, sind in der Erweiterungsoberfläche der Erweiterungsstruktur 304 eingeformt und sind speziell zum Befestigen von Füßen oder Bodenbereichen eines als Aufbewahrungsbox ausgebildeten Aufnahmekörpers 352 eingerichtet (vergleiche Figur 11). Für die Tragestabilität ist von Vorteil, dass der Aufnahmekörper 352 ausschließlich von der Erweiterungseinrichtung 300, nicht von der Adaptervorrichtung 100, getragen wird. In entsprechender Weise wird, wenn einer der Aufnahmekörper 10, 102 an der Erweiterungsvorrichtung 350 befestigt wird, die Tragelast ausschließlich von der Adaptervorrichtung 100 aufgenommen. Diese Tragelogik hat sich als noch zuverlässiger herausgestellt als eine Stützung eines Aufnahmekörper 10, 102, 352 teils an der Adaptervorrichtung 100 und teils an der Erweiterungseinrichtung 300.

[0115] An der Unterseite der Verbindungstreben 310 sind vier Rollen 312 angeschraubt, die zum rollenden Fortbewegen der Erweiterungseinrichtung 300 samt Adaptervorrichtung 100 dienen. Um ein unerwünschtes Wegrollen der Erweiterungseinrichtung 300 bedarfsweise zu unterbinden, sind die Rollen 312 mit Arretierstrukturen 317 versehen. Wenn ein Benutzer die Arretierstrukturen 317 betätigt, sind die Rollen 312 an einer Bewegung gehindert.

[0116] Ferner ist in etwa in der Seitenmitte der beiden einander gegenüberliegenden U-förmigen Erweiterungsstücke jeweils eine Verriegelungsstruktur 314 an der Erweiterungsstruktur 304 angebracht, die dazu dient, mit dem Aufnahmekörper 352 verriegelt zu werden, wenn dieser an der Erweiterungsstruktur 304 aufgenommen ist.

[0117] Eine Verbindungsstruktur 316 an den Auflageklötzen 331 und an den Verbindungsstreben 310 ist zum Verbinden der Erweiterungseinrichtung 300 mit der Adaptervorrichtung 100 mittels Verschraubens eines Montagebolzens mit Gewinde eingerichtet.

[0118] Ergänzend ist darauf hinzuweisen, dass "aufweisend" keine anderen Elemente oder Schritte ausschließt und "eine" oder "ein" keine Vielzahl ausschließt. Ferner sei darauf hingewiesen, dass Merkmale oder Schritte, die mit Verweis auf eines der obigen Ausführungsbeispiele beschrieben worden sind, auch in Kombination mit anderen Merkmalen oder Schritten anderer oben beschriebener Ausführungsbeispiele verwendet werden können. Bezugszeichen in den Ansprüchen sind nicht als Einschränkung anzusehen.

Patentansprüche

1. Erweiterungseinrichtung (300) zum räumlichen Erweitern einer Aufnahmefläche einer Adaptervorrichtung (100) zum Befestigen von Aufnahmekörpern (10, 102, 352), wobei die Erweiterungseinrichtung (300) aufweist:

   eine Stützstruktur (302), die zum zumindest teilumfänglichen Stützen der Adaptervorrichtung (100) eingerichtet ist;

   eine Erweiterungsstruktur (304), die dazu eingerichtet ist, in einem mittels der Stützstruktur (302) gestützten Zustand der Adaptervorrichtung (100) die Aufnahmefläche der Adaptervorrichtung (100) zumindest teilumfänglich über deren räumliche Begrenzung hinaus zu erweitern, insbesondere innerhalb einer, weiter insbesondere horizontalen, der Aufnahmefläche zugeordneten Ebene zu erweitern;

   Befestigungsstrukturen (306) an einer Erweiterungsoberfläche der Erweiterungsstruktur (304), wobei die Befestigungsstrukturen (306) zum Befestigen eines Aufnahmekörpers (10, 102, 352) eingerichtet sind.

2. Erweiterungseinrichtung (300) gemäß Anspruch 1, aufweisend zumindest eines der folgenden Merkmale:

   wobei die Stützstruktur (302) eingerichtet ist, die Adaptervorrichtung (100), insbesondere ausschließlich, im Bereich von zwei einander gegenüberliegenden Seitenkanten (188), insbesondere ausschließlich in vier Eckbereichen (190), der Adaptervorrichtung (100) zu stützen;

   wobei die Stützstruktur (302) eingerichtet ist, die Adaptervorrichtung (100), insbesondere ausschließlich, an einer Unterseite der Adaptervorrichtung (100) zu stützen und die oberseitige Aufnahmefläche der Adaptervorrichtung (100) dadurch vollständig zum Befestigen von Aufnahmekörpern (10, 102, 352) freizuhalten;

   wobei die Erweiterungsstruktur (304) eingerichtet ist, die Adaptervorrichtung (100), insbesondere ausschließlich, im Bereich von zwei einander gegenüberliegenden Seitenkanten (188) und angrenzenden Eckbereichen (190) der Adaptervorrichtung (100) zu erweitern;

   wobei die Erweiterungsstruktur (304) derart eingerichtet ist, dass in einem mittels der Stützstruktur (302) gestützten Zustand der Adaptervorrichtung (100) die Aufnahmefläche der Adaptervorrichtung (100) im Wesentlichen bündig mit der Erweiterungsoberfläche der Erweiterungsstruktur (304) abschließt;

   wobei die Stützstruktur (302) gebildet ist aus Stützelementen (308), insbesondere aus Kunststoff, in direktem Berührkontakt mit der Adaptervorrichtung (100), und die Stützelemente (308) verbindenden Verbindungsstreben (310), insbesondere aus Metall;

   aufweisend Rollen (312) zum rollenden Fortbewegen der Erweiterungseinrichtung (300), wobei die Rollen (312) an einer Unterseite der Stützstruktur (302) und/oder der Erweiterungs-

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struktur (304) angebracht sind;
wobei die Befestigungsstrukturen (306), insbesondere vier, Aufnahmennuten aufweisen, die zum Befestigen eines Aufnahmekörpers (10, 102, 352), insbesondere ausschließlich, an den Befestigungsstrukturen (306) der Erweiterungsstruktur (304) eingerichtet sind;
wobei die Erweiterungsstruktur (304) sich so weit nach außen erstreckt, dass bei Befestigung des Aufnahmekörpers (100) an den Befestigungsstrukturen (306) sich die Erweiterungsstruktur (304) weiter nach außen erstreckt als der aufgenommene Aufnahmekörper (100);
aufweisend eine Verriegelungsstruktur (314) an der Erweiterungsstruktur (304), wobei die Verriegelungsstruktur (314) eingerichtet ist, mit einem Aufnahmekörper (10, 102, 352) verriegelt zu werden, der an der Erweiterungsstruktur (304) und/oder an der Adapterplatte (100) aufgenommen ist;
aufweisend eine Verbindungsstruktur (316), die zum Verbinden der Erweiterungseinrichtung (300) mit der Adaptervorrichtung (100) eingerichtet ist, wobei die Verbindungsstruktur (316) insbesondere ausgebildet ist als Aufsteckstruktur oder Verschraubstruktur.

3. Erweiterungsvorrichtung (350), aufweisend:

eine Adaptervorrichtung (100) zum Befestigen von Aufnahmekörpern (10, 102);
eine Erweiterungseinrichtung (300) gemäß einem der Ansprüche 1 bis 2, an der die Adaptervorrichtung (100) montiert oder montierbar ist.

4. Erweiterungsvorrichtung (350) gemäß Anspruch 3, wobei die Adaptervorrichtung (100) zum Befestigen von Aufnahmekörpern (10, 102) unterschiedlicher Größe ausgebildet ist, und insbesondere aufweist:

eine Trägereinrichtung (104) zum Tragen eines befestigten Aufnahmekörpers (10, 102);
erste Kopplungsstrukturen (106 bis 108) an der Trägereinrichtung (104), die zum Befestigen eines ersten Aufnahmekörpers (10) einer ersten Größe mittels Aufschiebens und Verriegelns an den ersten Kopplungsstrukturen (106 bis 108) ausgebildet ist;
zweite Kopplungsstrukturen (110 bis 112) an der Trägereinrichtung (104), die zum Befestigen eines zweiten Aufnahmekörpers (102) einer zweiten Größe mittels Aufschiebens und Verriegelns an den zweiten Kopplungsstrukturen (110 bis 112) ausgebildet ist.

5. Erweiterungsvorrichtung (350) gemäß Anspruch 4, wobei die ersten Kopplungsstrukturen (106 bis 108) mindestens eine erste Führungsschiene (106), insbesondere zwei zueinander parallele und in einem ersten Abstand voneinander beabstandete erste Führungsschienen (106), aufweist, wobei entlang der mindestens einen ersten Führungsschiene (106) der erste Aufnahmekörper (10) bis zu einer ersten Verriegelungsposition aufschiebbar ist.

6. Erweiterungsvorrichtung (350) gemäß Anspruch 5, wobei die zweiten Kopplungsstrukturen (110 bis 112) mindestens eine zweite Führungsschiene (110), insbesondere zwei zueinander parallele und in einem von dem ersten Abstand unterschiedlichen zweiten Abstand voneinander beabstandete zweite Führungsschienen (110), aufweist, wobei entlang der mindestens einen zweiten Führungsschiene (110) der zweite Aufnahmekörper (102) bis zu einer zweiten Verriegelungsposition aufschiebbar ist.

7. Erweiterungsvorrichtung (350) gemäß Anspruch 5 oder 6, wobei die ersten Kopplungsstrukturen (106 bis 108) mindestens einen ersten Verriegelungskörper (108), insbesondere mindestens zwei entlang der mindestens einen ersten Führungsschiene (106) beabstandete Verriegelungskörper (108), aufweist, wobei bei Aufschieben des ersten Aufnahmekörpers (10) entlang der mindestens einen ersten Führungsschiene (106) bis zu der ersten Verriegelungsposition der mindestens eine erste Verriegelungskörper (108) zum an der ersten Verriegelungsposition vertikal unabnehmbaren Verriegeln des ersten Aufnahmekörpers (10) an der Adaptervorrichtung (100) ausgebildet ist.

8. Erweiterungsvorrichtung (350) gemäß Anspruch 6 oder 7, wobei die zweiten Kopplungsstrukturen (110 bis 112) mindestens einen zweiten Verriegelungskörper (112), insbesondere zwei oder mehr entlang der mindestens einen zweiten Führungsschiene (110) beabstandete Verriegelungskörper (112), aufweist, wobei bei Aufschieben des zweiten Aufnahmekörpers (102) entlang der mindestens einen zweiten Führungsschiene (110) bis zu der zweiten Verriegelungsposition der mindestens eine zweite Verriegelungskörper (102) zum an der zweiten Verriegelungsposition vertikal unabnehmbaren Verriegeln des zweiten Aufnahmekörpers (102) an der Adaptervorrichtung (100) ausgebildet ist.

9. Erweiterungsvorrichtung (350) gemäß Anspruch 7 oder 8, wobei der mindestens eine erste Verriegelungskörper (108) und/oder der mindestens eine zweite Verriegelungskörper (112), insbesondere vor einem Verriegeln oder zum Verriegeln des jeweiligen Aufnahmekörpers (10, 102), winkelig, insbesondere unter Freilassen eines Spalts zwischen einem Boden der jeweiligen Führungsschiene (106, 110) und dem jeweiligen Verriegelungskörper (110, 112) in die jeweilige Führungsschiene (106, 110) hinein

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verschiebbar ist.

10. Erweiterungsvorrichtung (350) gemäß einem der Ansprüche 4 bis 9, wobei die ersten Kopplungsstrukturen (106 bis 108) und/oder die zweiten Kopplungsstrukturen (110 bis 112) ausgebildet sind, dass der erste Aufnahmekörper (10) oder der zweite Aufnahmekörper (102) mittels der Kopplungsstrukturen (106 bis 108, 110 bis 112) auf der Adaptervorrichtung (100) selektiv:

vertikal abnehmbar verschiebegesichert stapelbar ist; oder
mittels des Aufschiebens und des Verriegelns an den ersten Kopplungsstrukturen (106 bis 108) und/oder an den zweiten Kopplungsstrukturen (110 bis 112) vertikal unabnehmbar miteinander koppelbar sind.

11. Erweiterungsvorrichtung (350) gemäß Anspruch 10, soweit rückbezogen auf einen der Ansprüche 7 bis 9, wobei der mindestens eine erste Verriegelungskörper (108) und/oder der mindestens eine zweite Verriegelungskörper (112) ausgebildet ist oder sind, dass der erste Aufnahmekörper (10) und/oder der zweite Aufnahmekörper (102) mittels eines jeweiligen der Verriegelungskörper (108, 112) auf der Adaptervorrichtung (100) vertikal abnehmbar verschiebegesichert stapelbar ist.

12. Erweiterungsvorrichtung (350) gemäß einem der Ansprüche 4 bis 11, aufweisend zumindest eines der folgenden Merkmale:

wobei die Trägereinrichtung (104) als Trägerplatte ausgebildet ist;
aufweisend mindestens eine, insbesondere gegenüber der Trägereinrichtung (104) ein- und ausklappbare, Anschlagstruktur (114), die eingerichtet ist, dass nach Aufschieben des ersten Aufnahmekörpers (10) und/oder des zweiten Aufnahmekörpers (102) der jeweilige Aufnahmekörper (10, 102) an der mindestens einen Anschlagstruktur (114) in einer Verriegelungsposition anschlägt, in welcher der jeweilige Aufnahmekörper (10, 102) an der Adaptervorrichtung (100) verriegelbar oder verriegelt ist;
wobei die ersten Kopplungsstrukturen (106 bis 108) und/oder die zweiten Kopplungsstrukturen (110 bis 112) ferner eine erste Zusatzverriegelungseinrichtung (107) zum zusätzlichen verschiebegesicherten Verriegeln des ersten Aufnahmekörpers (10) aufweisen, wenn dieser an der Trägereinrichtung (104) aufgeschoben und verriegelt ist, und/oder eine zweite Zusatzverriegelungseinrichtung (111) zum zusätzlichen verschiebegesicherten Verriegeln des zweiten Aufnahmekörpers (102) aufweisen, wenn dieser an der Trägereinrichtung (104) aufgeschoben und verriegelt ist;
wobei die Adaptervorrichtung (100) Befestigungslöcher (122) zum Aufnehmen von Montagebolzen zum Befestigen der Adaptervorrichtung (100) an Befestigungslöchern (316) der Stützstruktur (302) aufweist.

13. Erweiterungsanordnung (380), aufweisend:

eine Erweiterungsvorrichtung (350) gemäß einem der Ansprüche 3 bis 12;
mindestens einen Aufnahmekörper (10, 102), der an der Adaptervorrichtung (100) und/oder an der Erweiterungsstruktur (304) befestigt ist.

14. Erweiterungsanordnung (380) gemäß Anspruch 13, wobei der Aufnahmekörper (10, 102, 352) aus einer Gruppe ausgewählt ist, die besteht aus einem Koffer (10, 102) zum Transportieren von Transportgut, einem ersten Koffer (10) einer ersten Größe und einem zweiten Koffer (102) einer zweiten Größe, einer weiteren Adaptervorrichtung (100) und einer Aufbewahrungsbox (352).

15. Verfahren zum räumlichen Erweitern einer Aufnahmefläche einer Adaptervorrichtung (100) zum Befestigen von Aufnahmekörpern (10, 102), wobei das Verfahren aufweist:

zumindest teilumfängliches Stützen der Adaptervorrichtung (100) an einer Stützstruktur (302) einer Erweiterungseinrichtung (300);
in einem mittels der Stützstruktur (302) gestützten Zustand der Adaptervorrichtung (100), zumindest teilumfängliches Erweitern der Aufnahmefläche der Adaptervorrichtung (100) über deren räumliche Begrenzung hinaus mittels einer Erweiterungsstruktur (304) der Erweiterungseinrichtung (200);
Befestigen eines Aufnahmekörpers (10, 102, 352) an Befestigungsstrukturen (306) an einer Erweiterungsoberfläche der Erweiterungsstruktur (304) und/oder an der Adaptervorrichtung (100).

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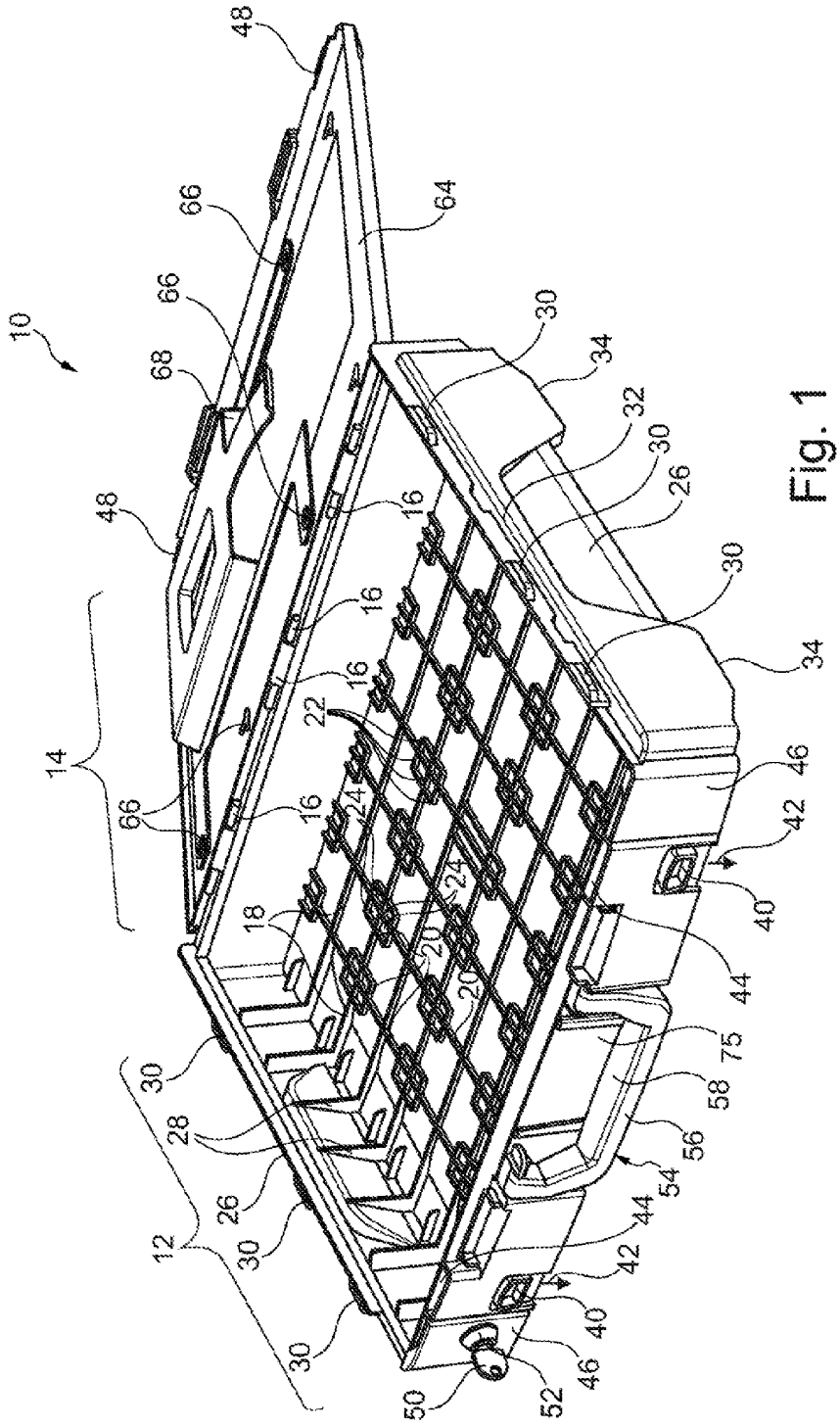


Fig. 1

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2077
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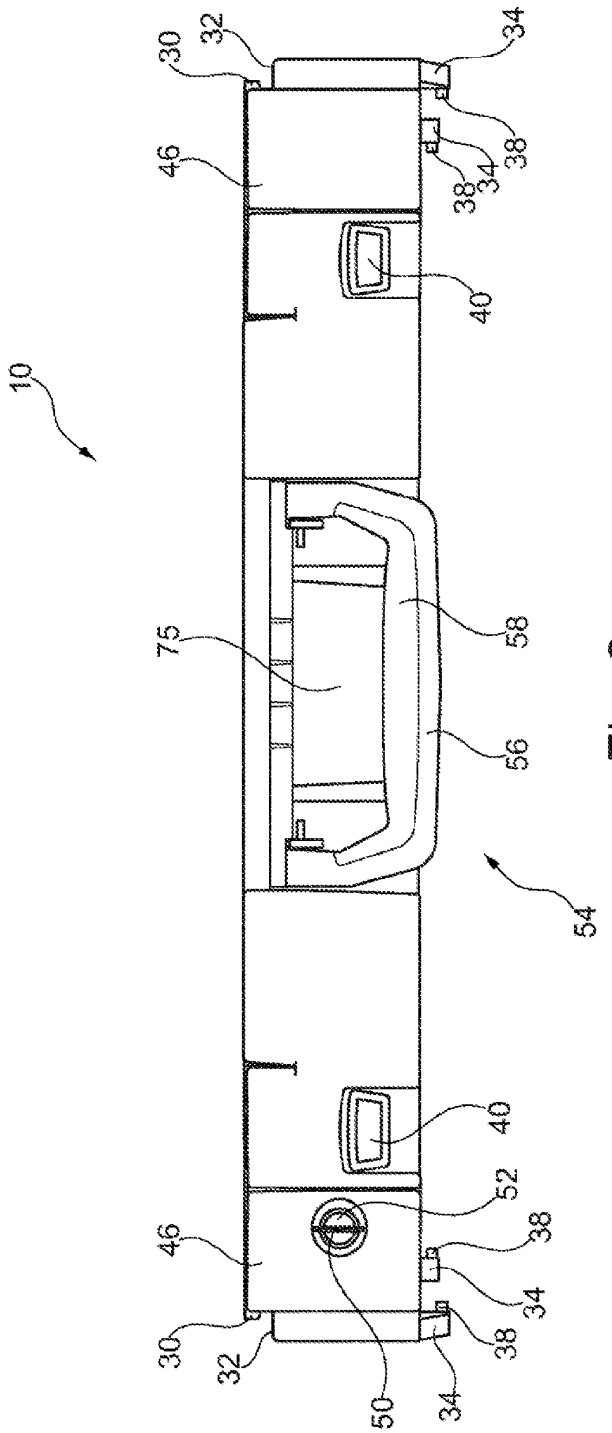


Fig. 2

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2078
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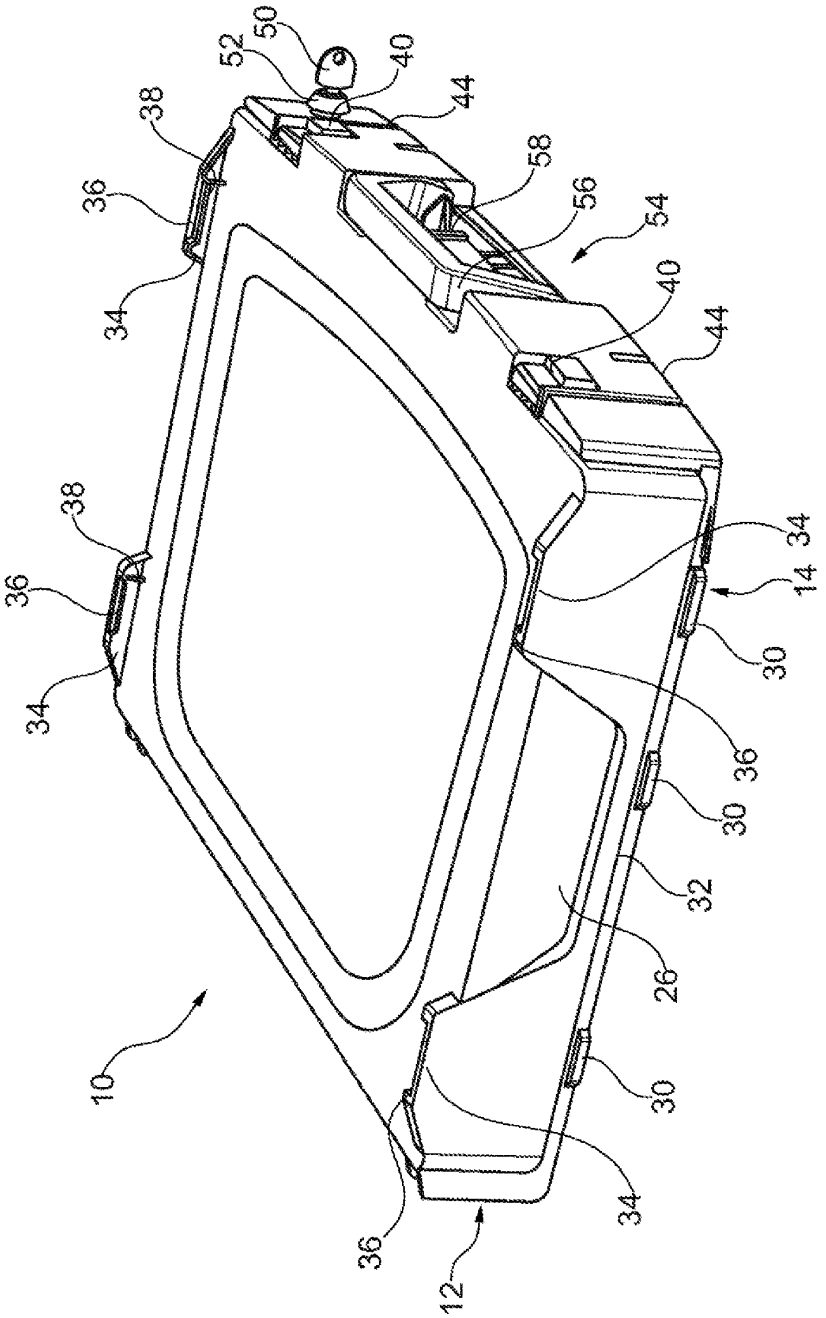


Fig. 3

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2079
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
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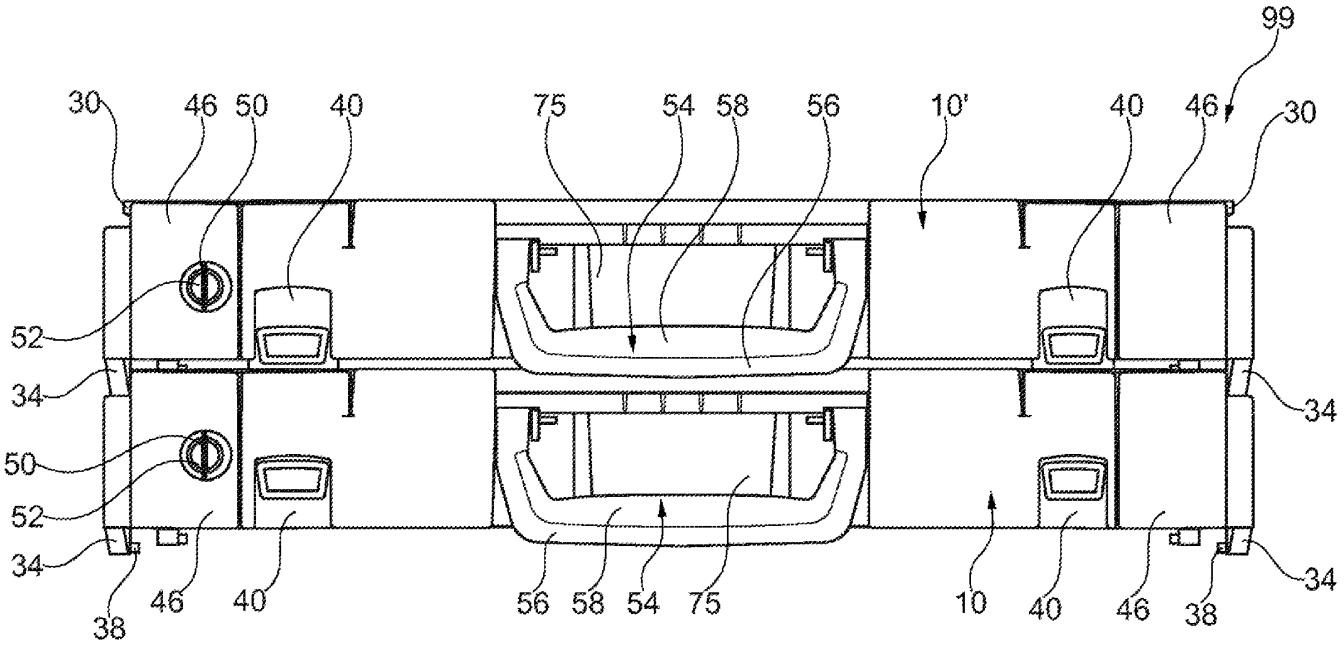

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Fig. 4

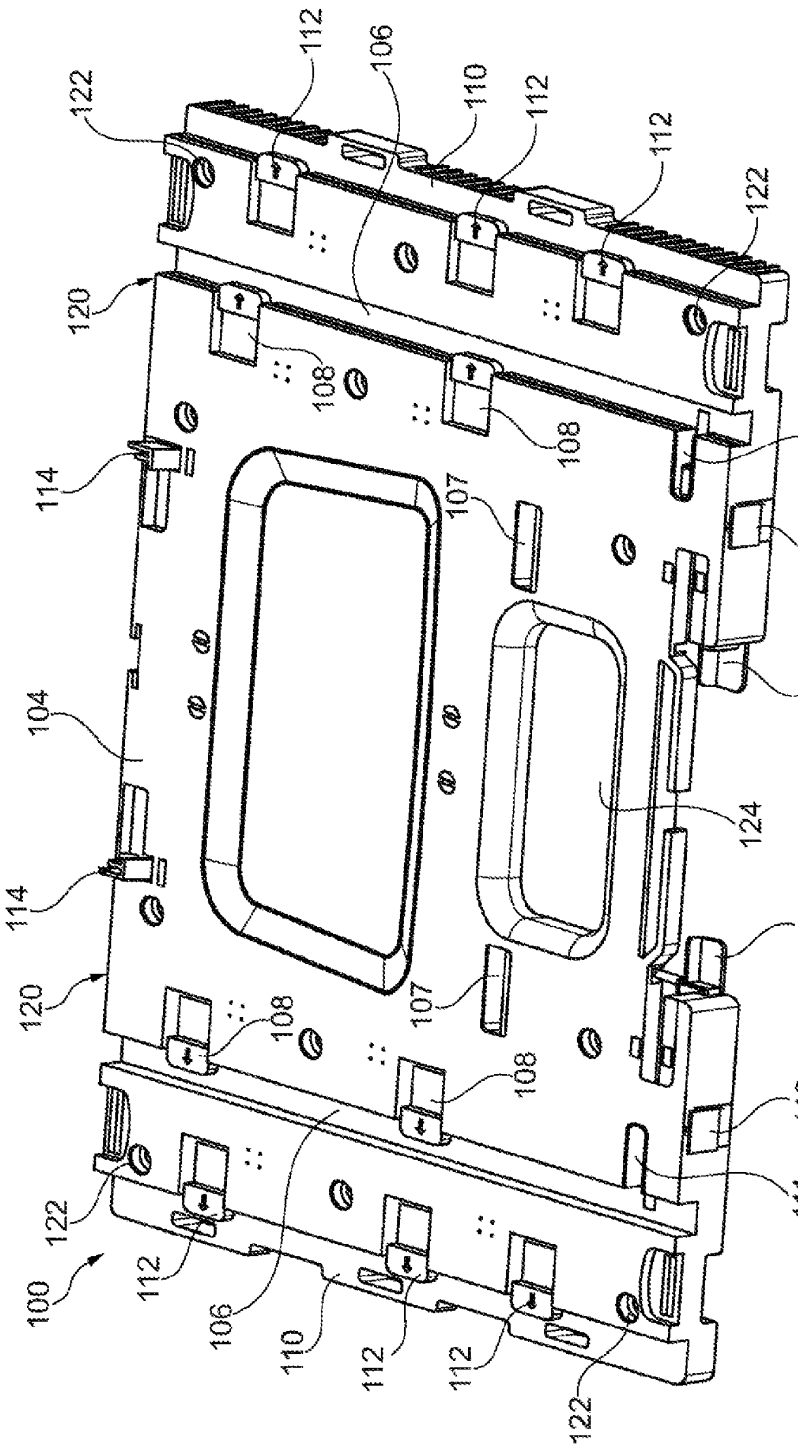


Fig. 5

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2081
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IPR2024-01400

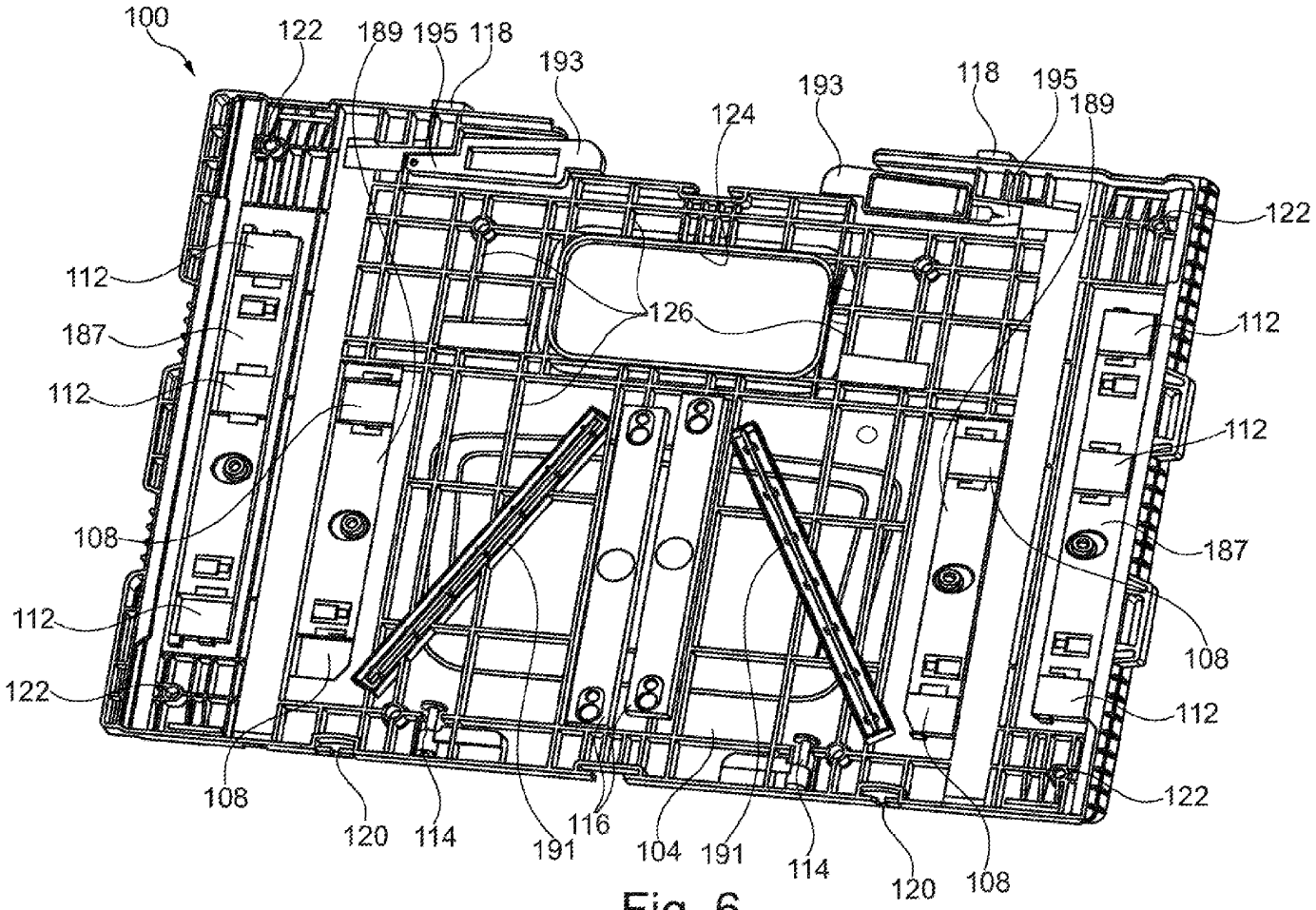


Fig. 6

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2082
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
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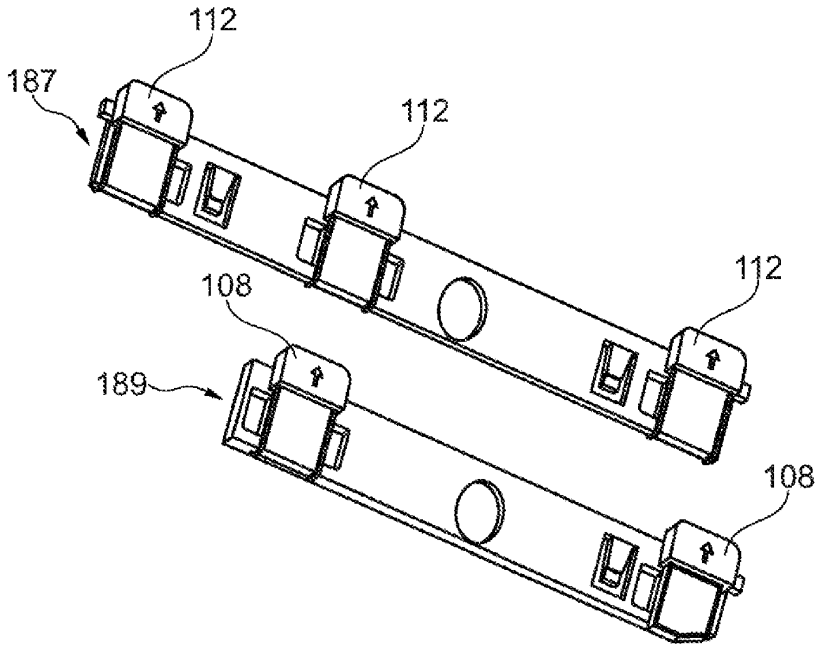


Fig. 7

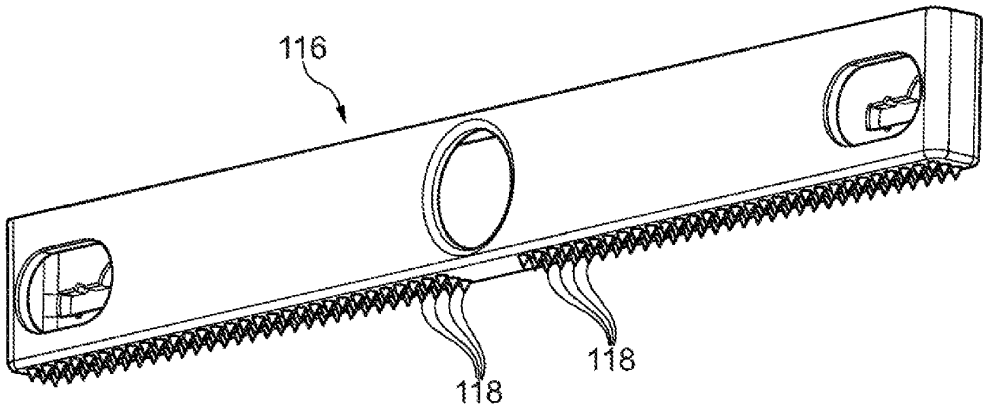


Fig. 8

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2083
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

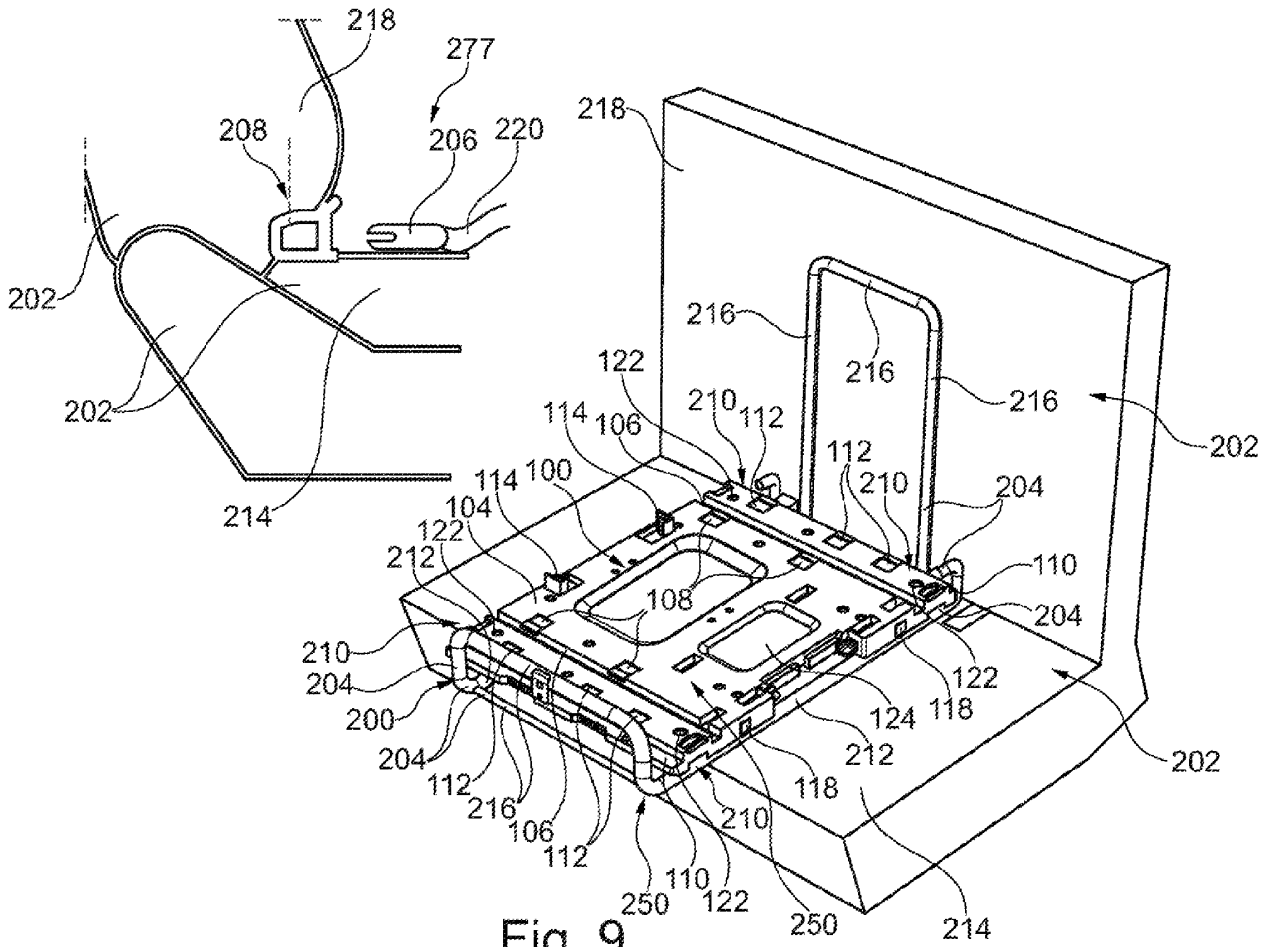

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Fig. 9

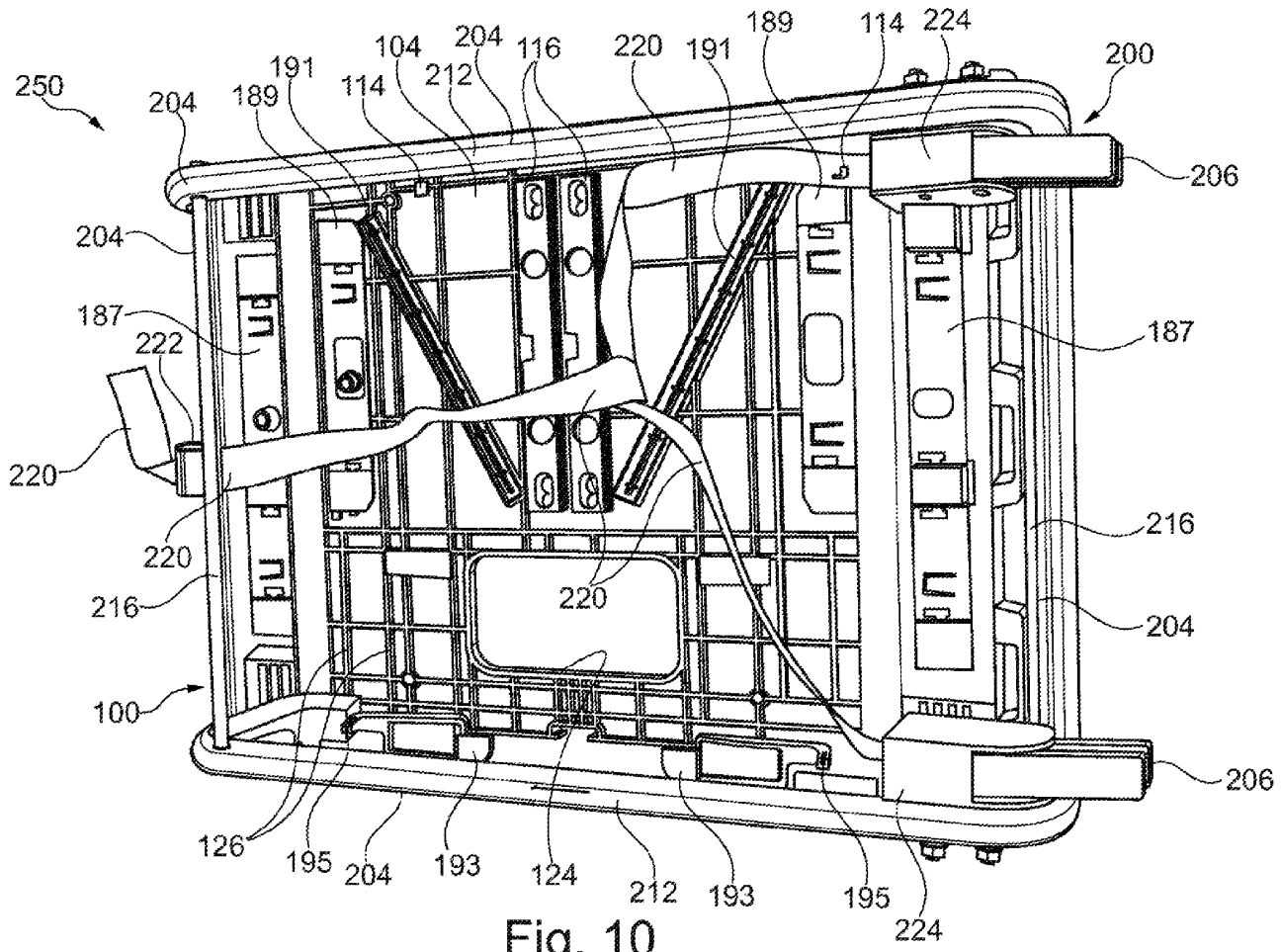

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Fig. 10

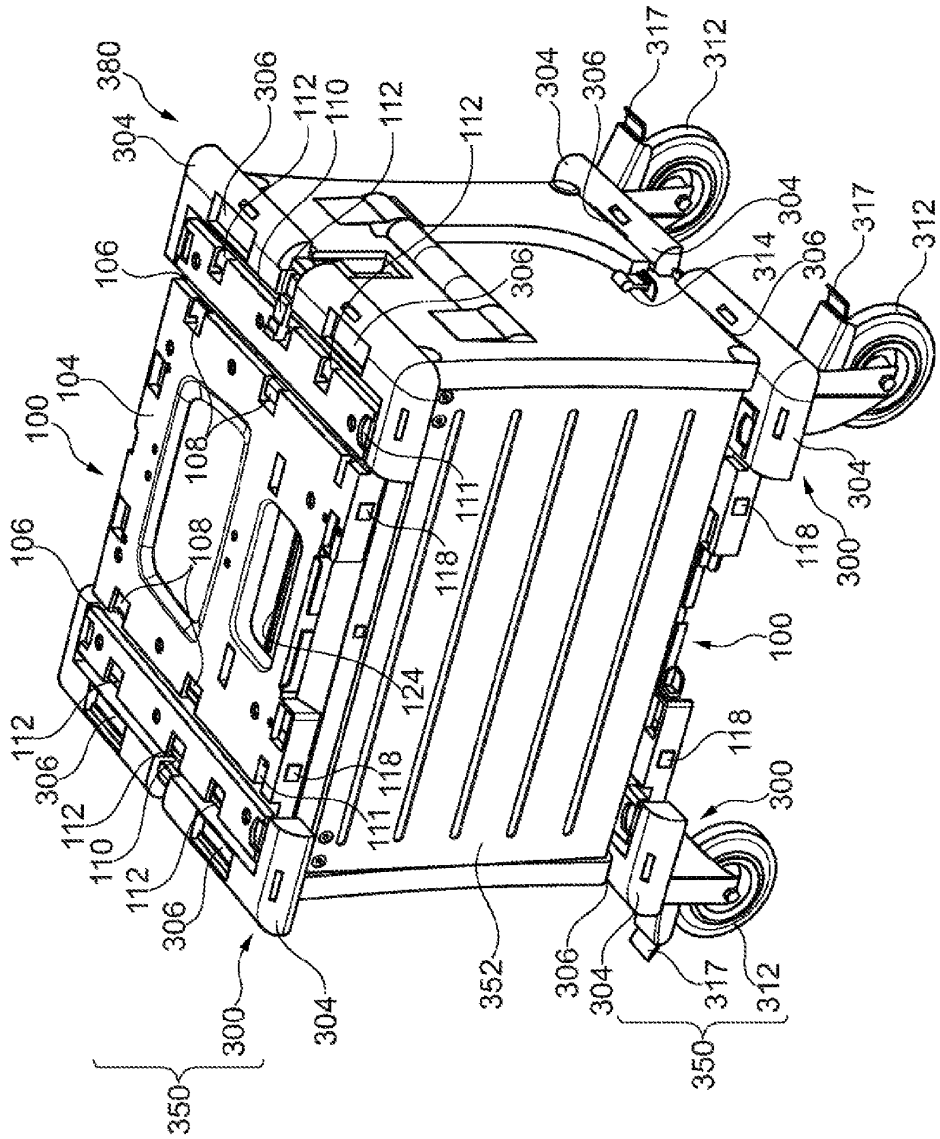


Fig. 11

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2086
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IPR2024-01400

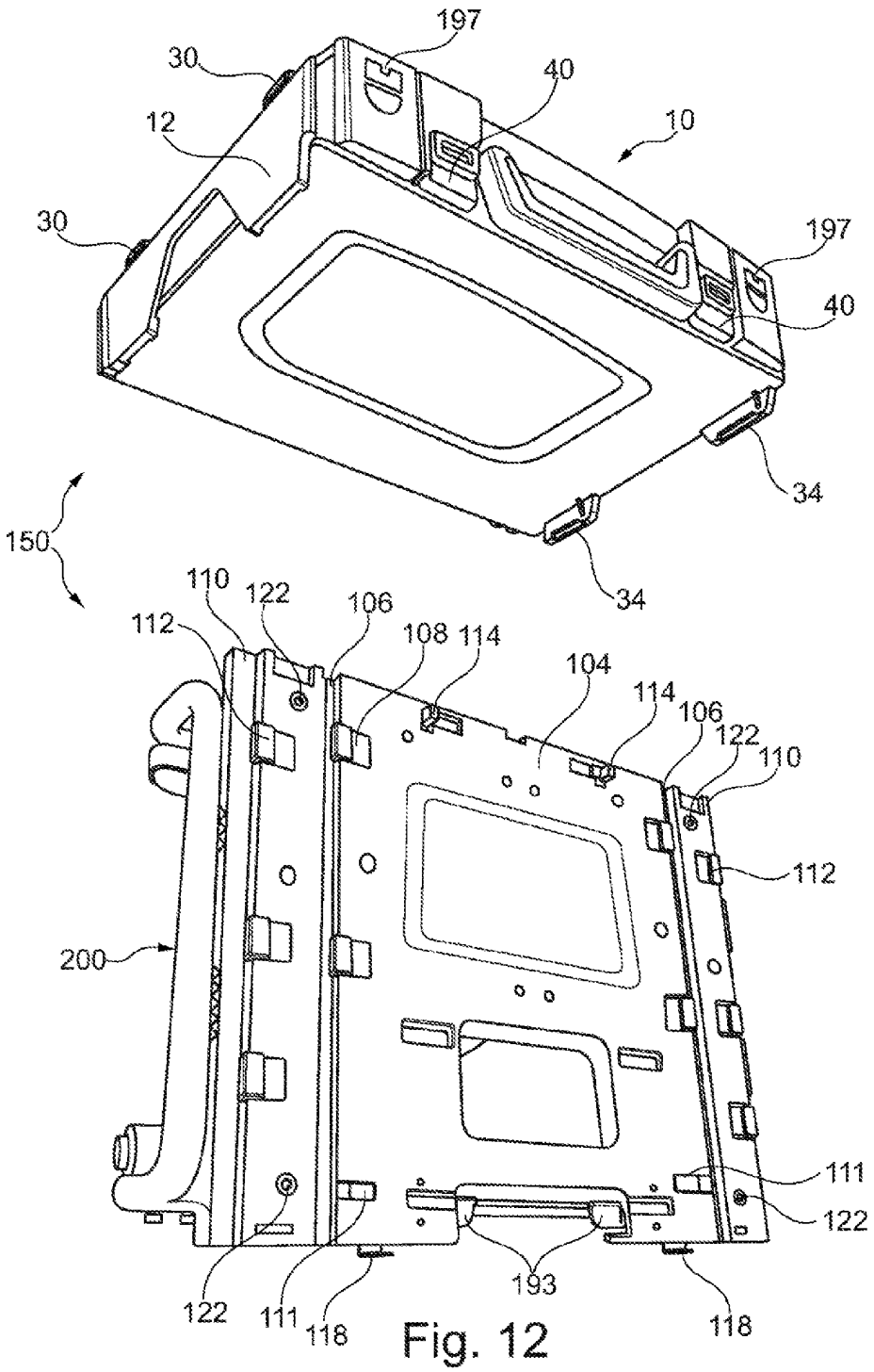


Fig. 12

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2087
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

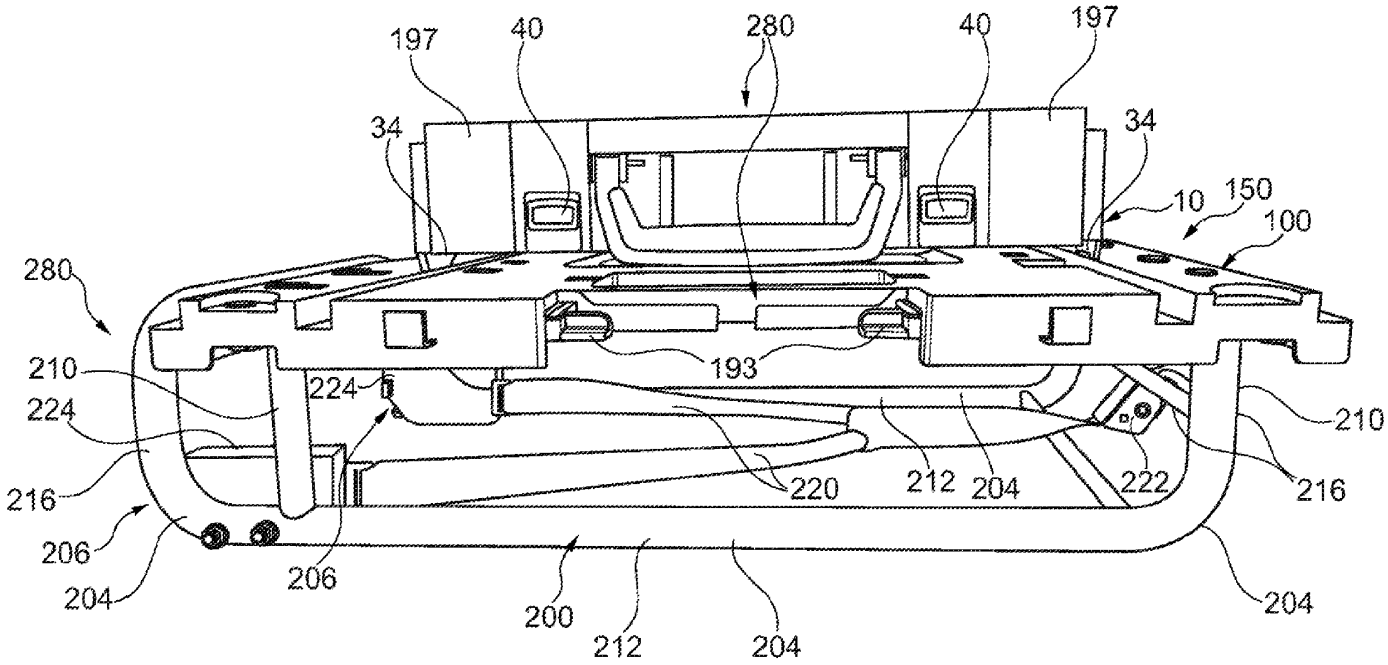

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Fig. 13

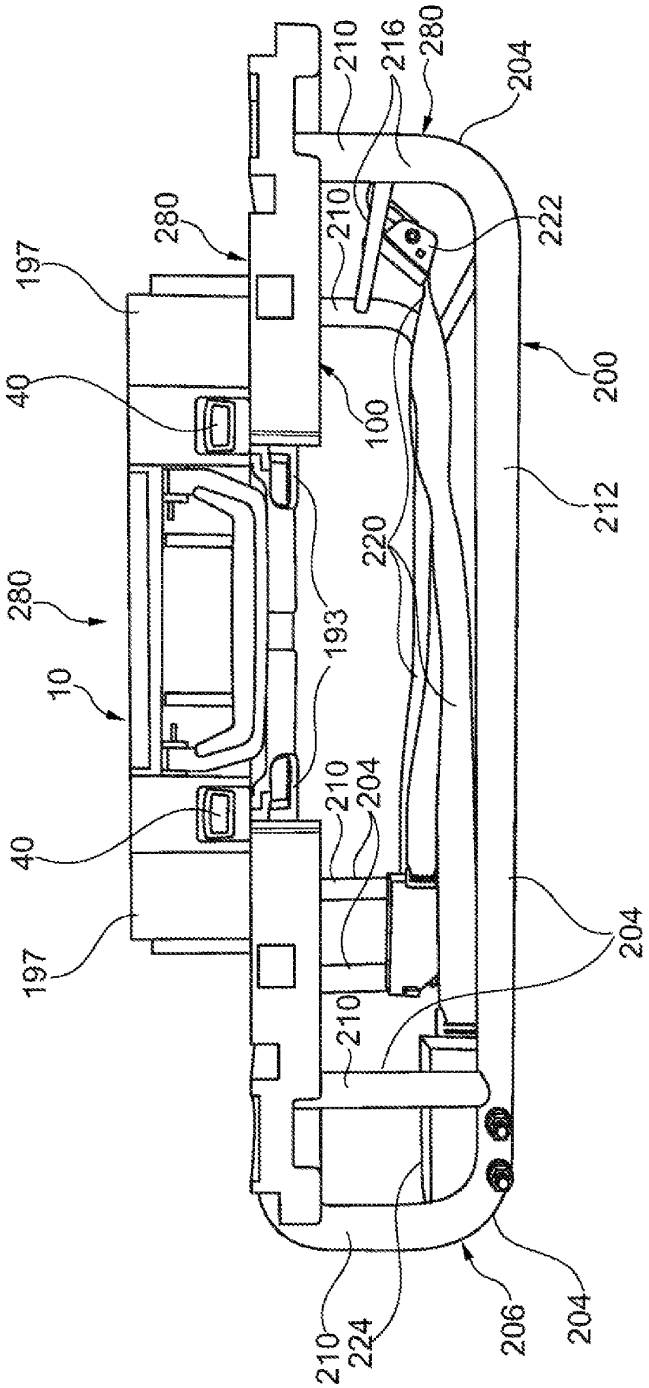


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Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2089
Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

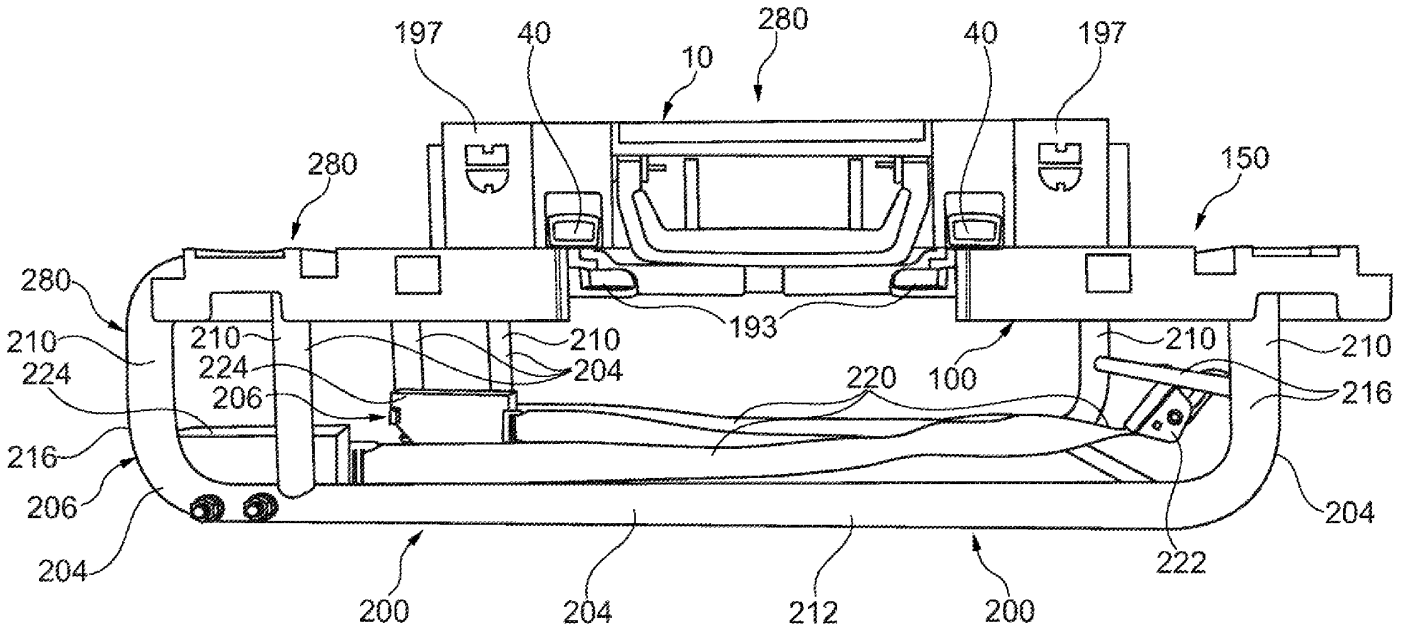

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Fig. 15

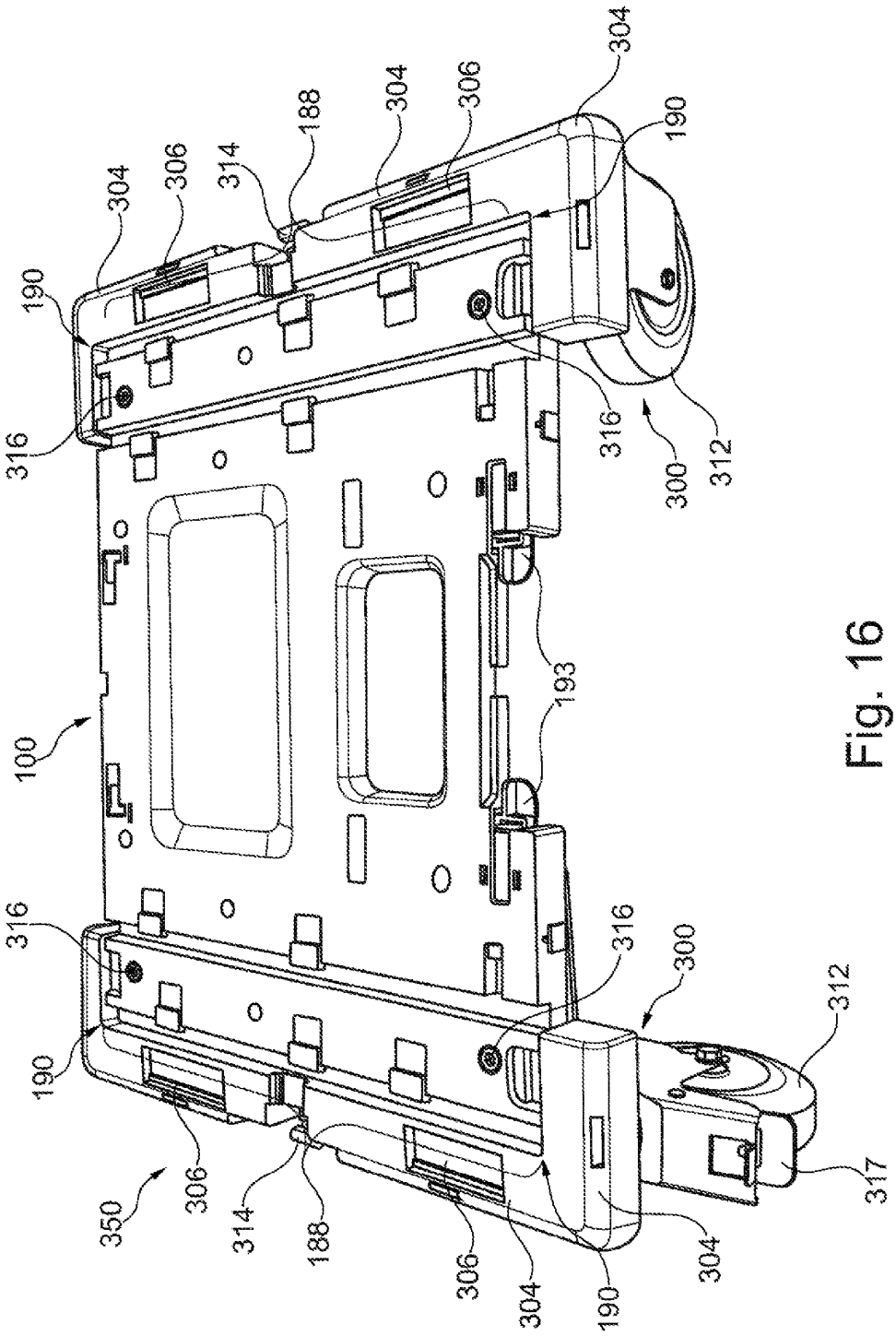


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Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2091
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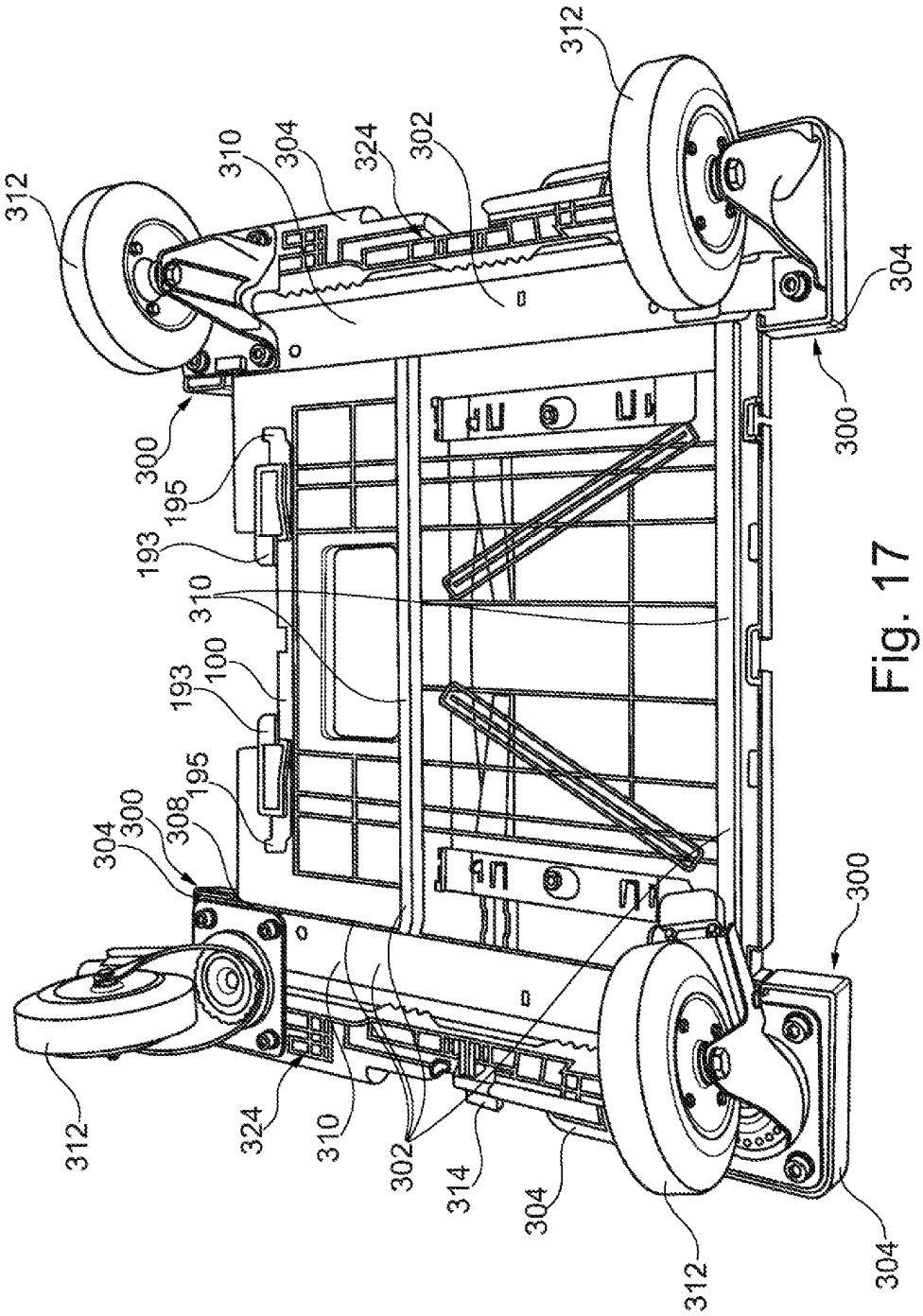


Fig. 17

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2092
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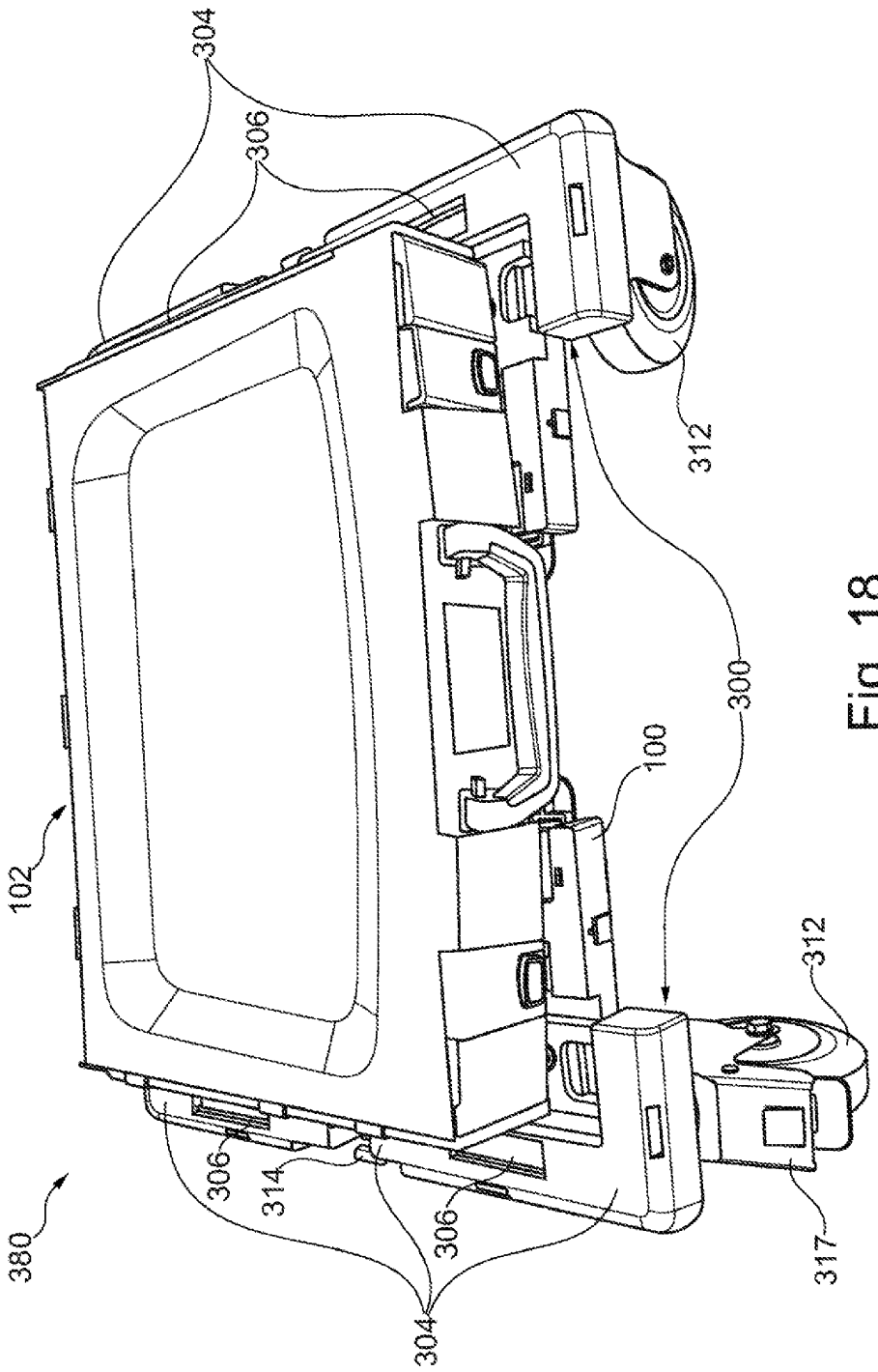


Fig. 18

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2093
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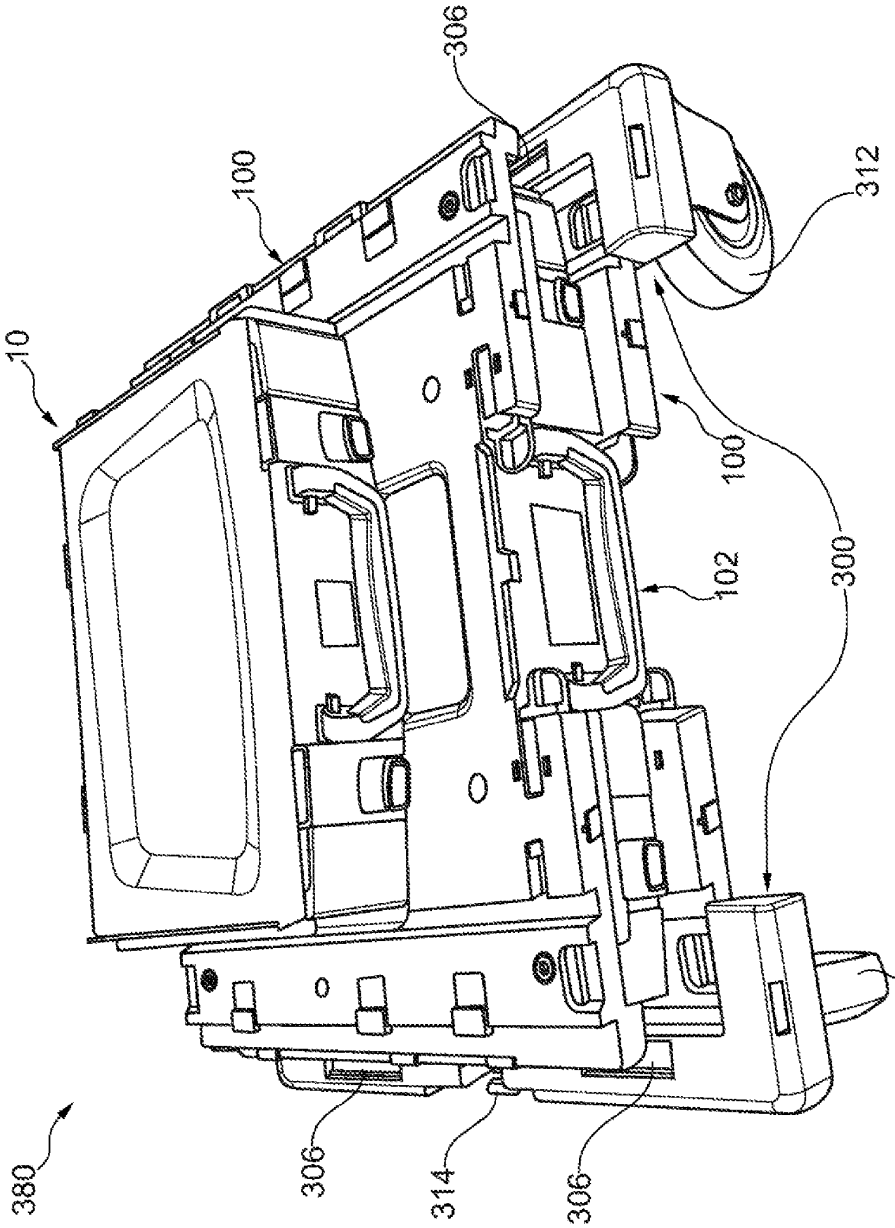


Fig. 19

Milwaukee Electric Tool, Keter Home and Garden Products – Ex. 2001 - Page 2094
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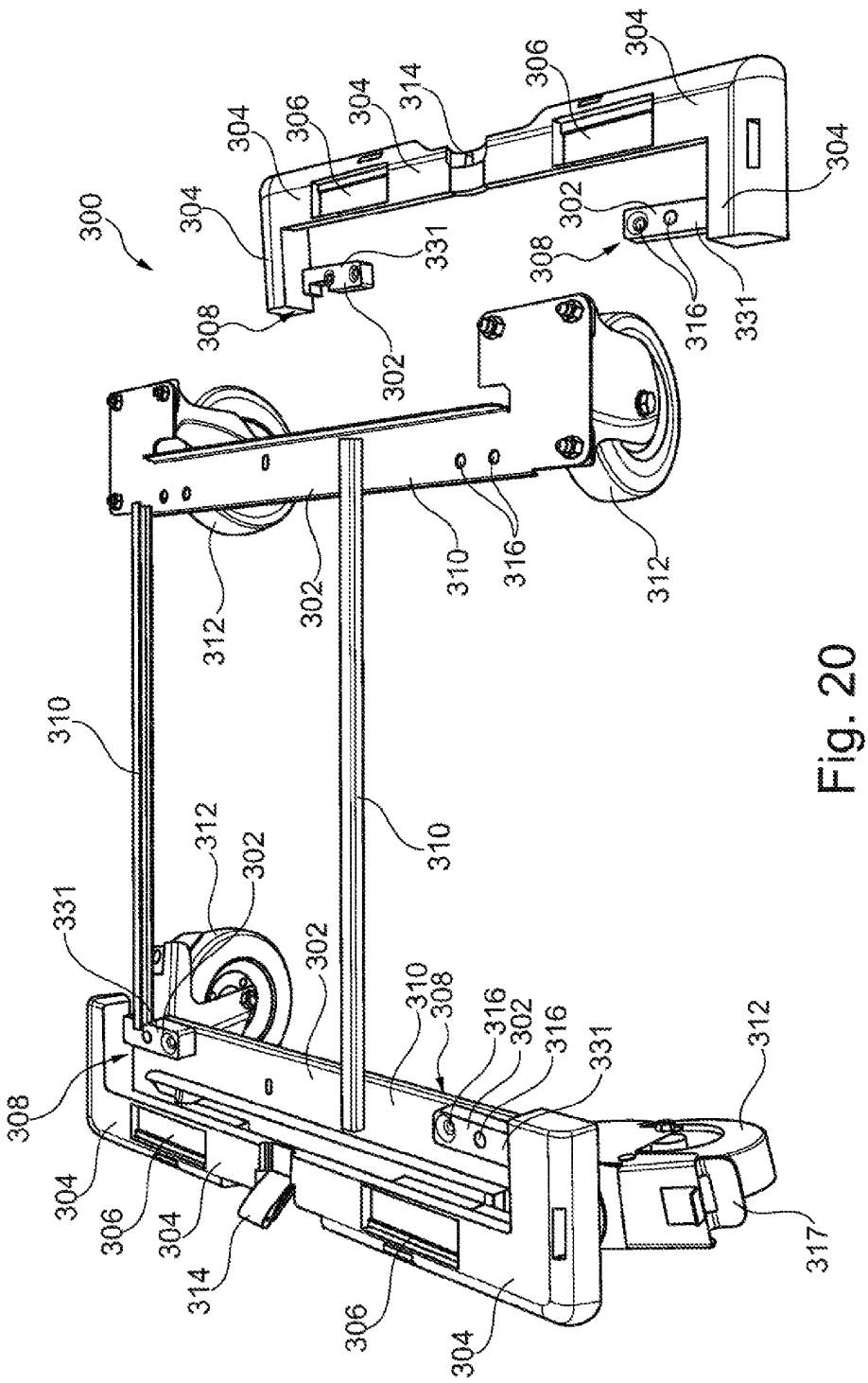


Fig. 20

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EUROPÄISCHER RECHERCHENBERICHT

Nummer der Anmeldung
EP 16 18 4463

EINSCHLÄGIGE DOKUMENTE

Kategorie	Kennzeichnung des Dokuments mit Angabe, soweit erforderlich, der maßgeblichen Teile	Betrifft Anspruch	KLASSIFIKATION DER ANMELDUNG (IPC)
X	WO 2014/177830 A1 (TOOLSTREAM LTD [GB]) 6. November 2014 (2014-11-06) * Seite 1, Absatz 1 * * Seite 9, Absatz 4 - Seite 17, Absatz 1 * * Abbildungen *	1-12	INV. B25H3/02
X	EP 2 253 432 A2 (STANLEY WORKS ISRAEL [IL]) 24. November 2010 (2010-11-24) * Absatz [0001] * * Absatz [0008] - Absatz [0024] * * Abbildungen *	1-15	
X	US 2014/375181 A1 (BAR-EREZ SHARON [IL] ET AL) 25. Dezember 2014 (2014-12-25) * Absatz [0002] * * Absatz [0049] - Absatz [0053] * * Absatz [0094] - Absatz [0113] * * Abbildungen *	1-15	
A	WO 2014/125488 A2 (KETER PLASTIC LTD [IL]) 21. August 2014 (2014-08-21) * Seite 1, Absatz 1 * * Seite 27, Absatz 2 - Seite 30, Zeile 4 * * Abbildungen *	1-15	RECHERCHIERTE SACHGEBIETE (IPC) B25H
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-/--

Der vorliegende Recherchenbericht wurde für alle Patentansprüche erstellt

Recherchenort	Abschlußdatum der Recherche	Prüfer
Den Haag	31. Januar 2017	van Woerden, N

KATEGORIE DER GENANNTEN DOKUMENTE

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EUROPÄISCHER RECHERCHENBERICHT

Nummer der Anmeldung
EP 16 18 4463

EINSCHLÄGIGE DOKUMENTE

Kategorie	Kennzeichnung des Dokuments mit Angabe, soweit erforderlich, der maßgeblichen Teile	Betrifft Anspruch	KLASSIFIKATION DER ANMELDUNG (IPC)
A	WO 2011/103635 A1 (DEMAIN TECHNOLOGY PTY LTD [AU]; VAN DER LINDE BENJAMIN LUKE [AU]; SCRI) 1. September 2011 (2011-09-01) * das ganze Dokument * -----	1-15	

RECHERCHIERTE SACHGEBIETE (IPC)

Der vorliegende Recherchenbericht wurde für alle Patentansprüche erstellt

Recherchenort	Abschlußdatum der Recherche	Prüfer
Den Haag	31. Januar 2017	van Woerden, N

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ANHANG ZUM EUROPÄISCHEN RECHERCHENBERICHT ÜBER DIE EUROPÄISCHE PATENTANMELDUNG NR. EP 16 18 4463

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Die Angaben über die Familienmitglieder entsprechen dem Stand der Datei des Europäischen Patentamts am
Diese Angaben dienen nur zur Unterrichtung und erfolgen ohne Gewähr.

31-01-2017

Im Recherchenbericht angeführtes Patentdokument	Datum der Veröffentlichung	Mitglied(er) der Patentfamilie	Datum der Veröffentlichung
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Für nähere Einzelheiten zu diesem Anhang : siehe Amtsblatt des Europäischen Patentamts, Nr.12/82

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IN DER BESCHREIBUNG AUFGEFÜHRTE DOKUMENTE

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In der Beschreibung aufgeführte Patentdokumente

- EP 2315701 A **[0002]**
- DE 19900361 **[0002]**
- EP 1238602 A **[0002]**

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Klein Tools v. Milwaukee Electric Tool, Keter Home and Garden Products
IPR2024-01400

1) Family number: 3867024 (DE3510307A1) © PatBase

Title:	Servicing device
Priority:	DE19853510307 19850322

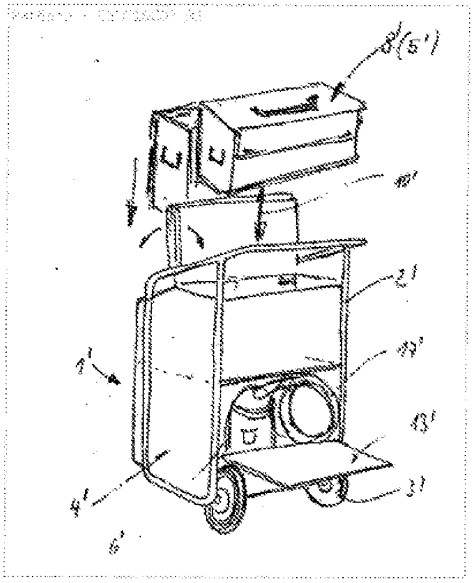
Family:

Publication number	Publication date	Application number	Application date
DE3510307 A1	19860925	DE19853510307	19850322

Probable Assignee:	KH WAERME AND SERVICE AG
Assignee(s):(std):	KH WAERME AND SERVICE AG
Inventor(s):(std):	SPIELHOFF HANS PETER
Inventor(s):	SPIELHOFF HANS PETER DIPL DESIGNER
International class (IPC 8-9):	B25H3/00 (Advanced/Invention); B25H3/00 (Core/Invention)
International class (IPC 1-7):	B25H5/00
CPC:	B25H3/00
European class:	B25H3/00
Classification Explorer	
Forward Citations:	US7938412, US7845653, US6601930, US5634649, EP2062701, EP1859908, EP1859908, EP0640447, DE8805614, DE102006058763,

Abstract:

With a servicing device for carrying out maintenance, repairs and measurements, etc., on technical installations, in particular on private or industrial heating installations, with a chassis having running wheels and holding devices for tools or the like, a solution is to be provided with which the user becomes very mobile and with which he can take the tools and measuring devices as simply as possible to the place where they are required so that he becomes as far as possible independent of other local factors. This is achieved by removable inserts (5, 8, 5', 8') for receiving tools or the like being provided inside the chassis (2) in a common housing (4).



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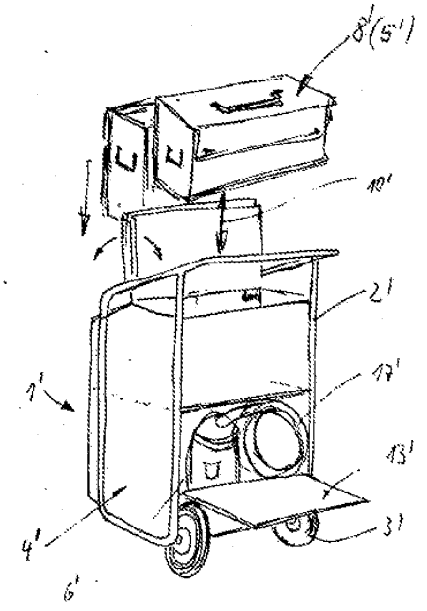
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(54) Vorrichtung zur Durchführung von Service-Leistungen

Mit einer Vorrichtung zur Durchführung von Service-Leistungen, wie Wartungen, Reparaturen und Messungen an technischen Anlagen, insbesondere an privaten oder gewerblichen Heizanlagen mit einem Laufräder aufweisenden Fahrgestell und Aufnahmeeinrichtungen für Werkzeuge o. dgl., soll eine Lösung geschaffen werden, mit der der Benutzer sehr mobil wird und mit der er die Werkzeuge und Meßeinrichtungen möglichst einfach an den Ort bringen kann, an dem sie benötigt werden, so daß er möglichst unabhängig von sonstigen örtlichen Gegebenheiten wird.
Dies wird dadurch erreicht, daß innerhalb des Fahrgestelles (2) in einem gemeinsamen Gehäuse (4) entnehmbare Einsätze (5, 8, 5', 8') zur Aufnahme der Werkzeuge o. dgl. vorgesehen sind.



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PATENTANWÄLTE MEINKE UND DABRINGHAUS

ZUGELASSEN BEIM EUROPÄISCHEN PATENTAMT · EUROPEAN PATENT ATTORNEYS · MANDATAIRES EN BREVETS EUROI

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Ansprüche:

1. Vorrichtung zur Durchführung von Service-Leistungen, wie Wartungen, Reparaturen und Messungen an technischen Anlagen, insbesondere an privaten oder gewerblichen Heizanlagen mit einem Laufräder aufweisenden Fahrgestell und Aufnahmeeinrichtungen für Werkzeuge od. dgl.,
dadurch gekennzeichnet,
daß in dem im Fahrgestell (2) untergebrachten Gehäuse (4) neben den Schüben (5) für Werkzeuge eine elektrische Versorgungseinrichtung (11) für die Elektrifizierung der Vorrichtung (1) und für elektrische Arbeitsgeräte und Werkzeuge integriert ist.

2. Vorrichtung zur Durchführung von Service-Leistungen, wie Wartungen, Reparaturen und Messungen an technischen Anlagen, insbesondere an privaten oder gewerblichen Heizanla-

gen mit einem Laufräder aufweisenden Fahrgestell und Aufnahmeeinrichtungen für Werkzeuge od. dgl.,
dadurch gekennzeichnet,
daß innerhalb des Fahrgestelles (2) in einem gemeinsamen Gehäuse (4) entnehmbare Einsätze (5,8,5´,8´) zur Aufnahme der Werkzeuge od. dgl. vorgesehen sind.

3. Vorrichtung nach Anspruch 1 oder 2,
dadurch gekennzeichnet,
daß in einem Teilbereich ein Staubsaugerfach (6,6´) zur Aufnahme eines Staubsaugers vorgesehen ist.

4. Vorrichtung nach einem der Ansprüche 1 - 3,
dadurch gekennzeichnet,
daß im oberen Bereich der Vorrichtung (1) eine fest installierte Beleuchtung (12) zur Beleuchtung des Vorfeldes des jeweiligen Standortes der Vorrichtung (1) vorgesehen ist.

5. Vorrichtung nach einem der vorangehenden Ansprüche,
dadurch gekennzeichnet,
daß ein Fach (7) zur Aufnahme eines herausnehmbaren, Meßgerät enthaltenden Arbeitskoffers (8) vorgesehen ist.

6. Vorrichtung nach einem der vorangehenden Ansprüche,
dadurch gekennzeichnet,
daß wenigstens eine Steckdosenleiste (15) zum Anschluß von elektrisch betriebenen Werkzeugen wie Bohrmaschinen od.