

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-8. (Cancelled)

9. (Currently Amended) A coupling platform for a stackable utility module configured to engage male couplers on an adjacent utility module comprising:

one or more female couplers each comprising a pair of locking ribs, two sidewalls and a depressed locking location, the pair of locking ribs extending above a surface of the depressed locking location and substantially parallel to a sliding path, wherein the male couplers of the adjacent utility module are configured to be engaged between the pair of locking ribs and the surface of the depressed locking location of the one or more female couplers, wherein each of the female couplers ~~comprises further comprising~~ a back wall that extends from each of the two sidewalls and between the two sidewalls, and each of the female couplers comprises a front wall that extends from each of the two sidewalls and between the two sidewalls, wherein a first rib of the pair of locking ribs extends from the back wall in a first direction towards a front of the coupling platform and from a first sidewall of the two sidewalls, and a second rib of the pair of locking ribs extends from the back wall and from a second sidewall of the two sidewalls; and comprising a plurality of mounting apertures configured to receive a fastener to secure the coupling platform to a surface ~~the stackable utility module~~.

10-12. (Cancelled)

13. (Previously Presented) The coupling platform of claim 9, wherein the first rib extends a first distance from the first sidewall and the first rib extends a second distance from the back wall that is more than twice as far as the first distance.

14. (Original) The coupling platform of claim 9, further comprising a panel comprising a top face from which the one or more female couplers extend, wherein the depressed locking locations of the one or more female couplers comprise at least 50% of an area of the top face.

15-20. (Cancelled)

21. (Currently Amended) The coupling platform of claim 9, wherein the one or more female couplers are arranged along a plurality of rows and a plurality of columns perpendicular to the plurality of rows, each row comprises two or more female couplers and each column comprises two or more female couplers, wherein each of the plurality of columns are parallel to the first direction.

22. (Cancelled)

23. (Currently Amended) The coupling platform of claim 9, wherein for each locking rib, an [[the]] upper surface of the locking rib is parallel to and faces away from a [[the]] lower surface of the locking rib.

24. (New) The coupling platform of claim 9, comprising a latch recess configured to receive a latch from the adjacent utility module, the latch recess located in front of at least one of the female couplers.

25. (New) The coupling platform of claim 9, wherein the coupling platform defines the surface of the depressed locking location.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Milwaukee Electric Tool Corporation
Title: Utility Assembly and Coupling Mechanism
Appl. No.: 17/064,371
Filing Date: October 6, 2020
Examiner: WEINERTH, GIDEON R
Art Unit: 3736
Confirmation No: 4794

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND REPLY UNDER 37 C.F.R. § 1.116

This communication is responsive to the Final Office Action dated March 11, 2021, concerning the above-referenced patent application.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks begin on page 4 of this document.

Please amend the application as follows:



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/064,371	10/06/2020	Yaron Brunner	066749-2792	4794
142078	7590	03/11/2021	EXAMINER	
Reinhart (Milwaukee Tool)			WEINERTH, GIDEON R	
ATTN: TRAVIS MCDONNELL, PARALEGAL			ART UNIT	PAPER NUMBER
1000 NORTH WATER STREET			3736	
SUITE 2100			NOTIFICATION DATE	DELIVERY MODE
MILWAUKEE, WI 53202			03/11/2021	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):

IPAdmin@reinhartlaw.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Response to Amendment

2. In the Amended Claims of February 18, 2021, Claims 9, 13, 14, and 21-23 are pending. Claims 9 and 13 are amended. Claims 21 through 23 are new.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings originally filed on October 6, 2020 must show every feature of the invention specified in the claims. Therefore, following must be shown:

4. Claim 1 recites the mounting apertures are configured to secure the coupling platform to the stackable utility module. There is no depiction as to how ‘coupling’ may be effected by the mounting apertures. An example as to how the mounting apertures function in securing the coupling platform to the utility module must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

5. Claim 22 recites the top face comprises an elevated surface that extends from each of the sidewalls, wherein the elevated surface is planar with an upper surface of each of the locking ribs. This is not shown. Indeed, there is no such element described as an “elevated surface” of the top surface, nor is any element shown as being planar with an upper surface of the locking ribs. In every embodiment, the two opposing locking ribs are ABOVE the upper surface. See Diagram 1 below.

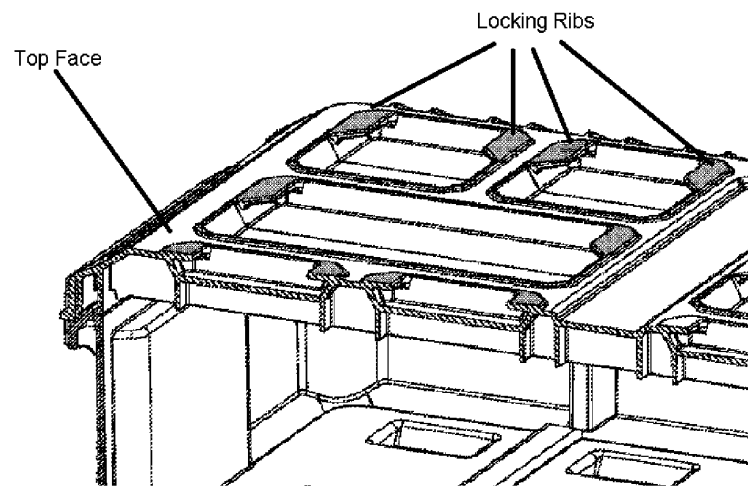


Diagram 1 - Detail from Figure 9D showing locking ribs extending ABOVE the top face. No "elevated surface that extends from each of the sidewalls" is shown in the drawings or discussed in the Written Description.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. The amendments filed 2/18/2021 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

7. The Original Specification provides no positive description as to how the mounting apertures (298) are configured to secure the platform (300) to the utility module as discussed in Claim 9.

8. Furthermore, there is no depiction, identification, or information relating to an “elevated surface” that is planar with an upper surface of each of the locking ribs as discussed in Claim 22.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

9. Claims 9, 13, 14, 21-23 rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for applications subject to pre-AIA 35 U.S.C. 112, the inventor(s), at the time the application was filed, had possession of the claimed invention.

10. Regarding Claim 9, the claim recites “a plurality of mounting apertures configured to secure the coupling platform to the stackable utility module.” This is not enabled.

11. There is NO explanation how the ‘plurality of mounting apertures’ are configured to secure the coupling platform (300) to the **stackable utility modules** such as containers (22, 24, 26, and 28). The Specification Paragraphs 00237-238 quite clearly identifies the ‘bolt eyes’ being used to couple the platform to a truck bed or wall. Nowhere is the coupling platform disclosed to attach to a stackable module using the ‘bolt eyes’. The Specification makes clear that the platform attaches to the utility module via ***couplers***, not any apertures.

12. In the Remarks and Arguments of 2/18/2021, Applicant states that adequate support is provided in the original written description by noting that Paragraph 237 states that “rigid coupling platform 300 [is] configured with bolt eyes 298 for securing to *any desired surface*. (no italics in original).” Applicant respectfully submits that the rest of the specification and figures are filled with numerous examples of surfaces of stackable utility modules to which the coupling platform may be coupled.

13. The Examiner disagrees.

14. There is absolutely NO support for the claimed subject matter in which COUPLING is achieved by the ‘bolt eyes’ 298. Such bolt eyes would require a separate fastener to destructively be nailed or screwed to a stackable utility module below it in order to achieve such a ‘coupling’. By stating that ‘any desired surface’ may be used is entirely different from identifying “coupling” using a specific structural feature.

15. The claimed subject matter MUST be shown or CANCELED.

16. Claim 22 recites an “elevated surface”. How such an elevated surface is configured or is planar with the upper surface of each of the locking ribs is not shown or enabled. Indeed, the term “elevated surface” is entirely absent from the written description. This feature must be disclosed in the original written description or drawings, else it must be considered new matter.

The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

17. Claims 9, 13, 14, and 21-23 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

18. As discussed above, there is no support showing, describing, or identifying how the mounting apertures (298) are configured to secure the coupling platform to the stackable utility module. There is no corresponding mounting aperture in a similar location in any other module that would provide such coupling. It is the Examiner’s opinion that such mounting apertures provide a means to accept a separate mechanical fastener, such as a nail, bolt, or screw to allow mounting to a stationary surface as discussed in Applicant’s Specification Paragraph 237 and 238. There is NO support or explanation how such mounting apertures provide coupling with a stackable utility module.

19. For the purposes of examination, it will be assumed that the mounting apertures (298) provide means to accept fasteners as is commonly practiced in the art.

20. Regarding Claim 22, as discussed above, no elevated surface that extends from each of the sidewalls planar with an upper surface of each of the locking ribs is shown. How such an elevated surface is configured or structured is therefore non-enabled. Due to this non-enablement of the elevated surface, the claim is also indefinite, as it is unclear what constitutes this elevated surface. For the purposes of examination, it will be assumed that any possible surface adjacent to the rib may suffice to meet the limitations of the claim.

21. Claim 23 recites the limitation "the upper surface" and "the lower surface" in Lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

22. Claims 9 and 13 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Gates (US 6637707).

23. Regarding Claim 9, Gates discloses coupling platform for a stackable utility module configured to engage male couplers (32) on an adjacent utility module. Gates discloses one or more female couplers (24) each comprising a pair of locking ribs, two sidewalls and a depressed locking location (beneath tab 46), the pair of locking ribs (26) extending above a surface of the depressed locking location and substantially parallel to a sliding path, wherein the male couplers of the adjacent utility module are configured to be engaged between the pair of locking ribs and the surface of the depressed locking

location of the one or more female couplers. Each of the female couplers further comprises a back wall that extends between the sidewalls as shown in Figure 1, wherein a first rib of the pair of locking ribs extends from the back wall and from a first sidewall of the two sidewalls, and a second rib of the pair of locking ribs extends from the back wall and from a second sidewall of the two sidewalls. Gates also discloses comprising a plurality of mounting apertures (16) configured to secure the coupling platform to a surface by screws (20).

24. Regarding Claim 13, Gates discloses the first rib extends a first distance from the first sidewall and the first rib extends a second distance from the back wall that is more than twice as far as the first distance.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

25. **Claims 9, 13, 14 and 21-23 are rejected under 35 U.S.C. 103 as being unpatentable over Ko (US 2014/0161518) in view of Johnson (US 5433416).**

26. Regarding Claim 9, Ko discloses a coupling platform that is described as being used for module furniture systems. A person having ordinary skill in the art would recognize that such couplers can also be used for connecting stackable utility module. Ko discloses a female coupler (20) with a pair of locking ribs (23A). The coupler includes two sidewalls and a depressed locking location, the pair of locking ribs extending above a surface of the depressed locking location and substantially parallel to a sliding path. The male couplers (10) of an adjacent utility module are configured to be engaged between the pair of locking ribs and the surface of the depressed locking

location of the one or more female couplers. Each of the female couplers further comprising a back wall that extends between the sidewalls, wherein a first rib of the pair of locking ribs extends from the back wall and from a first sidewall of the two sidewalls, and a second rib of the pair of locking ribs extends from the back wall and from a second sidewall of the two sidewalls. Ko discloses a plurality of apertures as shown in Diagram 2 below. Ko also discloses that screws are used to secure the hardware couplers to the utility modules (Paragraph 0053). However, Ko does not explicitly disclose these apertures as mounting apertures configured to secure the coupling platform to a stationary surface.

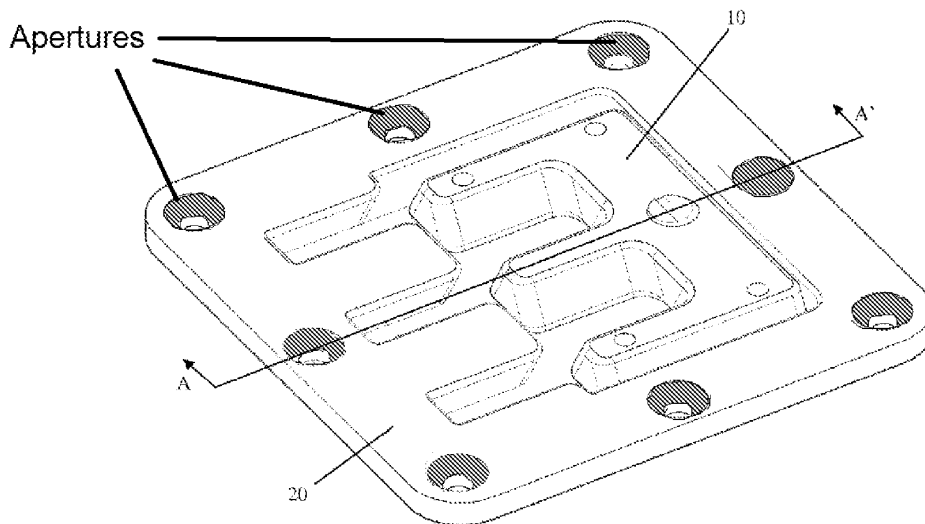


Fig. 1B

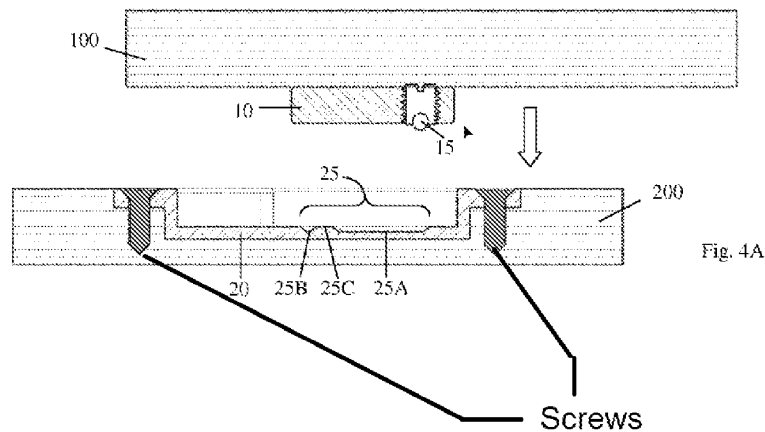


Fig. 4A

Diagram 2 - Ko (US 2014/0161518) - Figures 1B and 4A showing mounting plate apertures and screw attachment locations

27. However, as disclosed in the similar dovetail arrangement seen in Johnson, these apertures (28) are typically used for receiving appropriate fastening devices, such as screws, for mounting the coupling plate to a surface (Col. 3 Lines 38-41). A person

having ordinary skill in the art would recognize and find obvious from the description in Ko and the explanation given in Johnson that the unnumbered apertures of Ko would be used to secure the coupling platform to a stationary surface as is commonly practiced in the art.

28. Regarding Claim 13, Ko discloses the first rib extends a first distance from the first sidewall and the first rib extends a second distance from the back wall that is more than twice as far as the first distance.

29. Regarding Claim 14, Ko discloses a panel (200) comprising a top face from which the one or more female couplers extend. While Ko does not disclose the exact dimensions of the panel or the couplers, a person having ordinary skill in the art would be capable of modifying the relative sizes of the coupler and the panel in order to suit different modules of varying sizes. Applicant has not disclosed that female couplers comprising at least 50% of an area of the top face serves a particular purpose or achieves a particular result. Therefore, one having ordinary skill in the art would recognize that modifying the relative sizes of the coupler and the associated panel may be varied as an obvious variation in attaching differently sized modules with appropriately sized connectors that would produce no unexpected results.

30. Regarding Claim 21, Ko discloses that multiple female hardware pieces may be provided on one surface and corresponding male hardware pieces may be provided on corresponding locations to increase the strength of the connectors (Paragraph 0050). Furthermore, the modules may be combined in different locations for customized configurations based on the user's need (Paragraph 0053). Therefore, one having ordinary skill in the art would recognize that an arrangement of two or more female

couplers along a plurality of rows and a plurality of columns perpendicular to the plurality of rows is an obvious variation in the placement of such connectors that a person having ordinary skill in the art would be capable of modifying in order to achieve a desired connection strength at a particular location.

31. Regarding Claim 22, Ko discloses a top face that is planar with an upper surface of the locking ribs in order to form cavities that correctly position and align the hardware pieces (Paragraph 0053).

32. Regarding Claim 23, Ko discloses each locking rib has a flat upper surface that is parallel to and faces away from the lower surface of the locking rib at the flat depressed surface. However, please also see Liserre (US 5653366) Element 46 which shows a similar dovetail mating arrangement with parallel top and bottom surfaces of a horizontally extending rib in addition to the previously cited rib structure of Deutsch (US 5628443).

33. **Claims 9, 13, and 23 are rejected under 35 U.S.C. 103 as being unpatentable over Deutsch (US 5628443) in view of Hudson (US 4805859).**

34. Regarding Claim 9, Deutsch discloses a coupling platform (12) for a stackable utility module (30) configured to engage male couplers (24, 26, 42, and 44) on an adjacent utility module. Deutsch discloses the coupling platform comprises one or more female couplers (20 and 22) each comprising a pair of locking ribs (D and D'), two sidewalls (C and C') and a depressed locking location relative to the ribs between slot forming members A and A' (Figure 3). Deutsch further discloses the pair of locking ribs extending above a surface of the depressed locking location and substantially parallel to a sliding path of the T-shaped bracket 26. The male couplers of the adjacent utility

module are configured to be engaged between the pair of locking ribs and the surface of the depressed locking location of the one or more female couplers. Deutsch discloses the female couplers further includes a back wall (stop Z) that extends between the sidewalls. A first rib of the pair of locking ribs extends from the back wall and a first sidewall of the two sidewalls, and a second rib of the pair of locking ribs extends from the back wall and a second sidewall of the two sidewalls.

35. Deutsch does not disclose a plurality of apertures configured to accept fasteners for connection to a stationary surface.

36. Hudson discloses a similar platform (2) with slide-mating connection rails (14) configured to attach to a container (4) wherein the frame (2) includes a plurality of apertures (12). Deutsch and Hudson are analogous inventions in the art of container and platform attachment means.

37. It would have been obvious for one having ordinary skill in the art before the effective filing date of the claimed invention to modify the platform of Deutsch with the apertures disclosed in Hudson in order to attach the platform to a support or the frame of a vessel or vehicle (Col. 4 Lines 33-36).

38. Regarding Claim 13, Deutsch discloses the first rib extends a first distance from the first sidewall and the first rib extends a second distance from the back wall that is more than twice as far as the first distance.

39. Regarding Claim 23, Deutsch discloses the upper surface of the locking rib is parallel to and faces away from the lower surface of the locking rib.

Response to Arguments

40. Applicant's arguments with respect to claim 9 have been considered but are moot because the new ground of rejection does not rely on any reference applied in the prior rejection of record for any teaching or matter specifically challenged in the argument.

41. Regarding Claim 9, Applicant argues against the modification of Deutsch by Hudson. Applicant believes that Hudson expressly teaches away from being combined with "T" channels as disclosed in Deutsch. Applicant cites Hudson as noting that T channels are "susceptible...to being damaged or bent so as to be unusable as an interlocking channel."

42. The Examiner disagrees.

43. In response to applicant's argument that the mounting apertures of Hudson cannot be used with the T-channel connection seen in Deutsch, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

44. In the present case, Hudson DOES NOT prohibit usage of mounting apertures with T-channel connectors. The full text of Hudson Col. 2 Lines 24-34 states reads as follows:

More elaborate structures such as, for example, the interlocking “T” rail and channel shown in Care, U.S. Pat. No. 2,476,134 for securing a fare box on a bus, a similar if milder environment, are unsuitable for use on boats because of the injury producing potential of an extended permanently affixed channel when no tackle box is installed. In addition, “T” channels are susceptible, unless they are made so substantially large that they are unsuitable obstacles, to being damaged or bent so as to be unusable as an interlocking channel.

45. Therefore, there is no absolute exclusion against incorporating the mounting apertures of Hudson into the platform of Deutsch. Hudson merely qualifies that in applications that involve the harsh environments aboard boats, large T-channels should be used, as smaller T-channels may be susceptible to damage. Therefore, one having ordinary skill in the art would still be directed to utilize mounting apertures as disclosed in Hudson in as an obvious means to provide a fastening arrangement to a vehicle frame as discussed in Col. 4 Lines 33-36.

46. Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

Conclusion

The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with

all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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(Date)

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Registration Number: _____

Please refer to 37 CFR 1.6(a) (4), 1.6(d) and 1.8(a) (2) for filing limitations
concerning transmissions via EFS-Web, facsimile transmissions and mailing,
respectively.

The prior art made of record and not relied upon is considered pertinent to
applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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 <https://ppair-my.uspto.gov/pair/PrivatePair>. 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

<i>Notice of References Cited</i>	Application/Control No. 17/064,371		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-5433416-A	07-1995	Johnson; Ruben R.	B65D23/003	248/475.1
*	B	US-6637707-B1	10-2003	Gates; George D.	A47B81/005	211/64
*	C	US-D753982-S	04-2016	Guirlinger; Edward G.	F16B12/24	D8/349
*	D	US-20170138382-A1	05-2017	KO; Kenneth H.	F16B12/24	1/1
*	E	US-20180290288-A1	10-2018	BRUNNER; Yaron	B25H1/04	1/1
*	F	US-20190225371-A1	07-2019	Hoppe; Christopher S.	B65D21/0223	1/1
*	G	US-D898320-S	10-2020	Brunner; Yaron	B65D23/003	D34/23
	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.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20210304

<i>Index of Claims</i> 	Application/Control No. 17/064,371	Applicant(s)/Patent Under Reexamination Brunner et al.
	Examiner GIDEON R WEINERTH	Art Unit 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	11/26/2020								
	1	N								
	2	N								
	3	N								
	4	N								
	5	N								
	6	N								
	7	N								
	8	N								
	9	✓								
	10	✓								
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	13	✓								
	14	✓								
	15	N								
	16	N								
	17	N								
	18	N								
	19	N								
	20	N								

<i>Search Notes</i> 	Application/Control No. 17/064,371	Applicant(s)/Patent Under Reexamination Brunner et al.
	Examiner GIDEON R WEINERTH	Art Unit 3736

CPC - Searched*		
Symbol	Date	Examiner
A45C5/14	11/25/2020	GW
A45C7/005,0045	11/25/2020	GW
A45C13/02	11/25/2020	GW
A45F3/10	11/25/2020	GW
B25H1/\$,04,14,	11/25/2020	GW
B25H3/\$,02,021,023,	11/25/2020	GW
B25H5/\$	11/25/2020	GW
B65H2701/533	11/25/2020	GW
B65D21/0223,0209,0228	11/25/2020	GW
B65D2255/00	11/25/2020	GW
Update search	03/05/2021	GW

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
224	583,645,629,665	11/25/2020	GW
150	113	11/25/2020	GW
190	110	11/25/2020	GW
220	4.27	11/25/2020	GW

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

/GIDEON R WEINERTH/ Examiner, Art Unit 3736	
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<i>Search Notes</i> 	Application/Control No. 17/064,371	Applicant(s)/Patent Under Reexamination Brunner et al.
	Examiner GIDEON R WEINERTH	Art Unit 3736

Search Notes		
Search Notes	Date	Examiner

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/GIDEON R WEINERTH/ Examiner, Art Unit 3736	
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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT Date Submitted: January 7, 2021 <i>(use as many sheets as necessary)</i>				Application Number	17/064,371
				Filing Date	October 6, 2020
				First Named Inventor	Yaron Brunner
				Art Unit	3736
				Examiner Name	WEINERTH, GIDEON R
Sheet	1	of	3	Attorney Docket Number	066749-2792

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Application Document Serial Number-Kind Code ² (if known)	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶
/G.R.W/	A1	Inter Partes Review No. 2021-00373, "Petition for Inter Partes Review of U.S. Pat. No. 10,583,962," filed January 5, 2021, 198 pages.	
/G.R.W/	A2	Exhibit 1001 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 64 pages.	
/G.R.W/	A3	Exhibit 1002 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 75 pages.	
/G.R.W/	A4	Exhibit 1003 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 13 pages.	
/G.R.W/	A5	Exhibit 1004 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 18 pages.	

Examiner Signature	/GIDEON R WEINERTH/	Date Considered	03/04/2021
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

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 2 hours 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, 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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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT Date Submitted: January 7, 2021 <i>(use as many sheets as necessary)</i>				Application Number	17/064,371
				Filing Date	October 6, 2020
				First Named Inventor	Yaron Brunner
				Art Unit	3736
				Examiner Name	WEINERTH, GIDEON R
Sheet	2	of	3	Attorney Docket Number	066749-2792

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶
/G.R.W/	A6	Exhibit 1005 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 9 pages.	
/G.R.W/	A7	Exhibit 1006 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 176 pages.	
/G.R.W/	A8	Exhibit 1007 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 22 pages.	
/G.R.W/	A9	Exhibit 1008 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 6 pages.	
/G.R.W/	A10	Exhibit 1009 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 24 pages.	
/G.R.W/	A11	Exhibit 1010 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 19 pages.	
/G.R.W/	A12	Exhibit 1011 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 26 pages.	
/G.R.W/	A13	Exhibit 1012 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 3 pages.	
/G.R.W/	A14	Exhibit 1013 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 168 pages.	
/G.R.W/	A15	Exhibit 1014 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, PART A pages 1-166 of 481 pages.	
/G.R.W/	A16	Exhibit 1014 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, PART B pages 167-320 of 481 pages.	
/G.R.W/	A17	Exhibit 1014 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, PART C pages 321-481 of 481 pages.	
/G.R.W/	A18	Exhibit 1015 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 6 pages.	

Examiner Signature	/GIDEON R WEINERTH/	Date Considered	03/04/2021
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				Examiner Name	WEINERTH, GIDEON R
Sheet	3	of	3	Attorney Docket Number	066749-2792

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶
/G.R.W/	A19	Exhibit 1016 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 242 pages.	
/G.R.W/	A20	Exhibit 1017 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 6 pages.	
/G.R.W/	A21	Exhibit 1018 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 250 pages.	
/G.R.W/	A22	Exhibit 1019 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 44 pages.	
/G.R.W/	A23	Exhibit 1020 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 5 pages.	
/G.R.W/	A24	Exhibit 1021 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 1 page.	
/G.R.W/	A25	Exhibit 1022 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 1 page.	
/G.R.W/	A26	Exhibit 1023 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 24 pages.	
/G.R.W/	A27	Exhibit 1024 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 28 pages.	

Examiner Signature	/GIDEON R WEINERTH/	Date Considered	03/04/2021
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EAST Search History

EAST Search History (Prior Art)

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		"7188491" "7210545" "7213817" "7229093" "7232183" "7249772" "7252295" "7284763" "7296816" "7306243" "7311487" "7322586" "7331436" "7334802" "7340917" "7389608" "7398618" "7407170" "7415321" "7419168" "7451709" "7458589" "7458590" "7458591" "7458592" "7464943" "7475745" "7475889" "7487977" "7513510" "7540344" "7540364" "7543828" "7546912" "7549653" "7549655" "7559559" "7562897" "7575075" "7597334" "7597762" "7600592" "7628406" "7645047" "7648147" "7654348" "7658442" "7661685" "7677581" "7677592" "7681412" "7703795" "7722204" "7762363" "7784816" "7789401" "7798264" "7798886" "7815003" "7823906" "7828306" "7843431" "7845440" "7845653" "7857327" "7860614" "7900723" "8002365" "8016304" "8210304" "8327963" "8465031" "8540039" "8573505" "8668039" "8925752" "8939315" "8991541" "9022395" "9150235" "9186570" "9211901" "9233701" "9316428" "9389010" "9403566" "9415786" "9694859" "9849901" "D322199" "D322915" "D349630" "D366599" "D382309" "D414987" "D415658" "D421552" "D439115" "D470798" "D479159" "D508455" "D516869" "D521322" "D599625" "D604473" "D613128" "D613560" "D661451" "D685228" "D691686" "D704786").PN. OR ("D735609" "D738977" "D747688" "D749911" "D769997" "D770585" "D779375").PN. OR ("10071303").URPN.				
S34	20	("2015/0241107").URPN.	USPAT	OR	OFF	2020/11/24 16:42
S35	6	("2014/0014669").URPN.	USPAT	OR	OFF	2020/11/24 16:46
S36	42	("1531542" "1946593" "20040195793" "20050263527" "20100155349" "20110220531" "20110315695" "20140014669" "3194426" "4551988" "5249438" "5465985" "5803472" "5890613" "5947032" "6244064" "6328179" "6364329" "6467779"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 16:46

		"7140507" "7278234" "7389608" "7415794" "8925752").PN. OR ("9500400").URPN.				
S37	15	("2004/0195793").URPN.	USPAT	OR	OFF	2020/11/24 16:47
S38	82	("20020175172" "20030136699" "20040035867" "20040112906" "20040173996" "20040195793" "20050051549" "20050109654" "20060119060" "20060201943" "20070045146" "20070202221" "20070235963" "20080047855" "20080296183" "20090212514" "20100108556" "20110186458" "20120292867" "20140014539" "20140210188" "20140251996" "20140360899" "20150151566" "2338477" "2765099" "3376046" "3613940" "3777896" "3912158" "3923318" "3963256" "4091953" "4291829" "4316540" "4363821" "4576389" "4688675" "4756420" "5042674" "5058763" "5105947" "5564805" "5599031" "5662223" "5674546" "5709008" "5713509" "5718168" "5718350" "5906291" "5924572" "6095533" "6105980" "6109456" "6886694" "6964423" "6983946" "7124891" "7188745" "7205016" "7255231" "7303075" "7364172" "8157094" "8256242" "8567795" "8684372" "8714568" "8727163" "8876145" "8910955" "9050852" "9409585").PN. OR ("9522763").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 16:47
S39	56	("3376046").URPN.	USPAT	OR	OFF	2020/11/24 16:51
S40	40	("2885135" "3376046" "3539071" "3568879" "3987829" "4174950" "4765252" "4844263" "D248015").PN. OR ("D333094").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 16:53
S41	78	("0879455" "20040134390" "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"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 16:54

		"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.				
S42	4	B65D71/0088,0092,0096.cpc. and (dovetail (dove adj tail))	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 16:55
S43	10	((("1261155") or ("1498377") or ("1826835") or ("1900980") or ("2400197"))).PN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 16:57
S44	3	("1498377").URPN.	USPAT	OR	OFF	2020/11/24 16:57
S45	0	("2830699").URPN.	USPAT	OR	OFF	2020/11/24 16:58
S46	1,656	(truck) and (tool adj box)	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 16:58
S47	10	("20030230909" "20130021453" "20140117062" "3688954" "4420238" "4465187" "5018779" "6152513" "6886876" "D374654").PN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:03
S48	127	B25H1/\$.cpc. and (dovetail (dove adj tail))	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:05
S49	118	B25H3/\$.cpc. and (dovetail (dove adj tail))	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:06
S50	7	B25H5/\$.cpc. and (dovetail (dove adj tail))	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:06
S51	13	("20080087128" "20080244888" "20050265798" "20020057952" "20020131836" "20140305217" "20030116331" "20100031487"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:07

		"20160176003" "6172374" "20080083128" "5584818" "5379510").PN.				
S52	48	("20040188322" "20160075010" "20160194115" "4863222" "6082539" "7237673" "8561679" "8979100" "D645663" "9725209" "20110155613" "0263561" "5570784" "6349827" "D563102" "D648531" "D781584" "D528793" "RE47022" "4619363" "8602217" "20120152944" "20150353231" "5617953" "8590704" "8875888" "D563671" "5890613" "6271320" "6543613" "6868967" "7690856" "8459495" "8714355" "D563670" "5803254" "7322470" "9469024" "20030094392" "5887715" "8322354" "6889838" "8505729" "20020179473" "4643494" "5934466" "7219969").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:10
S53	14	("2016/0194115").URPN.	USPAT	OR	OFF	2020/11/24 17:10
S54	48	("0263561" "20020179473" "20030094392" "20040188322" "20110155613" "20120152944" "20150353231" "20160075010" "20160194115" "4619363" "4643494" "4863222" "5570784" "5617953" "5803254" "5887715" "5890613" "5934466" "6082539" "6271320" "6349827" "6543613" "6868967" "6889838" "7219969" "7237673" "7322470" "7690856" "8322354" "8459495" "8505729" "8561679" "8590704" "8602217" "8714355" "8875888" "8979100" "9469024" "9725209" "D528793" "D563102" "D563670" "D563671" "D645663" "D648531" "D781584" "RE47022").PN. OR ("10603783").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:11
S55	21	("20080000899" "20090255092" "4714158" "8636169" "20130021787" "20060157373" "7559514" "20150021322" "20140311926" "0532324" "20020179462" "20160130034" "4505506" "5415277" "4364150" "6059109" "20100176022" "5423445" "5609282" "5904388").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:12
S56	31	("1385484" "2888970" "3201035" "4616752" "6202847" "6648390" "6874634" "7137522").PN. OR ("7690856").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:15

S57	7	("3201035").URPN.	USPAT	OR	OFF	2020/11/24 17:19
S58	24	((("0577452") or ("0895867") or ("1126977") or ("2199970") or ("2522483") or ("2563094") or ("2703200") or ("2715559") or ("2974808") or ("3030163") or ("3081023") or ("3107012"))).PN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:20
S59	42	("2807387" "3182856" "4724756" "5083664" "5375709" "5445269").PN. OR ("5934466").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:24
S60	23	("3182856" "4293070" "4404615" "4427114" "4553190" "4557382" "4561554" "4886163" "5107989" "5180615" "5244087").PN. OR ("5375709").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:26
S61	26	("3224822" "3401993" "3552817" "3851936" "3907116" "4178047" "4243279" "4317603" "4328902" "4420196" "5271515" "5375709" "5775046" "6050657").PN. OR ("7350648").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:26
S62	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"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:27

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S63	19	("2010/0147642").URPN.	USPAT	OR	OFF	2020/11/24 17:28
S64	172	("10434638" "20020000440" "20020171228" "20030115715" "20030146589" "20030184034" "20030205877" "20040103494" "20040195793" "20040206656" "20050062244" "20050104308" "20050139745" "20060006770" "20060027475" "20060038367" "20060119060" "20060186624" "20060254946" "20070068757" "20070090616" "20070145700" "20070194543" "20080104921" "20080115312" "20080121547" "20080134607" "20080169739" "20080271280" "20080277221" "20080308369" "20090026901" "20090071990" "20090145790" "20090145866" "20090145913" "20090178946" "20100052276" "20100139566" "20100147642" "20100219193" "20110073516"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:29

		"20110139665" "20110155613" "20110181008" "20110220531" "20120160886" "20120180250" "20120207571" "20120326406" "20130024468" "20130031731" "20130031732" "20130121783" "20130127129" "20130223971" "20140161518" "20140166516" "20150376917" "20160023349" "20160130034" "20160144500" "20160168880" "20170121056" "20170138382" "20170165828" "20170166352" "20170174392" "20170217464" "20170239808" "20170257958" "20170266804" "20170318927" "20180044059" "20180161975" "20180186513" "20180220758" "20180290288" "20190002004" "20190039781" "20190106244" "20190225371" "2042387" "2430200" "2970358" "3117692" "3506321" "3974898" "4168076" "5035445" "5105947" "5240264" "5301829" "5429260" "5595228" "5608603" "5628443" "5797617").PN. OR ("5951037" "5988473" "6050660" "6085925" "6109627" "6176559" "6347847" "6367631" "6371320" "6431580" "6547347" "6601930" "6619772" "6637707" "6641013" "6945546" "6948691" "6983946" "7044484" "7066475" "7147243" "7263742" "7367571" "7503569" "7658887" "7780026" "7841144" "8028845" "8132819" "8177463" "8191910" "8454033" "8459495" "8505729" "8567796" "8677661" "8689396" "8714355" "8813960" "8875888" "8979100" "8985922" "9132543" "9506489" "9511491" "9566990" "9616562" "9643629" "9701443" "9872562" "D525789" "D630851" "D653832" "D661858" "D663952" "D664354" "D674605" "D701696" "D738106" "D753394" "D753395" "D765974" "D770179" "D790221" "D814187" "D816334" "D826510" "D833744" "D837515").PN. OR ("D897103").URPN.				
S65	9	("2018/0220758").URPN.	USPAT	OR	OFF	2020/11/24 17:30

S66	24	("20110139665" "20110155613" "3410376" "5544751" "20150069962" "4643494" "8561769" "6367631" "1084360" "8602217" "6098819" "3891230" "6585090" "8590704" "3757911" "6213266" "20080121547" "1084360" "5971119" "20100224528" "20140062281" "20150274362" "20170318927").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 17:30
S67	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	2020/11/24 22:20
S68	18	("2715966" "20050247653" "4771897" "5429252" "5740927" "5845792" "6152312" "6267338" "6435357" "6564949" "6698603" "6871749" "7014052" "7028854" "7117998" "6581788" "5915573").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:20
S69	43	("2754974" "4693381" "4771897" "4869378" "5224609" "5472167" "5524772").PN. OR ("5740927").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:22
S70	17	("20130134193" "20130269509" "2783896" "4776471" "5078279" "5438787" "5740927" "5762245" "5791499" "6546598" "6572168" "6626477" "7047771").PN. OR ("8939335").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:23
S71	71	("2708088" "3701436" "3876079" "4084735" "4108313" "4271997" "4450989" "4776471").PN. OR ("5078279").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:24
S72	58	("0554252" "1202588" "1951255" "20050133473" "20060113341" "20060288625" "20070170129" "20110168649" "20120228243" "2783896" "2958422" "2987285" "4113107"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:26

		"4132315" "4141452" "4174042" "4461385" "4776471" "4936531" "4982522" "4986427" "5062184" "5078279" "5222701" "5265950" "5524772" "5806691" "5979846" "6129252" "6427497" "6929233" "6935065" "6986446" "7267353" "7467719" "7478892" "7770740" "8444034" "D611558").PN. OR ("8678206").URPN.				
S73	32	("0670870" "2724881" "3069538" "3197830" "3421187" "3463436" "3746294" "3888440" "3894707" "4391376" "4638966" "4768741" "5062184").PN. OR ("5222701").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:29
S74	32	("2653686" "3154281" "3253084" "3632071" "3807675" "3809799" "3894706" "3913876" "3917202" "3985275" "4023758").PN. OR ("4391376").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:31
S75	18	("20140259566" "2384158" "3226069" "3633857" "3894707" "4391376" "4524937" "5098054" "5105509" "5487518" "5906302" "7261256" "8413933" "9127807" "9303792" "D343975").PN. OR ("10758065").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:31
S76	39	("2937766" "3319983" "4955573" "5020760" "5190260").PN. OR ("5487518").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:33
S77	26	("20020125389" "20040051015" "20040238702" "2908471" "3695569" "3702591" "3774788" "4071216" "4306702" "5078279" "5351842" "D373719").PN. OR ("8500078").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:41
S78	24	("2651710" "3403641" "3526934" "3756637" "4199070" "4460141" "4819309" "4953146" "5058843" "5794897" "5941483" "6079673" "6357194" "6783101" "7007900" "7484698" "8342474" "8500078").PN. OR ("9267624").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:42
S79	53	("20040056156" "20080296443" "20090218451" "20090277524" "4618114" "4919372" "5123547" "5794897" "5921509" "6053456" "6227502" "6378811" "6378813" "6561466" "6715247" "6889944" "7281356").PN. OR ("8342474").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:43

S80	31	("20050211463" "3125196" "3523667" "3526934" "3765629" "3856246" "4093076" "4336673" "4601447" "4618114" "4856658" "5104072" "5642612" "5791607" "5823484" "5829243" "5855279" "6375129" "6378811" "6513781" "6889944" "7467767" "7497718" "7686259" "7802680" "7828251" "8074945" "8079552").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:44
S81	22	("4410095" "4770297" "5351417" "5484057" "5595294" "6047827" "7395984").PN. OR ("7802680").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:45
S82	126	("0136905" "0177936" "0327939" "0342194" "0543735" "0570465" "0632234" "0687431" "0724427" "0754503" "0764774" "0888032" "0914469" "1653374" "1848937" "1936813" "20040020880" "20040108734" "20060022105" "20070251904" "20080053931" "20080169395" "20080179898" "20100264102" "20110042333" "20120012726" "20120111814" "20120152871" "20120181244" "20150250333" "20170127867" "2141009" "2273641" "2309990" "2344339" "2369336" "2447128" "2485201" "2754974" "2842264" "2919881" "3285426" "3289994" "3343684" "3612426" "4308961" "4609233" "4658967" "4750698" "4773172" "4775127" "4882868" "4905846" "4936469" "5060897" "5080238" "5104083" "5154304" "5312081" "5348167" "5398820" "5433413" "5441161" "5480206" "5584462" "5584521" "5727698" "5853092" "5897002" "5906403" "6257409" "6283311" "6289618" "6299000" "6349909" "6427500" "6557807" "6604637" "6607234" "6637707" "6789771" "6886791" "6932223" "6935518" "7040125" "7228977" "7427053" "7658265" "7694933" "7802680" "8550265" "9339130" "D043289" "D175455" "D855408").PN. OR ("10729244").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:46
S83	20	("0488851" "1045932" "20020070136" "20020104709" "20050258002" "5370263"	US-PGPUB;	OR	OFF	2020/11/24 22:48

		"5433413" "5673885" "5782314" "5873433" "5950972" "7032711" "7063187").PN. OR ("7658265").URPN.	USPAT; USOCR			
S84	8	("20070284191" "20090127146" "4653713" "6138963" "6401862" "6997282" "7540560" "7658265").PN. OR ("10184292").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:49
S85	76	("1858656" "2308180" "2444096" "2798652" "3495683" "3631572" "3915189" "4261435" "4300740" "4428458" "4480810").PN. OR ("4653713").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:50
S86	51	("1794700" "20020017430" "20050258002" "20070181367" "20090078504" "20090179125" "3477679" "3915189" "4176580" "4653713" "4858869" "5035389" "5240214" "5259480" "5358070" "5370263" "5433416" "5503245" "5547080" "5573081" "5584357" "5622278" "5740883" "5782314" "5899420" "5924615" "6401862" "6412601" "6443260" "6467577" "6827215" "6837383" "7032711" "7270307").PN. OR ("8453796").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:53
S87	42	("4211455" "4303158" "4437568" "4703850" "4911296" "4928823" "5370263" "5547080" "5725096" "5727649" "5749437" "5901998" "5913380" "5924615" "5951129" "5971101" "6095156").PN. OR ("6837383").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:55
S88	19	("2835503" "3084463" "4828120" "6189248" "6220461" "6264220" "6367752" "6698701" "6712324" "6837383" "7798336").PN. OR ("8517320").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:56
S89	147	("1855314" "1869901" "1879332" "1900868" "20030106498" "20030192480" "20040112258" "20050072894" "20050115508" "20050246989" "20050279898" "20060011142" "20060042549" "20060196436" "20070028854" "20080023479" "20080179265" "20080190372" "20080237434" "20090001231" "20100107984" "20100162961" "20110049065" "20110114025" "20120325158" "20130334377" "20140346293" "20150122185"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 22:57

		"20190053623" "2555396" "2845896" "3099355" "3260559" "3630385" "3669035" "3698594" "3776193" "4044723" "4065195" "4205629" "4261294" "4329003" "4498654" "4532891" "4587930" "4699089" "4798170" "4843977" "4919498" "4976223" "4986332" "5000124" "5054431" "5144912" "5152247" "5226625" "5435266" "5501176" "5718493" "5730081" "5802647" "5855184" "5870969" "6098941" "6131521" "6161486" "6189489" "6199510" "6209487" "6308641" "6382578" "6394001" "6409137" "6427626" "6516948" "6526911" "6705249" "6729685" "6901880" "6945194" "7077372" "7124709" "7261264" "7284500" "7314023" "7341019" "7395765" "7513219" "7530329" "7614363" "7665417" "7748538" "7802327" "7837165" "7938083" "7963231" "8146534" "8148651" "8245992" "8308115" "8342129" "8381661" "8443736" "8517320" "8671598" "8672172" "8684195" "8776725" "8807082" "8833305" "8893657" "9284776" "D209754" "D209755" "D213377" "D213378").PN. OR ("D216989" "D229073" "D357557" "D358233" "D375818" "D421160" "D424758" "D424759" "D491697" "D506295" "D622013" "D657920" "D662265" "D676612" "D695974").PN. OR ("10412929").URPN.				
S90	26	("1900868" "20030116094" "20040144330" "20090015121" "20130145990" "2555396" "2659345" "2800380" "2997022" "3606506" "3743372" "4231626" "4634193" "5144912" "5152247" "5222990" "5435266" "7458338" "8342129").PN. OR ("8893657").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:00
S91	83	("2842420" "2998128" "3032381" "3294463" "3501044" "3552817").PN. OR ("3743372").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:03
S92	34	("3514170" "3552817" "3743372" "3999818" "5046789" "5454634" "5704699" "5775046" "6003924"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:06

		"6015050" "6027188" "6050657" "6488346").PN. OR ("7100999").URPN.				
S93	102	("3468081" "3668832" "3836217" "4003172" "4095769" "4243279" "4413867" "4423913" "4577914" "4768298" "4867513" "5046789" "5267863" "D334704" "D337653").PN. OR ("5775046").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:09
S94	42	("1520518" "1870978" "20040198141" "3241885" "3415007" "3669033" "3966337" "4039133" "4163537" "4212130" "4216729" "4223945" "4270302" "4915034" "5226864" "5715760" "5775046" "5813737" "5899423" "5988077" "6220180" "6283042" "6341566" "6382109" "8191488" "D370045").PN. OR ("8316781").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:14
S95	41	("20040226901" "20070023464" "2100421" "2996192" "3172540" "3452959" "3497079" "3799357" "4480755" "4509648" "4516681" "4932538" "5083668" "5775046" "5927517" "5944203" "6015124" "6062399" "6481584" "6491172" "6929131" "6945414").PN. OR ("7798338").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:17
S96	159	("20010047971" "20030189019" "2029089" "3192667" "3204776" "3310271" "3469710" "3698565" "3733756" "4223488" "4229913" "4323163" "4420087" "4438604" "4450970" "4572381" "4579308" "4589557" "4591058" "4593824" "4598504" "4602756" "4607753" "4615448" "4629076" "4638618" "4674240" "4677794" "4805783" "4805784" "4809479" "4811475" "4825601" "4826022" "4891897" "4932538" "4944416" "4961295" "5138803" "5142832" "5185971" "5228579" "5241796" "5337525" "5360121" "5375802" "5412912" "5429252" "5477969" "5484067" "5547156" "5582376" "5655674" "5671852" "5697507" "5740927" "5791093" "5819490" "5857577" "5899344" "5941026" "5944203" "6050426" "6068135" "6116435" "6119784" "6119878" "6123154" "6134846" "6164467" "6199705"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:18

		"6209730" "6276034" "6299001" "6311854" "6325223" "6349507" "6363645" "6591996").PN. OR ("6945414").URPN.				
S97	20	("20060243766" "20070094955" "20100307649" "20130081233" "20130193179" "20140374564" "2920767" "3605637" "4256424" "4687094" "4708311" "5083668" "5674033" "6824028" "6945414" "7261264" "7392912" "8613564").PN. OR ("10683963").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:20
S98	39	("20050072746" "3200960" "4094415" "4509648" "4826022" "5109993" "5154304" "5316252" "5484067" "5595309" "5927517" "6068135" "6070747" "6481584" "6491172" "6536613" "6561474" "6575314" "6644483" "6675978").PN. OR ("7392912").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:23
S99	54	("1787734" "2997270" "3229944" "3278146" "4204602" "4909464" "5056668" "5069416" "Re33596").PN. OR ("5316252").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/24 23:25
S100	9	("2997270").URPN.	USPAT	OR	OFF	2020/11/24 23:27
S101	61	("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	2020/11/25 00:00
S102	14	("3899229" "4054344" "4087145" "4216857" "4243279" "D238401" "D247794").PN. OR ("D285986").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 00:01
S103	58	("3552817").URPN.	USPAT	OR	OFF	2020/11/25 11:50
S104	83	("2842420" "2998128" "3032381" "3294463" "3501044" "3552817").PN. OR ("3743372").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 18:49
S105	66	("2128854" "3743372").PN. OR ("4863222").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 18:50
S106	6	((("0460177") or ("1294446") or ("2568147")).PN.	US- PGPUB;	OR	OFF	2020/11/25 19:00

			USPAT; USOCR			
S107	9	("1294446").URPN.	USPAT	OR	OFF	2020/11/25 19:01
S108	61	("0722828" "2473951" "2584050" "4059248" "4141524" "4432525" "4653713" "4805859" "4819922" "4874147" "4967929" "4986505" "5007612" "5009380").PN. OR ("5240214").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 19:27
S109	52	("2476134" "2512934" "4095364" "4382733" "4700923").PN. OR ("4805859").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 19:29
S110	60	("4132380" "4307864" "4524938" "4974798").PN. OR ("5035389").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 19:31
S111	19	("2696962" "4929973" "5035389" "5040712" "5129613" "5282554" "5332183" "5356105" "5653366" "5730348" "5730406" "6036071" "6315182" "7225958" "8020821").PN. OR ("8448829").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 19:34
S112	26	("3334953" "4249684" "4938398" "4993771" "5255832" "5395019").PN. OR ("5653366").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 19:35
S113	42	("0613226" "0637733" "0767823" "3613970" "3955729" "4056219" "4260086" "4315583" "4366922" "4415105" "4440332" "4542839" "4638933" "4730758" "4981243" "5024359" "5105958").PN. OR ("5282554").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 19:37
S114	56	("4088848" "4419794" "5026016" "5035389" "5054170" "5375749" "5428866" "5567038" "5593121" "5604958" "5622296" "5729869").PN. OR ("5957421").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 19:40
S115	8	("2017/0138382").URPN.	USPAT	OR	OFF	2020/11/25 19:53
S116	84	("2461526" "3078484" "3114486" "3233803" "3749294" "3902640" "3915189" "4082208" "4287997" "4307826" "4366922" "4424841" "4491258" "4545414" "4673070" "4790432" "4813542" "4884731"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 19:58

		"5131576" "5184763" "5321904" "5419473").PN. OR ("5628443").URPN.				
S117	67	("3194426" "3642337" "4192562" "4893719" "5263576" "5299688" "5310071").PN. OR ("5890613").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 20:23
S118	609	224/583,645,629,665.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 20:24
S119	301	150/113.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 20:24
S120	552	190/110.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 20:24
S121	14	("2009/0145866").URPN.	USPAT	OR	OFF	2020/11/25 22:27
S122	12	("20110139777" "5301829" "5427265" "8602217").PN. OR ("9701443").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 22:30
S123	17	("4181349" "4188058" "4911493" "5131709" "5137322" "5154478" "5421634" "5722711" "D271009").PN. OR ("6017075").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:10
S124	430	(US-20200299027-\$ or US-20200243925-\$ or US-20180186513-\$ or US-20180099405-\$ or US-20160221177-\$ or US-20150034515-\$ or US-20120292213-\$ or US-20030094393-\$ or US-20020125072-\$ or US-20170318927-\$ or US-20170266804-\$ or US-20170257958-\$ or US-20170239808-\$ or US-20170217464-\$ or US-20170174392-\$ or US-20170166352-\$ or US-20170165828-\$ or US-20170138382-\$ or US-20170121056-\$ or US-20160168880-\$ or US-20160144500-\$ or US-20160130034-\$ or US-20160023349-\$ or US-20150376917-\$ or US-20150274362-\$ or US-20140166516-\$).did. or (US-20140161518-\$ or US-20140076759-\$ or US-20130223971-\$ or US-20130154218-\$ or US-20130127129-\$ or US-20130121783-\$ or US-20130068903-\$ or US-20130031732-\$ or US-20130031731-\$ or US-20130024468-\$ or US-20120326406-\$ or US-20120207571-\$ or US-20120180250-\$ or US-20120160886-\$ or US-20110220531-\$ or US-	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:22

	20110181008-\$ or US-20110155613-\$ or US-20110139665-\$ or US-20110073516-\$ or US-20100219193-\$ or US-20100147642-\$ or US-20100139566-\$ or US-20100052276-\$ or US-20090236482-\$ or US-20090178946-\$ or US-20090145913-\$ or US-20090145866-\$).did. or (US-20090145790-\$ or US-20090071990-\$ or US-20090026901-\$ or US-20080308369-\$ or US-20080277221-\$ or US-20080271280-\$ or US-20080169739-\$ or US-20080134607-\$ or US-20080121547-\$ or US-20080115312-\$ or US-20080104921-\$ or US-20070194543-\$ or US-20070145700-\$ or US-20070090616-\$ or US-20070068757-\$ or US-20060254946-\$ or US-20060186624-\$ or US-20060119060-\$ or US-20060038367-\$ or US-20060027475-\$ or US-20060006770-\$ or US-20050139745-\$ or US-20050104308-\$ or US-20050062244-\$ or US-20040206656-\$ or US-20040195793-\$ or US-20040103494-\$).did. or (US-20030205877-\$ or US-20030184034-\$ or US-20030146589-\$ or US-20030115715-\$ or US-20020171228-\$ or US-20020000440-\$ or US-20200165036-\$ or US-20200147781-\$ or US-20200055534-\$ or US-20190225371-\$ or US-20190106244-\$ or US-20190039781-\$ or US-20190031222-\$ or US-20190002004-\$ or US-20180290288-\$ or US-20180220758-\$ or US-20180161975-\$ or US-20180153312-\$ or US-20180044059-\$ or US-20170349013-\$).did. or (US-D895375-\$ or US-D892565-\$ or US-D891875-\$ or US-D891195-\$ or US-D891193-\$ or US-D888503-\$ or US-D888422-\$ or US-D887788-\$ or US-D883752-\$ or US-D880951-\$ or US-D880252-\$ or US-10583962-\$ or US-D873085-\$ or US-D857387-\$ or US-D845081-\$ or US-D845080-\$ or US-D839681-\$ or US-D836995-\$ or US-D831352-\$ or US-10106180-\$ or US-D806483-\$ or US-D803631-\$ or US-9725209-\$ or US-D784089-\$ or US-D777426-\$ or US-9506489-\$).did. or (US-D753396-\$ or US-D738105-\$ or US-D649350-\$ or US-D536580-\$ or US-D527225-\$ or US-6305498-\$ or US-D420860-\$ or US-D415393-\$ or US-D361511-\$ or US-D352208-\$ or US-D340167-\$ or US-D326815-\$ or US-D325324-\$ or US-5098235-\$ or US-D319016-\$ or US-4971201-\$ or US-D232798-\$ or US-3225865-\$ or US-0299027-\$ or US-0292213-\$ or US-0243925-\$ or US-0221177-\$ or US-0186513-\$ or US-0125072-\$ or US-0099405-\$ or US-0094393-\$ or US-0034515-\$).did. or (US-10434638-\$ or US-2970358-\$ or US-				
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	2430200-\$ or US-2042387-\$ or US-0376917-\$ or US-0349013-\$ or US-0326406-\$ or US- 0320243-\$ or US-0318927-\$ or US-0308369-\$ or US-0290288-\$ or US-0277221-\$ or US- 0274362-\$ or US-0271616-\$ or US-0271280-\$ or US-0266804-\$ or US-0257958-\$ or US- 0254946-\$ or US-0239808-\$ or US-0236482-\$ or US-0225371-\$ or US-0223971-\$ or US- 0220758-\$ or US-0220531-\$ or US-0219193-\$ or US-0217464-\$ or US-0207571-\$).did. or (US-0206656-\$ or US-0205877-\$ or US- 0195793-\$ or US-0194543-\$ or US-0186624-\$ or US-0184034-\$ or US-0181008-\$ or US- 0180250-\$ or US-0178946-\$ or US-0174392-\$ or US-0171228-\$ or US-0169739-\$ or US- 0168880-\$ or US-0166516-\$ or US-0166352-\$ or US-0165828-\$ or US-0165036-\$ or US- 0161975-\$ or US-0161518-\$ or US-0160886-\$ or US-0155613-\$ or US-0154218-\$ or US- 0153312-\$ or US-0147781-\$ or US-0147642-\$ or US-0146589-\$ or US-0145913-\$).did. or (US-0145866-\$ or US-0145790-\$ or US- 0145700-\$ or US-0144500-\$ or US-0139745-\$ or US-0139665-\$ or US-0139566-\$ or US- 0138382-\$ or US-0134607-\$ or US-0130034-\$ or US-0127129-\$ or US-0121783-\$ or US- 0121547-\$ or US-0121056-\$ or US-0119060-\$ or US-0115715-\$ or US-0115312-\$ or US- 0106244-\$ or US-0104921-\$ or US-0104308-\$ or US-0103494-\$ or US-0090616-\$ or US- 0076759-\$ or US-0073516-\$ or US-0071990-\$ or US-0068903-\$ or US-0068757-\$).did. or (US-0062244-\$ or US-0055534-\$ or US- 0052276-\$ or US-0044059-\$ or US-0039781-\$ or US-0038367-\$ or US-0031732-\$ or US- 0031731-\$ or US-0031222-\$ or US-0027475-\$ or US-0026901-\$ or US-0024468-\$ or US- 0023349-\$ or US-0006770-\$ or US-0002004-\$ or US-0000440-\$ or US-D871013-\$ or US- D815831-\$ or US-D814187-\$ or US-9872562-\$ or US-9750543-\$ or US-9701443-\$ or US- 9643629-\$ or US-9616562-\$ or US-9566990-\$ or US-9511491-\$ or US-9132543-\$).did. or (US-8985922-\$ or US-8979100-\$ or US- 8875888-\$ or US-8813960-\$ or US-8714355-\$ or US-8689396-\$ or US-D701696-\$ or US- 8677661-\$ or US-8567796-\$ or US-8505729-\$ or US-8459495-\$ or US-8454033-\$ or US- D661858-\$ or US-8191910-\$ or US-8177463-\$ or US-8132819-\$ or US-8028845-\$ or US- 7841144-\$ or US-7780026-\$ or US-7779764-\$ or US-7658887-\$ or US-7503569-\$ or US- 7367571-\$ or US-7263742-\$ or US-7212840-\$			
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	or US-7147243-\$ or US-7066475-\$).did. or (US-7044484-\$ or US-6983946-\$ or US-6948691-\$ or US-6945546-\$ or US-6641013-\$ or US-6637707-\$ or US-6619772-\$ or US-6601930-\$ or US-6547347-\$ or US-6431580-\$ or US-6371320-\$ or US-6367631-\$ or US-6347847-\$ or US-6176559-\$ or US-6109627-\$ or US-6085925-\$ or US-6050660-\$ or US-5988473-\$ or US-5951037-\$ or US-5797617-\$ or US-5628443-\$ or US-5608603-\$ or US-5595228-\$ or US-5538213-\$ or US-5429260-\$ or US-5301829-\$ or US-5240264-\$).did. or (US-5105947-\$ or US-5035445-\$ or US-4168076-\$ or US-3974898-\$ or US-3506321-\$ or US-3117692-\$).did. or (US-D232798-\$ or US-3225865-\$ or US-0299027-\$ or US-0292213-\$ or US-0243925-\$ or US-0221177-\$ or US-0186513-\$ or US-0125072-\$ or US-0099405-\$ or US-0094393-\$ or US-0034515-\$ or US-2970358-\$ or US-2430200-\$ or US-2042387-\$ or US-0376917-\$ or US-0349013-\$ or US-0326406-\$ or US-0320243-\$ or US-0318927-\$ or US-0308369-\$ or US-0290288-\$ or US-0277221-\$ or US-0274362-\$ or US-0271616-\$ or US-0271280-\$ or US-0266804-\$).did. or (US-0257958-\$ or US-0254946-\$ or US-0239808-\$ or US-0236482-\$ or US-0225371-\$ or US-0223971-\$ or US-0220758-\$ or US-0220531-\$ or US-0219193-\$ or US-0217464-\$ or US-0207571-\$ or US-0206656-\$ or US-0205877-\$ or US-0195793-\$ or US-0194543-\$ or US-0186624-\$ or US-0184034-\$ or US-0181008-\$ or US-0180250-\$ or US-0178946-\$ or US-0174392-\$ or US-0171228-\$ or US-0169739-\$ or US-0168880-\$ or US-0166516-\$ or US-0166352-\$ or US-0165828-\$).did. or (US-0165036-\$ or US-0161975-\$ or US-0161518-\$ or US-0160886-\$ or US-0155613-\$ or US-0154218-\$ or US-0153312-\$ or US-0147781-\$ or US-0147642-\$ or US-0146589-\$ or US-0145913-\$ or US-0145866-\$ or US-0145790-\$ or US-0145700-\$ or US-0144500-\$ or US-0139745-\$ or US-0139665-\$ or US-0139566-\$ or US-0138382-\$ or US-0134607-\$ or US-0130034-\$ or US-0127129-\$ or US-0121783-\$ or US-0121547-\$ or US-0121056-\$ or US-0119060-\$ or US-0115715-\$).did. or (US-0115312-\$ or US-0106244-\$ or US-0104921-\$ or US-0104308-\$ or US-0103494-\$ or US-0090616-\$ or US-0076759-\$ or US-0073516-\$ or US-0071990-\$ or US-0068903-\$ or US-0068757-\$ or US-0062244-\$ or US-0055534-\$ or US-0052276-\$ or US-				
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		0044059-\$ or US-0039781-\$ or US-0038367-\$ or US-0031732-\$ or US-0031731-\$ or US-0031222-\$ or US-0027475-\$ or US-0026901-\$ or US-0024468-\$ or US-0023349-\$ or US-0006770-\$ or US-0002004-\$ or US-0000440-\$).did. or (US-3506321-\$ or US-3117692-\$).did.				
S125	1,179	B25H3/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:23
S126	570	220/4.27.ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:23
S127	1,079	B65D21/0223,0209,0228.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:23
S128	2,226	A45C5/14.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:23
S129	91	A45C7/005.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:23
S130	3,366	A45C13/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:23
S131	431	A45F3/10.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:24
S132	935	B25H1/04.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:24
S133	199	B25H3/021.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:24
S134	1,147	B62B1/14.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:24

S135	377	A45C7/0045.cpc.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:24
S136	473	B25H3/023.cpc.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:24
S137	959	B62B5/067.cpc.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:24
S138	42	B65D2255/00.cpc.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:24
S139	206	B65H2701/533.cpc.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/25 23:24
S140	16	("3187924" "5743416" "D582190" "4848574" "3563394" "4126366" "6206189" "6786341" "20050189308" "5497877" "4993583" "3252614" "3347394").PN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/26 00:46
S141	40	("3000684" "3002630" "3542446" "3734526" "4222544" "4240684" "4429850" "4457527" "4458963" "4509648" "4653638" "4681233" "4706918" "4744613" "4880192" "5188242" "5246286" "5360121" "5370263" "7209098" "D303306").PN. OR ("5437502").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/26 00:54
S142	26	("3182856").URPN.	USPAT	OR	OFF	2020/11/26 19:24
S143	317	(US-20190225371-\$ or US-20180161975-\$ or US-20190039781-\$ or US-20190031222-\$ or US-20190002004-\$ or US-20180290288-\$ or US-20180220758-\$ or US-20190315515-\$ or US-20190291922-\$ or US-20170318927-\$ or US-20160144500-\$ or US-20160008972-\$ or US-20140062281-\$ or US-20180044059-\$ or US-20150376917-\$ or US-20120152944-\$ or US-20110181008-\$ or US-20110049824-\$ or US-20090236255-\$ or US-20040134818-\$ or US-20060027475-\$ or US-20060012139-\$ or US-20120326406-\$ or US-20160023349-\$ or US-20150241107-\$ or US-20140014669-\$).did. or (US-20040195793-\$ or US-	US- PGPUB; USPAT; USOCR	OR	OFF	2020/11/26 21:57

	20100219193-\$ or US-20040134390-\$ or US-20200353612-\$ or US-20200238920-\$ or US-20200223349-\$ or US-20200165036-\$ or US-20190381959-\$ or US-20160059906-\$ or US-20180326572-\$ or US-20180312115-\$ or US-20030230909-\$ or US-20170320209-\$ or US-20160256995-\$ or US-20160176003-\$ or US-20190168376-\$ or US-20160194115-\$ or US-20160130034-\$ or US-20150021322-\$ or US-20030094392-\$ or US-20110247910-\$ or US-20100147642-\$ or US-20150274362-\$ or US-20150069962-\$ or US-20170266804-\$ or US-20090145866-\$ or US-20050247653-\$).did. or (US-20070170129-\$ or US-20140259566-\$ or US-20080296443-\$ or US-20170127867-\$ or US-20120111814-\$ or US-20080169395-\$ or US-20080053931-\$ or US-20060022105-\$ or US-20040020880-\$ or US-20090179125-\$ or US-20020017430-\$ or US-20190053623-\$ or US-20080237434-\$ or US-20050279898-\$ or US-20050072894-\$ or US-20130145990-\$ or US-20130193179-\$ or US-20100307649-\$ or US-20170138382-\$ or US-20170121056-\$ or US-20140161518-\$ or US-20110139665-\$ or US-20080104921-\$ or US-20050139745-\$ or US-20030205877-\$ or US-20030184034-\$ or US-20050242144-\$).did. or (US-20020020729-\$ or US-20200243925-\$ or US-20170166352-\$ or US-20090127146-\$ or US-20180127007-\$ or US-20180111635-\$ or US-20130269844-\$ or US-20190000199-\$ or US-20120152800-\$ or US-20120074158-\$ or US-20110073516-\$ or US-20180229889-\$ or US-20170320621-\$ or US-20100052276-\$).did. or (US-10829269-\$ or US-D898320-\$ or US-D895966-\$ or US-10583962-\$ or US-D803560-\$ or US-10703534-\$ or US-D876833-\$ or US-9393684-\$ or US-8851282-\$ or US-8789699-\$ or US-7503569-\$ or US-10793172-\$ or US-RE47022-\$ or US-9050992-\$ or US-7367571-\$ or US-6170839-\$ or US-3711110-\$ or US-10071303-\$ or US-10843863-\$ or US-9500400-\$ or US-9522763-\$ or US-10093335-\$ or US-9409585-\$ or US-6095533-\$ or US-5599031-\$ or US-3376046-\$).did. or (US-10044203-\$ or US-6193247-\$ or US-D349994-\$ or US-D333094-\$ or US-9802741-\$ or US-7537119-\$ or US-8851287-\$ or US-9994375-\$ or US-5100076-\$ or US-1498377-\$ or US-3557990-\$ or US-D374654-\$ or US-D882952-\$ or US-D880859-\$ or US-10603783-\$ or US-5609282-\$ or US-5423445-\$ or US-9725209-\$ or US-9469024-\$ or US-				
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	8979100-\$ or US-8590704-\$ or US-7690856-\$ or US-10829268-\$ or US-D873017-\$ or US-8540326-\$ or US-8322354-\$ or US-8262993-\$).did. or (US-3201035-\$ or US-8490810-\$ or US-8342329-\$ or US-3081023-\$ or US-3030163-\$ or US-7322470-\$ or US-6082539-\$ or US-5934466-\$ or US-9132543-\$ or US-8590726-\$ or US-8210387-\$ or US-5375709-\$ or US-10723502-\$ or US-7350648-\$ or US-10219400-\$ or US-9888752-\$ or US-D897103-\$ or US-4643494-\$ or US-5740927-\$ or US-9975237-\$ or US-8939335-\$ or US-10137839-\$ or US-5078279-\$ or US-10709238-\$ or US-8678206-\$ or US-D817026-\$ or US-5524772-\$).did. or (US-5222701-\$ or US-4391376-\$ or US-10758065-\$ or US-9303792-\$ or US-9127807-\$ or US-5906302-\$ or US-5487518-\$ or US-10206502-\$ or US-9828073-\$ or US-5996949-\$ or US-D343975-\$ or US-5586739-\$ or US-8500078-\$ or US-9267624-\$ or US-8342474-\$ or US-8074945-\$ or US-7802680-\$ or US-10729244-\$ or US-7658265-\$ or US-10450799-\$ or US-10184292-\$ or US-7540560-\$ or US-6401862-\$ or US-4653713-\$ or US-10500714-\$ or US-10365032-\$ or US-8453796-\$).did. or (US-9850706-\$ or US-9714542-\$ or US-7270307-\$ or US-6837383-\$ or US-9596930-\$ or US-8517320-\$ or US-10412929-\$ or US-8893657-\$ or US-4634193-\$ or US-4231626-\$ or US-3743372-\$ or US-D714554-\$ or US-7866769-\$ or US-7100999-\$ or US-10286542-\$ or US-9526333-\$ or US-9510678-\$ or US-9185975-\$ or US-6050657-\$ or US-6027188-\$ or US-5775046-\$ or US-10842264-\$ or US-10676874-\$ or US-10555605-\$ or US-10501929-\$ or US-9661944-\$ or US-9108764-\$).did. or (US-8662120-\$ or US-8316781-\$ or US-9615671-\$ or US-7798338-\$ or US-6945414-\$ or US-10683963-\$ or US-7392912-\$ or US-10285515-\$ or US-5316252-\$ or US-10029275-\$ or US-3278146-\$ or US-1787734-\$ or US-7261264-\$ or US-6824028-\$ or US-4932538-\$ or US-4480755-\$ or US-7565746-\$ or US-7410289-\$ or US-6558222-\$ or US-6357194-\$ or US-6241248-\$ or US-6059631-\$ or US-5993283-\$ or US-4243279-\$ or US-D285986-\$ or US-3999818-\$ or US-3758181-\$).did. or (US-3514170-\$ or US-3203744-\$ or US-4003172-\$ or US-5454634-\$ or US-5046789-\$ or US-8894160-\$ or US-4863222-\$ or US-3851936-\$ or US-3552817-\$ or US-3606506-\$ or US-2800380-\$ or US-1294446-\$				
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		or US-5240214-\$ or US-8991639-\$ or US-4805859-\$ or US-5035389-\$ or US-10017134-\$ or US-8448829-\$ or US-6036071-\$ or US-5653366-\$ or US-5332183-\$ or US-5282554-\$ or US-5105958-\$ or US-4929973-\$ or US-5957421-\$ or US-7699197-\$ or US-1794700-\$).did. or (US-6637707-\$ or US-4856658-\$ or US-6698632-\$ or US-5881891-\$ or US-5628443-\$ or US-10230077-\$ or US-8967379-\$ or US-7900757-\$ or US-6726075-\$ or US-4673070-\$ or US-3974898-\$ or US-5890613-\$ or US-6899346-\$ or US-9701443-\$ or US-1531542-\$ or US-6017075-\$ or US-5899544-\$ or US-5183307-\$ or US-4752095-\$ or US-5271515-\$ or US-4782619-\$ or US-9551367-\$ or US-9375835-\$ or US-5437502-\$ or US-6253948-\$ or US-8813960-\$).did. or (US-2830699-\$ or US-2563094-\$ or US-3278146-\$ or US-2997270-\$ or US-D238401-\$ or US-3514170-\$ or US-3552817-\$ or US-1294446-\$ or US-3182856-\$).did.				
S144	3	((("5628443") or ("3743372") or ("4805859"))).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/26 21:57
S145	39	(US-20200243925-\$ or US-20200165036-\$ or US-20190225371-\$ or US-20190168376-\$ or US-20180161975-\$ or US-20170266804-\$ or US-20170166352-\$ or US-20170138382-\$ or US-20170121056-\$ or US-20160194115-\$ or US-20160144500-\$ or US-20160130034-\$ or US-20140161518-\$ or US-20130269844-\$ or US-20130193179-\$ or US-20120152800-\$ or US-20120074158-\$ or US-20110139665-\$ or US-20090127146-\$ or US-20080296443-\$ or US-20050242144-\$ or US-20050139745-\$).did. or (US-5628443-\$ or US-4805859-\$ or US-3743372-\$ or US-10758065-\$ or US-10017134-\$ or US-9132543-\$ or US-8448829-\$ or US-8316781-\$ or US-6726075-\$ or US-6698632-\$ or US-5957421-\$ or US-5890613-\$ or US-5775046-\$ or US-5653366-\$ or US-D343975-\$ or US-5282554-\$ or US-3514170-\$).did.	US-PGPUB; USPAT	OR	OFF	2020/11/26 22:05
S146	430	(US-20200299027-\$ or US-20200243925-\$ or US-20180186513-\$ or US-20180099405-\$ or US-20160221177-\$ or US-20150034515-\$ or US-20120292213-\$ or US-20030094393-\$ or US-20020125072-\$ or US-20170318927-\$ or US-20170266804-\$ or US-20170257958-\$ or US-20170239808-\$ or US-20170217464-\$ or	US-PGPUB; USPAT; USOCR	OR	OFF	2020/11/26 22:05

	US-20170174392-\$ or US-20170166352-\$ or US-20170165828-\$ or US-20170138382-\$ or US-20170121056-\$ or US-20160168880-\$ or US-20160144500-\$ or US-20160130034-\$ or US-20160023349-\$ or US-20150376917-\$ or US-20150274362-\$ or US-20140166516- \$).did. or (US-20140161518-\$ or US- 20140076759-\$ or US-20130223971-\$ or US- 20130154218-\$ or US-20130127129-\$ or US- 20130121783-\$ or US-20130068903-\$ or US- 20130031732-\$ or US-20130031731-\$ or US- 20130024468-\$ or US-20120326406-\$ or US- 20120207571-\$ or US-20120180250-\$ or US- 20120160886-\$ or US-20110220531-\$ or US- 20110181008-\$ or US-20110155613-\$ or US- 20110139665-\$ or US-20110073516-\$ or US- 20100219193-\$ or US-20100147642-\$ or US- 20100139566-\$ or US-20100052276-\$ or US- 20090236482-\$ or US-20090178946-\$ or US- 20090145913-\$ or US-20090145866-\$).did. or (US-20090145790-\$ or US-20090071990-\$ or US-20090026901-\$ or US-20080308369-\$ or US-20080277221-\$ or US-20080271280-\$ or US-20080169739-\$ or US-20080134607-\$ or US-20080121547-\$ or US-20080115312-\$ or US-20080104921-\$ or US-20070194543-\$ or US-20070145700-\$ or US-20070090616-\$ or US-20070068757-\$ or US-20060254946-\$ or US-20060186624-\$ or US-20060119060-\$ or US-20060038367-\$ or US-20060027475-\$ or US-20060006770-\$ or US-20050139745-\$ or US-20050104308-\$ or US-20050062244-\$ or US-20040206656-\$ or US-20040195793-\$ or US-20040103494-\$).did. or (US- 20030205877-\$ or US-20030184034-\$ or US- 20030146589-\$ or US-20030115715-\$ or US- 20020171228-\$ or US-20020000440-\$ or US- 20200165036-\$ or US-20200147781-\$ or US- 20200055534-\$ or US-20190225371-\$ or US- 20190106244-\$ or US-20190039781-\$ or US- 20190031222-\$ or US-20190002004-\$ or US- 20180290288-\$ or US-20180220758-\$ or US- 20180161975-\$ or US-20180153312-\$ or US- 20180044059-\$ or US-20170349013-\$).did. or (US-D895375-\$ or US-D892565-\$ or US- D891875-\$ or US-D891195-\$ or US-D891193- \$ or US-D888503-\$ or US-D888422-\$ or US- D887788-\$ or US-D883752-\$ or US-D880951- \$ or US-D880252-\$ or US-10583962-\$ or US- D873085-\$ or US-D857387-\$ or US-D845081- \$ or US-D845080-\$ or US-D839681-\$ or US- D836995-\$ or US-D831352-\$ or US- 10106180-\$ or US-D806483-\$ or US-				
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S149	7	("3334953").URPN.	USPAT	OR	ON	2021/03/04 18:30
S150	42	("0613226" "0637733" "0767823" "3613970" "3955729" "4056219" "4260086" "4315583" "4366922" "4415105" "4440332" "4542839" "4638933" "4730758" "4981243" "5024359" "5105958").PN. OR ("5282554").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2021/03/04 18:35
S151	19	("1446036" "3881677" "5035389" "5226625" "5282554" "5294012" "5356105" "6637707" "6824114").PN. OR ("7837165").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2021/03/04 18:36
S152	97	("2708088" "3878589" "3915189" "3931893" "4450989" "4461445" "4858869" "5026016" "5035389" "5078279" "5344032" "5356038" "5433416" "5435511" "5452874" "5765699" "5915572" "D329192" "D386298" "D386304").PN. OR ("6637707").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2021/03/04 18:38

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3/8/2021 11:32:13 PM

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875			Application or Docket Number 17/064,371		Filing Date 10/06/2020		☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO								
APPLICATION AS FILED - PART I								
		(Column 1)	(Column 2)					
FOR		NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A	N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 = *				x \$100 =		
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *				x \$480 =		
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))								
* If the difference in column 1 is less than zero, enter "0" in column 2.					TOTAL			
APPLICATION AS AMENDED - PART II								
		(Column 1)	(Column 2)		(Column 3)			
AMENDMENT	02/18/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	x \$100 =	0	
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0	x \$480 =	0	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
						TOTAL ADD'L FEE	0	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =		
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =		
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
						TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LIE		
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/ANGELONA D JONES/		
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".								
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.								

This collection of information is required by 37 CFR 1.16. 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 12 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, 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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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT Date Submitted: February 18, 2021 <i>(use as many sheets as necessary)</i>				Application Number	17/064,371
				Filing Date	October 6, 2020
				First Named Inventor	Yaron Brunner
				Art Unit	3736
				Examiner Name	WEINERTH, GIDEON R
Sheet	1	of	1	Attorney Docket Number	066749-2792

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A1	2012/0074022	03-29-2012	McTavish et al.	
	A2	9,850,029	12-26-2017	Brunner	

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Application Document	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Serial Number-Kind Code ² (if known)			

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ -Kind Code ⁵ (if known)				

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

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 2 hours 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, 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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Electronic Patent Application Fee Transmittal				
Application Number:		17064371		
Filing Date:		06-Oct-2020		
Title of Invention:		Utility Assembly and Coupling Mechanism		
First Named Inventor/Applicant Name:		Yaron Brunner		
Filer:		Derek Howard Campbell/Andrea Dietzel		
Attorney Docket Number:		066749-2792		
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:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	260	260
Total in USD (\$)				260

Electronic Acknowledgement Receipt	
EFS ID:	41955358
Application Number:	17064371
International Application Number:	
Confirmation Number:	4794
Title of Invention:	Utility Assembly and Coupling Mechanism
First Named Inventor/Applicant Name:	Yaron Brunner
Customer Number:	142078
Filer:	Derek Howard Campbell/Andrea Dietzel
Filer Authorized By:	Derek Howard Campbell
Attorney Docket Number:	066749-2792
Receipt Date:	18-FEB-2021
Filing Date:	06-OCT-2020
Time Stamp:	15:03:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 260
RAM confirmation Number	E20212HF04110444
Deposit Account	180882
Authorized User	Andrea Dietzel
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)					
37 CFR 1.20 (Post Issuance fees)					
37 CFR 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		066749-2792_Amendment.pdf	148192	yes	16
			a26e304ac269c14df6899767eb8c2d707e85c7a		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Applicant Arguments/Remarks Made in an Amendment		8	16	
	Claims		2	7	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
Warnings:					
Information:					
2	Transmittal Letter	066749-2792_IDS_Transmittal.pdf	81729	no	2
			b258c4cc9cf19411dc668975d5e29da93b44f1a3		
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	066749-2792_SB08.pdf	92575	no	1
			9170d0cec9c32958f06e902e323b7df8ba795bc5		
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
4	Fee Worksheet (SB06)	fee-info.pdf	30695	no	2
			05aa80e84a0d5b6b17ec0ddfd9d11e8f9e919e2df		
Warnings:					
Information:					
Total Files Size (in bytes):			353191		

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.

REMARKS

This reply is intended to be completely responsive to the Non-Final Office Action dated December 1, 2020.

Status

Claims 1-20 are pending in this application. Claims 9-14 were rejected, and claims 1-8 and 15-20 are withdrawn.

With this amendment, claims 9 and 13 are amended, claims 10-12 are cancelled, and new claims 21-23 are added.

Applicant believes that each of the rejections raised by the Examiner has been addressed and the application is in condition for allowance. Reconsideration and allowance of the application is respectfully requested.

Restriction Requirement

Applicant affirms the election of Examiner's Species b, claims 9-14, for prosecution in the present application. With this reply, non-elected claims 1-8 and 15-20 have been withdrawn without prejudice. Applicant reserves the right to pursue the subject matter of non-elected claims 1-8 and 15-20 via a divisional or other continuing application.

Drawing Objections

On pages 4-5 of the Office Action, the Examiner objected to the drawings for not showing every feature of the invention specified in the claims. Specifically, "the bolt eyes, or apertures recited in Claims 10 and 11 which secures the coupling platform **to the** stackable utility module must be shown or the feature(s) canceled from the claim(s)." Office Action, page 4 (emphasis in original).

Without conceding the propriety of this rejection, to expedite prosecution in this application claims 10 and 11 have been cancelled and claim 9 has been amended to recite “a plurality of mounting apertures.” This amendment to claim 9 is consistent with the Examiner’s suggestion to recite “mounting apertures.” Office Action, page 7. Support for this feature can be found at least at paragraphs 237-238 and FIG. 18A.

In regard the plurality of mounting apertures securing “the coupling platform to the stackable utility module,” which is recited in claim 9, Applicant respectfully submits that support for this feature can be found at least at paragraph 237, which recites in relevant part: “rigid coupling platform 300 ... [is] configured with bolt eyes 298 for securing to any desired surface.” Specification, paragraph 237 (emphasis added). Applicant respectfully submits that the rest of the specification and figures are filled with numerous examples of surfaces of stackable utility modules to which the coupling platform may be coupled. Therefore, Applicant submits that every feature recited in the claims is shown in the drawings.

Accordingly, Applicant respectfully requests withdrawal of the objection to the drawings.

Claim Rejections - 35 U.S.C. § 112

On pages 5-8 of the Office Action, the Examiner rejected claims 10 and 11 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

Without conceding the propriety of this rejection, to expedite prosecution in this application claims 10 and 11 have been cancelled and claim 9 has been amended to recite “a plurality of mounting apertures.” This amendment to claim 9 is consistent with the Examiner’s suggestion to recite “mounting apertures.” Support for this feature can be found at least at paragraphs 237-238 and FIG. 18A.

The Examiner also rejected claims 10 and 11 in view of the coupling platform being coupled “to the stackable utility modules.” Office Action, page 7. According to the Examiner,

the specification identifies the bolt eyes “being used to couple the platform to a truck bed or wall.” Office Action, page 8.

Applicant respectfully submits that support for the coupling platform being coupled “to the stackable utility modules” can be found at least at paragraph 237, which recites in relevant part: “rigid coupling platform 300 ... [is] configured with bolt eyes 298 for securing to any desired surface.” Specification, paragraph 237 (emphasis added). The examples of coupling the coupling platform to a truck bed or wall in paragraph 237 are exemplary surfaces, not a comprehensive list of the surfaces to which the platform can be coupled. Applicant respectfully submits that the rest of the specification and figures are filled with numerous examples of surfaces of stackable utility modules to which the coupling platform may be coupled.

Accordingly, Applicant respectfully submits that claim 9 satisfies the enablement requirement under 35 U.S.C. § 112(a). Further, the rejection of claims 10 and 11 is moot because claims 10 and 11 have been cancelled.

II. Rejection of claims 10 and 11 under 35 U.S.C. § 112, second paragraph, as being indefinite

On page 8 of the Office Action, the Examiner rejected claims 10 and 11 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter in regard to the phrases “bolt eye” (claim 10) and “plurality of apertures” (claim 11).

Without conceding the propriety of this rejection, to expedite prosecution in this application claims 10 and 11 have been cancelled and claim 9 has been amended to recite “a plurality of mounting apertures.” This amendment to claim 9 is consistent with the Examiner’s suggestion to recite “mounting apertures.” Support for this feature can be found at least at paragraphs 237-238 and FIG. 18A.

Accordingly, Applicant respectfully submits that claim 9 is sufficiently definite and satisfies the requirements of under 35 U.S.C. § 112(b). Further, the rejection of claims 10 and 11 is moot because claims 10 and 11 have been cancelled.

III. Rejection of claims 10 and 11 under 35 U.S.C. § 112, second paragraph, as being incomplete

On page 9 of the Office Action, the Examiner rejected claims 10 and 11 under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements in regard to the phrases “bolt eye” (claim 10) and “plurality of apertures” (claim 11).

Without conceding the propriety of this rejection, to expedite prosecution in this application claims 10 and 11 have been cancelled and claim 9 has been amended to recite “a plurality of mounting apertures.” This amendment to claim 9 is consistent with the Examiner’s suggestion to recite “mounting apertures.” Support for this feature can be found at least at paragraphs 237-238 and FIG. 18A.

The Examiner also rejected claims 10 and 11 in view of the coupling platform being coupled “to the stackable utility modules.” Office Action, page 9. As noted above, Applicant respectfully submits that support for this feature can be found at least at paragraph 237, which recites in relevant part: “rigid coupling platform 300 ... [is] configured with bolt eyes 298 for securing *to any desired surface*.” Specification, paragraph 237 (emphasis added). Applicant respectfully submits that the rest of the specification and figures are filled with numerous examples of surfaces of stackable utility modules to which the coupling platform may be coupled.

Accordingly, Applicant respectfully submits that claim 9 does not omit essential structural features and therefore satisfies the requirements of 35 U.S.C. § 112(b). Further, the rejection of claims 10 and 11 is moot because claims 10 and 11 have been cancelled.

Claim Rejections - 35 U.S.C. § 102(a)(1)

I. Rejection of claims 9, 12 and 13 under 35 U.S.C. § 102(a)(1) as being anticipated by Deutsch

On page 10 of the Office Action, the Examiner rejected claims 9, 12 and 13 under 35 U.S.C. § 102(a)(1) as being anticipated by Deutsch, U.S. Patent No. 5,628,443.

Claim 9 as amended recites “a plurality of mounting apertures configured to secure the coupling platform to the stackable utility module.” The Examiner agrees that Deutsch does *not* disclose apertures configured to secure the coupling platform to a stationary surface. Office Action, page 13.

Accordingly, Applicant respectfully asserts that independent claim 9, and dependent claim 13, which depends from claim 9, are not anticipated by Deutsch under 35 U.S.C. § 102(a)(1). The rejection of claim 12 is moot because claim 12 is cancelled.

To remedy the deficiencies of Deutsch, the Examiner cites to Hudson. Office Action, page 13. Applicant addresses the proposed modification of Deutsch according to Hudson below, in regard to the obviousness rejection of former claim 11.

II. Rejection of claims 9-11 under 35 U.S.C. § 102(a)(1) as being anticipated by Ruggerone

On pages 10-12 of the Office Action, the Examiner rejected claims 9-11 under 35 U.S.C. § 102(a)(1) as being anticipated by Ruggerone, U.S. Patent No. 3,743,372.

Claim 9 as amended recites “each of the female couplers further comprising a back wall that extends between the sidewalls, wherein a first rib of the pair of locking ribs extends from the back wall and a first sidewall of the two sidewalls, and a second rib of the pair of locking ribs extends from the back wall and a second sidewall of the two sidewalls.” This feature was previously recited in claim 12.

According to the MPEP, to anticipate a claim “The identical invention must be shown in as complete detail as is contained in the ... claim.” See MPEP § 2131 (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). Applicant submits that Ruggerone does not anticipate claim 9 as amended at least because Ruggerone does not disclose “a back wall that extends between the sidewalls,” which claim 9 as amended recites.

Accordingly, Applicant respectfully asserts that independent claim 9 as amended is not anticipated by Ruggerone under 35 U.S.C. § 102(a)(1). Further, the rejection of claims 10 and 11 is moot because claims 10 and 11 have been cancelled.

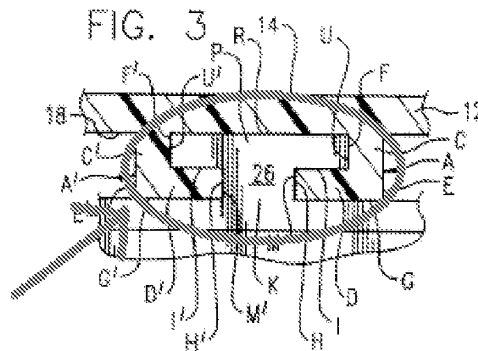
Claim Rejections - 35 U.S.C. § 103

On page 13 of the Office Action, the Examiner rejected claim 10 and 11 under 35 U.S.C. § 103 as being unpatentable over Deutsch and Hudson, U.S. Patent No. 4,805,859.

Claim 9 as amended recites “a plurality of mounting apertures configured to secure the coupling platform to the stackable utility module.” The Examiner agrees Deutsch fails to disclose apertures configured to secure the coupling platform to a stationary surface. Office Action, page 13.

To remedy the deficiencies of Deutsch, the Examiner cites to Hudson. Office Action, page 13. Applicant submits that Hudson teaches away from the modification proposed by the Examiner.

Hudson expressly teaches away from being combined with “T” channels because “T” channels “are susceptible ... to being damaged or bent so as to be unusable as an interlocking channel.” Hudson, col. 2, lines 30-34. As a reminder, Deutsch uses the “T” channels that Hudson expressly teaches against. FIG. 3 in Deutsch is copied and annotated below.



Deutsch, FIG. 3.

Thus, modifying Deutsch according to Hudson is improper at least because Hudson expressly teaches away from the modified product proposed by the Examiner. MPEP 2145(X)(D).

Accordingly, Applicant respectfully asserts that independent claim 9 is patentable over Deutsch and Hudson under 35 U.S.C. § 103. Further, Applicant submits that the cancellation of claims 10 and 11 has rendered the rejection of claims 10 and 11 moot.

Allowability of Claim 14

Applicant notes that claim 14 was not rejected. Accordingly, Applicant respectfully submits that claim 14 recites allowable subject matter.

New Claims

Applicant has added new dependent claims 21-23 to present claims of varying scope. No new matter has been added. Exemplary support for the new claim 21-23 may be found at FIG. 18A of the application as originally filed. New claims 21 and 23 depend from independent claim 9, and new claim 22 depends from dependent claim 14, which depends from independent claim 9. Applicant respectfully asserts that new claims 21-23 are patentable for at least the same reasons set forth above regarding independent claim 9.

Conclusion

Applicant believes that the present application is in condition for allowance. Favorable reconsideration of the application is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

It should be noted that, for the sake of clarity and simplicity, Applicant's remarks have focused on the rejections of the independent claims set forth in the Office Action with the understanding that the dependent claims are patentable for at least the same reasons as the independent claims. Further, in addressing the Examiner's rejections, Applicant's remarks have set forth only some of the available arguments for patentability of the rejected claims. Applicant expressly reserves the right to argue the patentability of all claims separately and to provide new, different, and/or additional arguments for patentability not set forth herein, including, but not limited to, the failure of cited references to disclose, teach, or suggest other elements of the claims, the lack of motivation to combine cited references, teachings away from the combination of cited references, the failure of references to qualify as prior art or improper combination of the cited references, in this or any future proceedings.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 18-0882. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 18-0882.

Respectfully submitted,

Date February 18, 2021

By /Derek H. Campbell/

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Facsimile: (414) 298-8097

Derek H. Campbell
Attorney for Applicant
Registration No. 70,608

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Withdrawn) A utility module assembly comprising:
a first utility module comprising:
a female coupler extending from a first face of the first utility module, the female coupler comprising two sidewalls, a back wall, and a first rib, the back wall extending between the two sidewalls, the first rib extending in a first direction above a surface of a depressed locking location; and
a second utility module comprising:
a male coupler extending from a second face of the second utility module, the male coupler comprising a tongue extending in a second direction opposite the first direction, the tongue of the second utility module is configured for arresting engagement between the first rib and the surface of the depressed locking location of the first utility module.
2. (Withdrawn) The utility module assembly of claim 1, wherein the female coupler and the male coupler engage when the first and second utility modules are slid along a sliding path defined by the first rib and the tongue.
3. (Withdrawn) The utility module assembly of claim 2, the female coupler comprising a second rib that extends above the depressed locking location.
4. (Withdrawn) The utility module assembly of claim 3, wherein the first rib and the second rib extend from a rear portion of the depressed locking location substantially parallel to the sliding path.

5. (Withdrawn) The utility module assembly of claim 4, wherein the first rib extends from the back wall and a first sidewall of the two sidewalls, and the second rib extends from the back wall and a second sidewall of the two sidewalls opposite the first sidewall.
6. (Withdrawn) The utility module assembly of claim 1,
the first utility module further comprising:
a second male coupler extending from a second face of the first utility module, the second male coupler including a tongue that is offset from the second face of the first utility module and extending in the second direction, the tongue of the first utility module configured to engage a rib of a third utility module, the first and third utility modules entering an engaged position by the third utility module sliding with respect to the first utility module.
7. (Withdrawn) The utility module assembly of claim 1, wherein the male coupler extends from a bottom face of the first utility module, and the female coupler extends from a top face of the second utility module.
8. (Withdrawn) The utility module assembly of claim 1, wherein the first face comprises a plurality of depressed locking locations, one of which the first rib extends above, and wherein the plurality of depressed locking locations of the first face comprise at least 50% of an area of the first face.

9. (Currently Amended) A coupling platform for a stackable utility module configured to engage male couplers on an adjacent utility module comprising:

one or more female couplers each comprising a pair of locking ribs, two sidewalls and a depressed locking location, the pair of locking ribs extending above a surface of the depressed locking location and substantially parallel to a sliding path, wherein the male couplers of the adjacent utility module are configured to be engaged between the pair of locking ribs and the surface of the depressed locking location of the one or more female couplers, wherein each of the female couplers further comprising a back wall that extends between the sidewalls, wherein a first rib of the pair of locking ribs extends from the back wall and from a first sidewall of the two sidewalls, and a second rib of the pair of locking ribs extends from the back wall and from a second sidewall of the two sidewalls; and

comprising a plurality of mounting apertures configured to secure the coupling platform to the stackable utility module.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Currently Amended) The coupling platform of claim 9 ~~claim 12~~, wherein the first rib extends a first distance from the first sidewall and the first rib extends a second distance from the back wall that is more than twice as far as the first distance.

14. (Original) The coupling platform of claim 9, further comprising a panel comprising a top face from which the one or more female couplers extend, wherein the depressed locking locations of the one or more female couplers comprise at least 50% of an area of the top face.

15. (Withdrawn) A platform for a stackable utility module configured to engage a female coupler on an adjacent utility module comprising:

a male coupler configured to arrestingly engage a space between a locking rib of the female coupler and a depressed surface of the female coupler, the male coupler comprising:

at least one locking tongue extending along a sliding path in a second direction opposite a first direction that the locking rib of the female coupler extends.

16. (Withdrawn) The platform of claim 15, the male coupler comprising:

a central body that extends downward from the platform;

wherein the at least one locking tongue comprises:

a first locking tongue offset from the platform that protrudes from the central body in a third direction; and

a second locking tongue offset from the platform that protrudes from the central body in a fourth direction opposite the third direction.

17. (Withdrawn) The platform of claim 16, wherein the first locking tongue extends from a front of the male coupler a first distance that is more than twice as far as the first locking tongue protrudes from the central body, and wherein the second locking tongue extends from the front of the male coupler a second distance that is more than twice as far as the second locking tongue protrudes from the central body.

18. (Withdrawn) A male coupler for a stackable utility module configured to engage a female coupler on an adjacent utility module comprising:

a protrusion configured with at least one locking tongue extending along a sliding path in a second direction opposite a first direction that a locking rib of the female coupler extends, the at least one locking tongue configured for arresting engagement between a locking rib of the female coupler and a depressed surface of the female coupler.

19. (Withdrawn) The male coupler of claim 18 further comprising a central body, wherein the at least one locking tongue comprises:

a first locking tongue that protrudes from the central body in a third direction; and

a second locking tongue that protrudes from the central body in a fourth direction opposite the third direction.

20. (Withdrawn) The male coupler of claim 19, wherein the first locking tongue extends from a front of the male coupler a first distance that is more than twice as far as the first locking tongue protrudes from the central body, and wherein the second locking tongue extends from the front of the male coupler a second distance that is more than twice as far as the second locking tongue protrudes from the central body.

21. (New) The coupling platform of claim 9, wherein the one or more female couplers are arranged along a plurality of rows and a plurality of columns perpendicular to the plurality of rows, each row comprises two or more female couplers and each column comprises two or more female couplers.

22. (New) The coupling platform of claim 14, the top face comprising an elevated surface that extends from each of the sidewalls, wherein the elevated surface is planar with an upper surface of each of the locking ribs.

23. (New) The coupling platform of claim 9, wherein for each locking rib, the upper surface of the locking rib is parallel to and faces away from the lower surface of the locking rib.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Milwaukee Electric Tool Corporation
Title: Utility Assembly and Coupling Mechanism
Appl. No.: 17/064,371
Filing Date: October 6, 2020
Examiner: WEINERTH, GIDEON R
Art Unit: 3736
Confirmation No: 4794

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND REPLY UNDER 37 C.F.R. § 1.111

This communication is responsive to the Non-Final Office Action dated December 1, 2020, concerning the above-referenced patent application.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks begin on page 8 of this document.

Please amend the application as follows:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Milwaukee Electric Tool Corporation
Title: Utility Assembly and Coupling Mechanism
Appl. No.: 17/064,371
Filing Date: October 6, 2020
Examiner: WEINERTH, GIDEON R
Art Unit: 3736
Confirmation Number: 4794

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §1.56

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Submitted herewith on Form PTO/SB/08 is a listing of the documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR § 1.56.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(c), before the mailing date of any of a final action under 37 CFR § 1.113, a notice of allowance under 37 CFR §1.311, or an action that otherwise closes prosecution in the application.

FEES

The IDS Fee of \$260.00 under 37 CFR 1.17(p) is being paid via Deposit Account No. 18-0882 via EFS-web.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 18-0882. If any extensions of time are needed for timely acceptance of papers submitted herewith, applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 18-0882.

Respectfully submitted,

Date February 18, 2021

By /Derek H. Campbell/

Reinhart Boerner Van Deuren s.c.
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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/064,371	10/06/2020	Yaron Brunner	066749-2792

CONFIRMATION NO. 4794

PUBLICATION NOTICE

142078

Reinhart (Milwaukee Tool)
ATTN: TRAVIS MCDONNELL, PARALEGAL
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202



Title:Utility Assembly and Coupling Mechanism

Publication No.US-2021-0016928-A1

Publication Date:01/21/2021

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publicly available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT Date Submitted: January 7, 2021 <i>(use as many sheets as necessary)</i>				Application Number	17/064,371
				Filing Date	October 6, 2020
				First Named Inventor	Yaron Brunner
				Art Unit	3736
				Examiner Name	WEINERTH, GIDEON R
Sheet	1	of	3	Attorney Docket Number	066749-2792

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

UNPUBLISHED U.S. PATENT APPLICATION DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Application Document Serial Number-Kind Code ² (if known)	Filing Date of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶

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	A1	Inter Partes Review No. 2021-00373, "Petition for Inter Partes Review of U.S. Pat. No. 10,583,962," filed January 5, 2021, 198 pages.	
	A2	Exhibit 1001 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 64 pages.	
	A3	Exhibit 1002 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 75 pages.	
	A4	Exhibit 1003 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 13 pages.	
	A5	Exhibit 1004 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 18 pages.	

Examiner Signature		Date Considered	
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				Filing Date	October 6, 2020
				First Named Inventor	Yaron Brunner
				Art Unit	3736
				Examiner Name	WEINERTH, GIDEON R
Sheet	2	of	3	Attorney Docket Number	066749-2792

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Examiner Initials*	Cite No. ¹	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶
	A6	Exhibit 1005 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 9 pages.	
	A7	Exhibit 1006 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 176 pages.	
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	A14	Exhibit 1013 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 168 pages.	
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	A17	Exhibit 1014 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, PART C pages 321-481 of 481 pages.	
	A18	Exhibit 1015 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 6 pages.	

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				Art Unit	3736
				Examiner Name	WEINERTH, GIDEON R
Sheet	3	of	3	Attorney Docket Number	066749-2792

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	A19	Exhibit 1016 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 242 pages.	
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	A24	Exhibit 1021 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 1 page.	
	A25	Exhibit 1022 in Petition for Inter Partes Review of U.S. Pat. No. 10,583,962, filed January 5, 2021, 1 page.	
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US010583962B2

(12) **United States Patent**
Brunner et al.

(10) **Patent No.:** **US 10,583,962 B2**
(45) **Date of Patent:** **Mar. 10, 2020**

(54) **UTILITY ASSEMBLY AND COUPLING MECHANISM**

(52) **U.S. CL.**

CPC *B65D 21/0223* (2013.01); *A45C 5/14* (2013.01); *A45C 7/005* (2013.01); *A45C 13/02* (2013.01);

(Continued)

(71) Applicant: **Milwaukee Electric Tool Corporation**,
Brookfield, WI (US)

(58) **Field of Classification Search**

CPC *A45C 5/14*; *A45C 7/0045*; *A45C 7/005*;
A45C 13/02; *A45F 3/10*; *A47B 47/00*;

(Continued)

(72) Inventors: **Yaron Brunner**, Kibbutz Gvat (IL);
Grant T. Squiers, Cudahy, WI (US);
Christopher S. Hoppe, Milwaukee, WI (US);
Steven W. Hyma, Milwaukee, WI (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: 16/216,724

(22) Filed: Dec. 11, 2018

(65) **Prior Publication Data**

US 2019/0106244 A1 Apr. 11, 2019

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Related U.S. Application Data

(63) Continuation of application No. 15/826,232, filed on Nov. 29, 2017, which is a continuation of application No. PCT/IL2017/050481, filed on Apr. 30, 2017.

(Continued)

Primary Examiner — Gideon R. Weinert

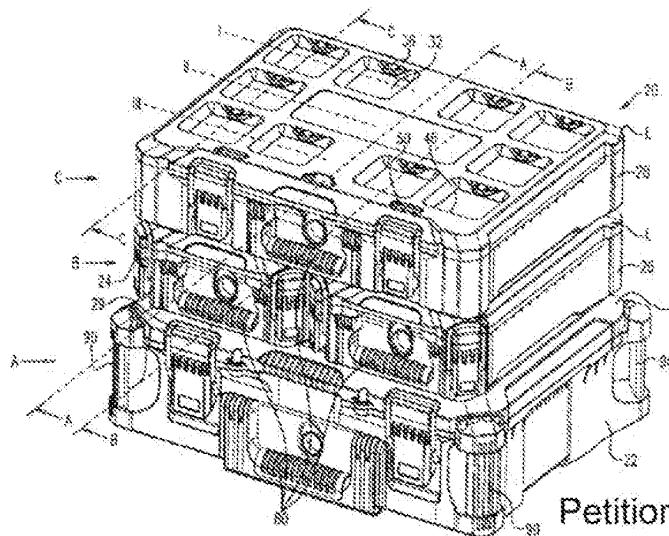
(74) *Attorney, Agent, or Firm* — Reinhart Boerner Van Deuren s.c.

(57) **ABSTRACT**

The present disclosure concerns a coupling mechanism for detachably attaching two or more utility modules to one another, utility assemblies, mobile carriers and other attachable modules and articles.

12 Claims, 48 Drawing Sheets

(51) **Int. CL.**
B65D 21/02 (2006.01)
B65D 21/028 (2006.01)
(Continued)



Petitioner Ex. 1001
Page 1 of 64

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(58)	Field of Classification Search		8,177,463 B2 *	5/2012	Walker B65D 90:0006
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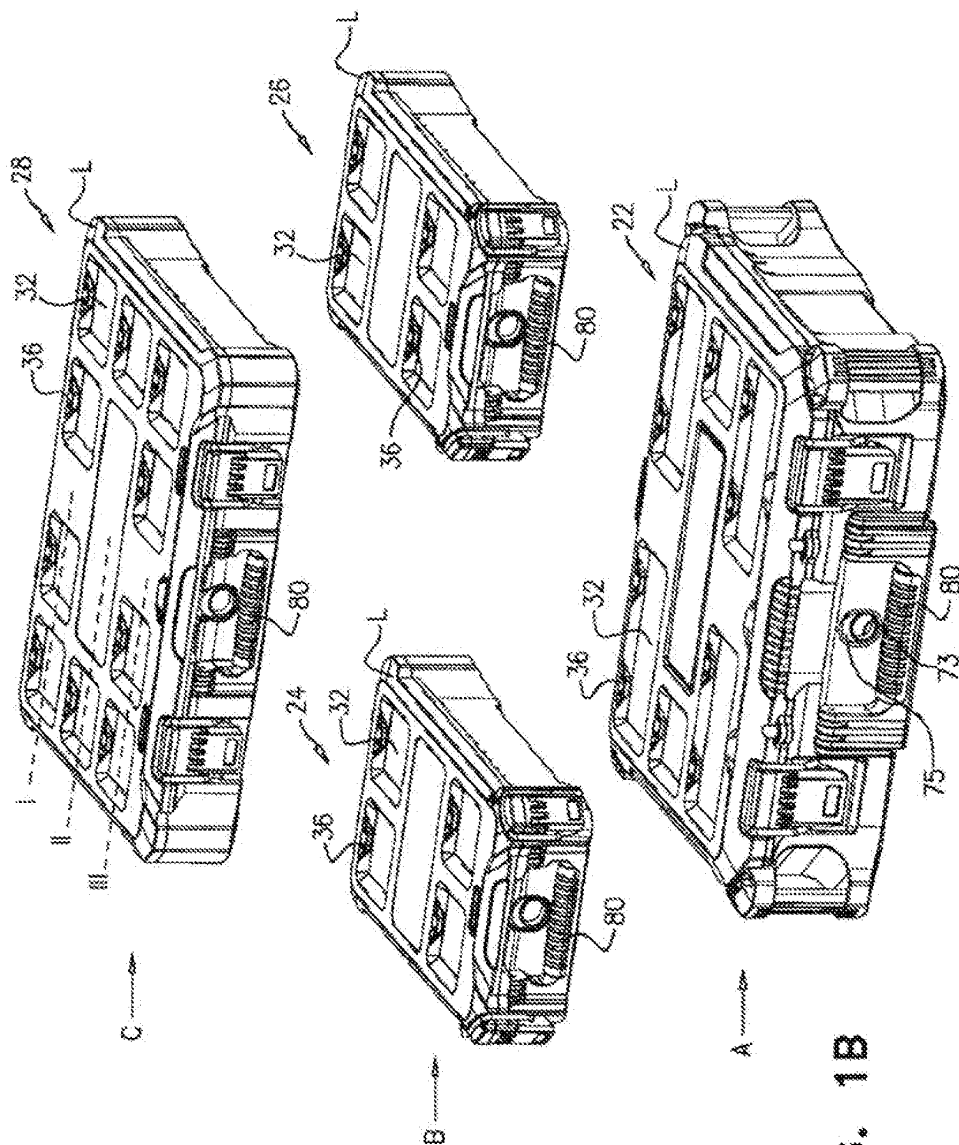
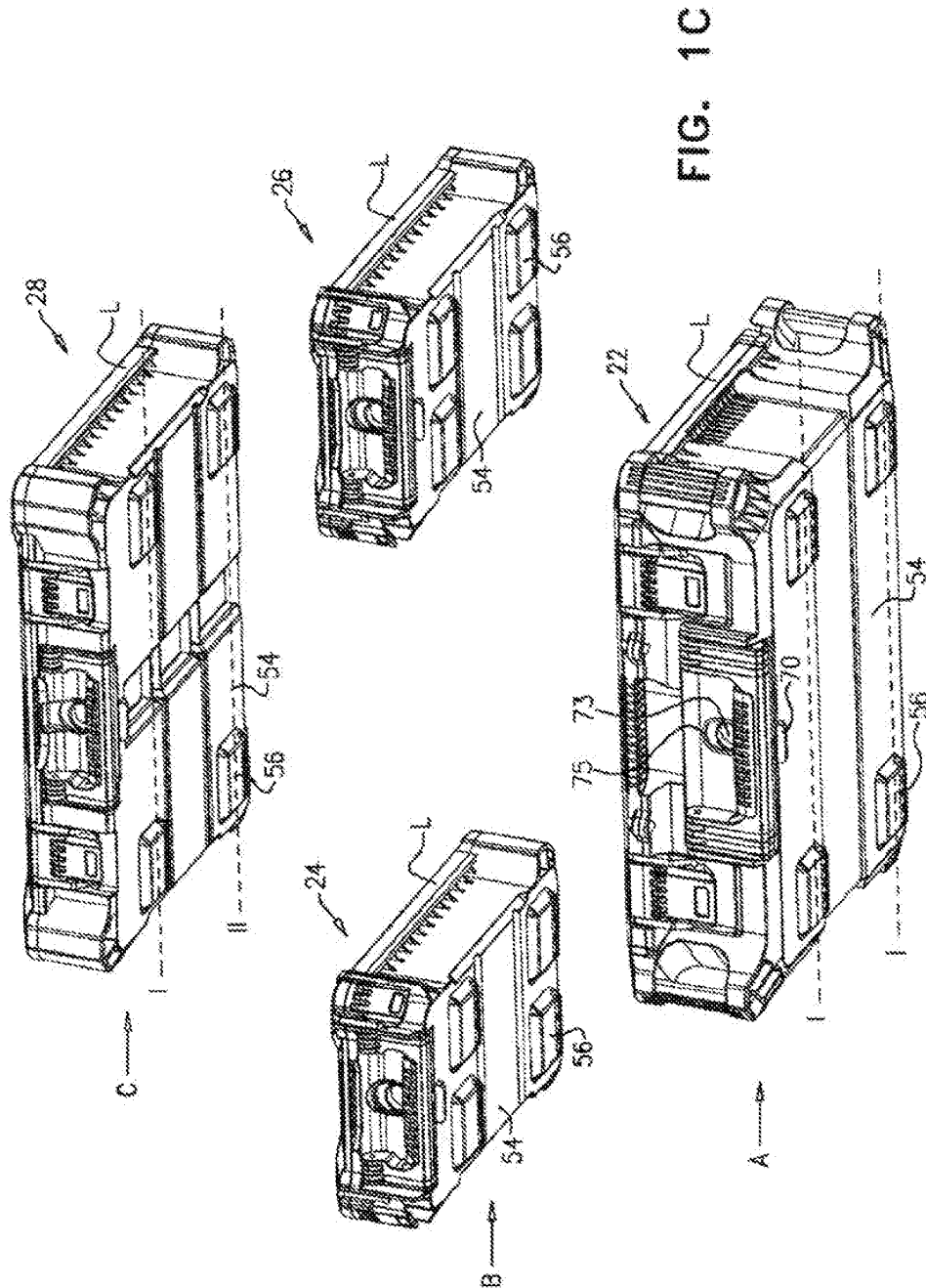


FIG. 1B

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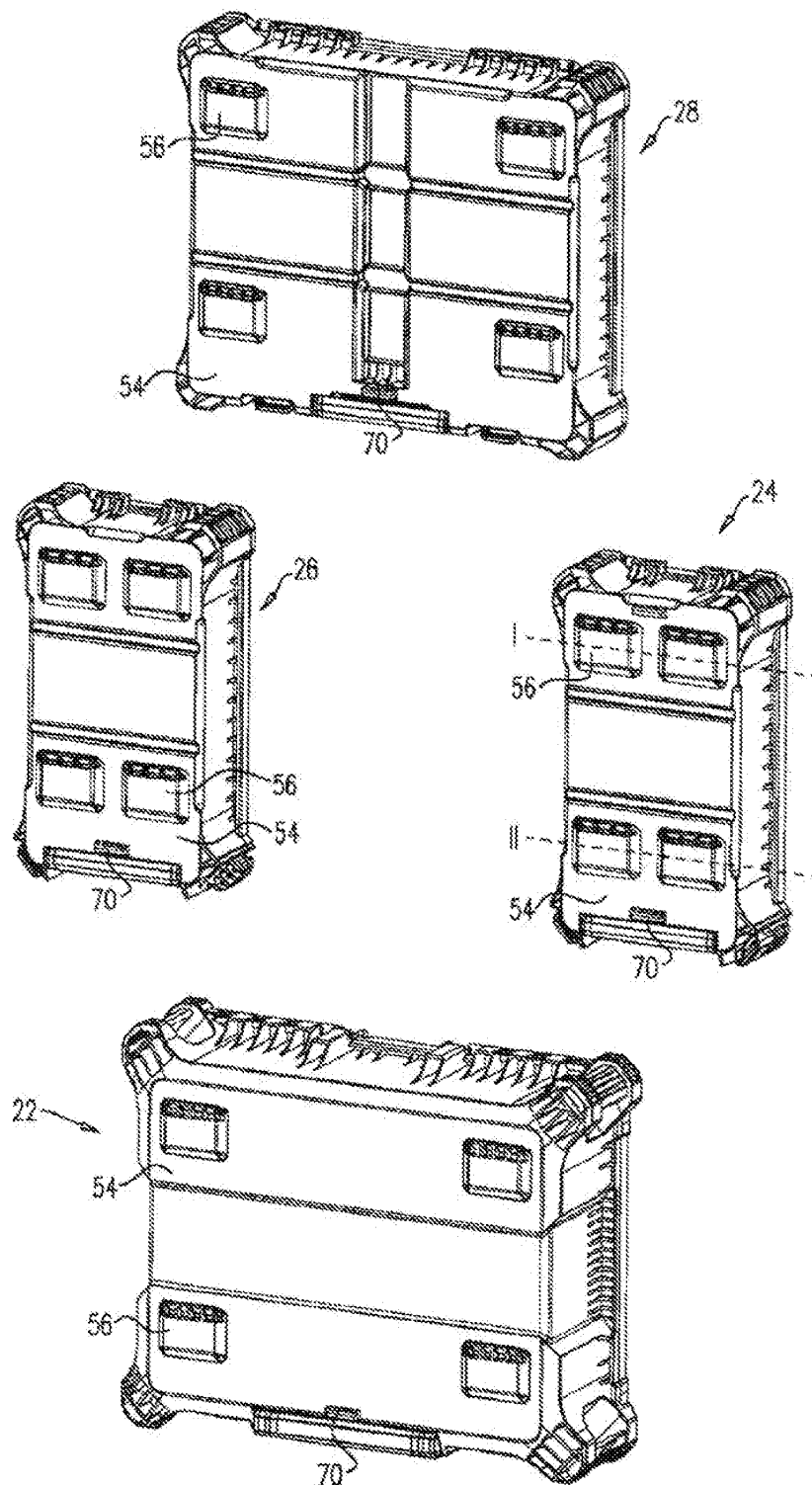


FIG. 1D

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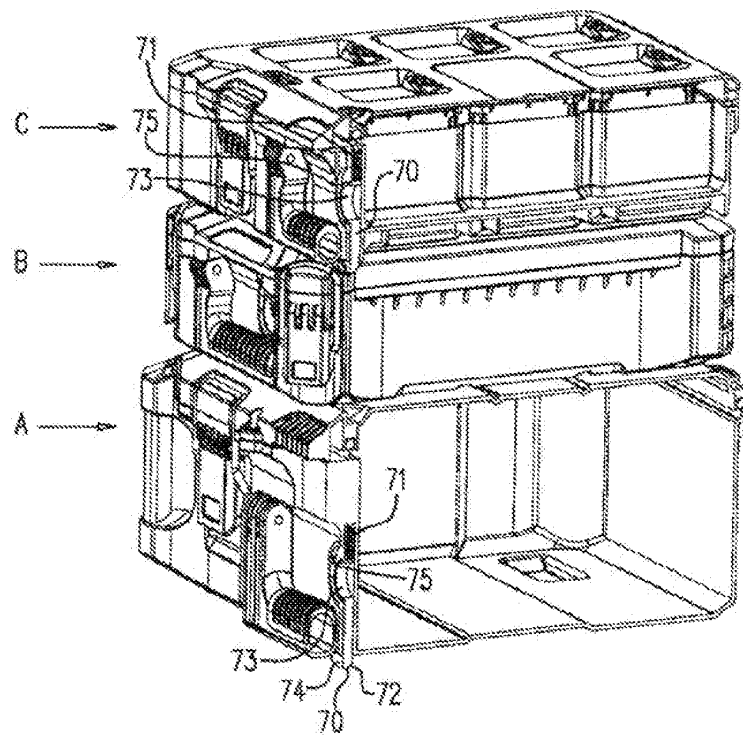


FIG. 2A

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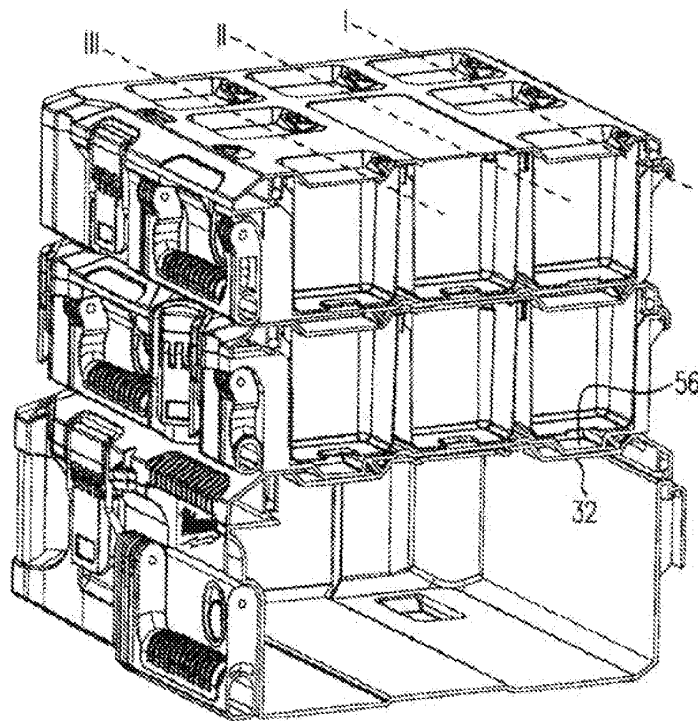


FIG. 2B

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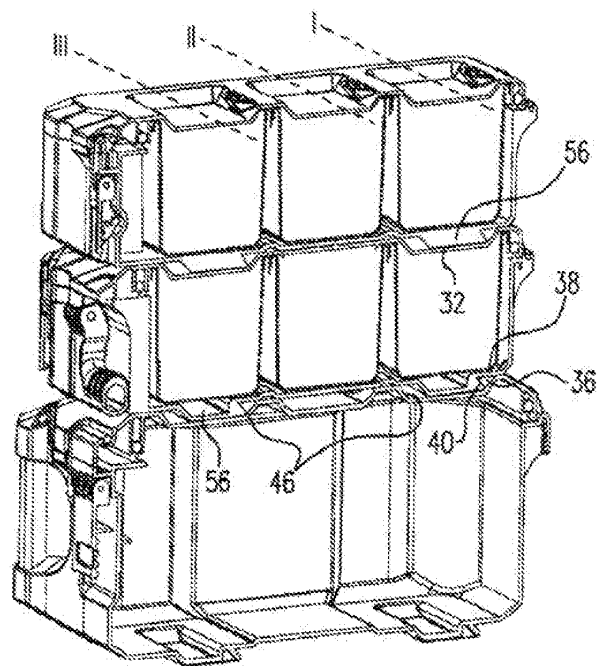
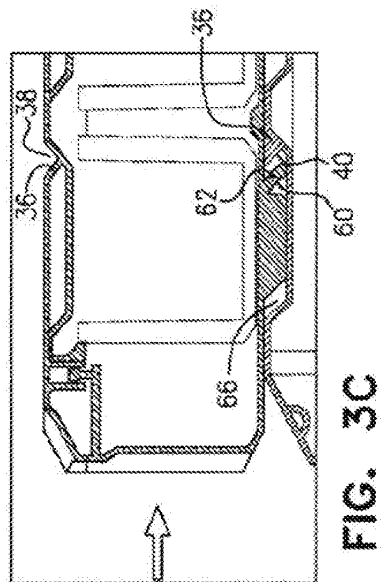
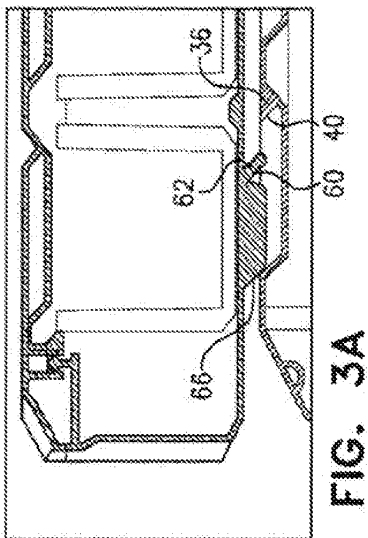
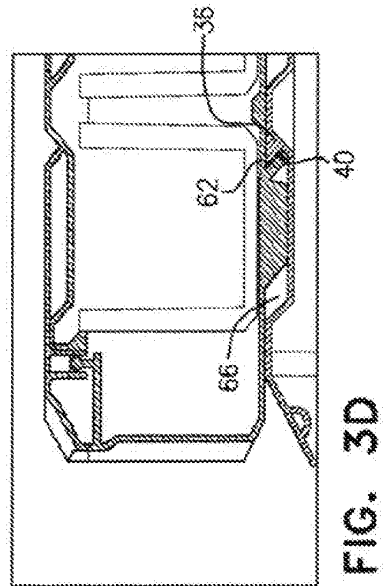
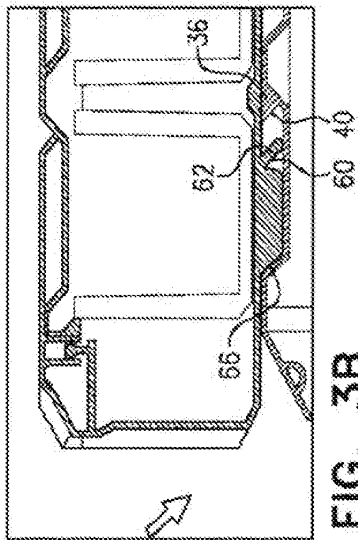


FIG. 2C

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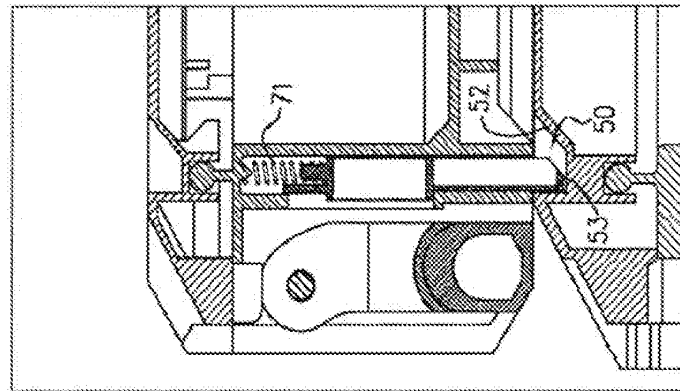


FIG. 4D

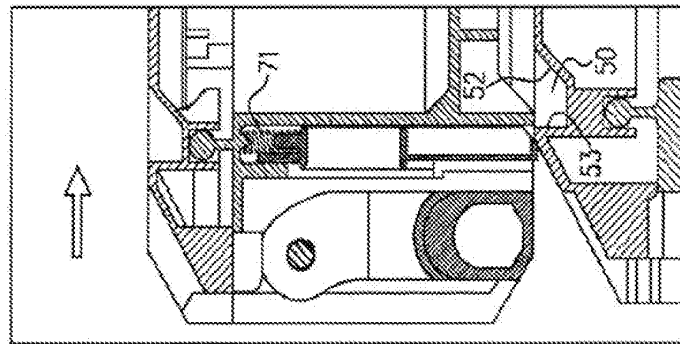


FIG. 4C

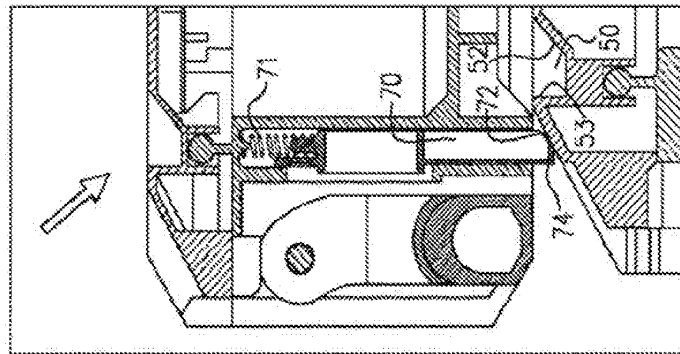


FIG. 4B

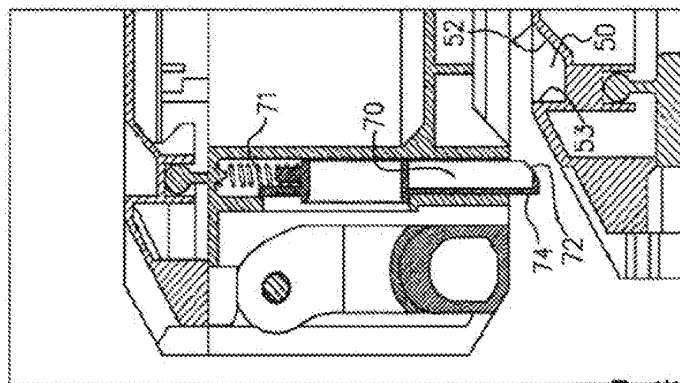


FIG. 4A

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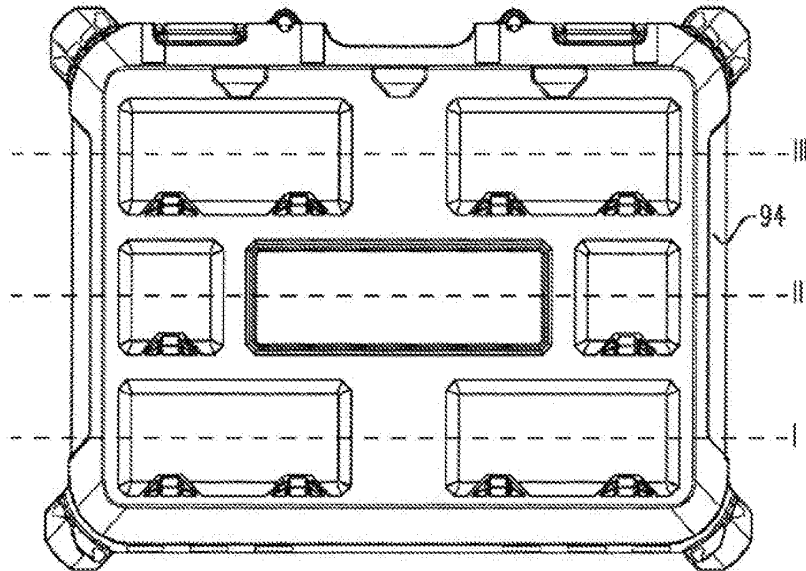


FIG. 5A

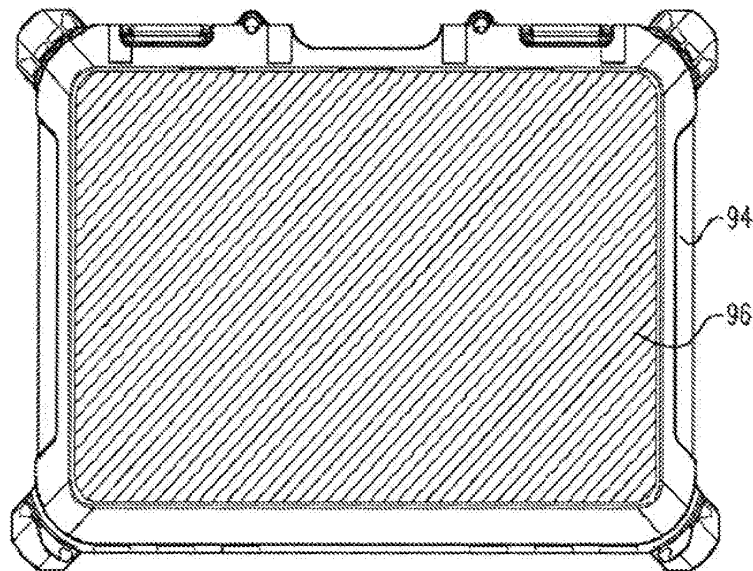


FIG. 5B

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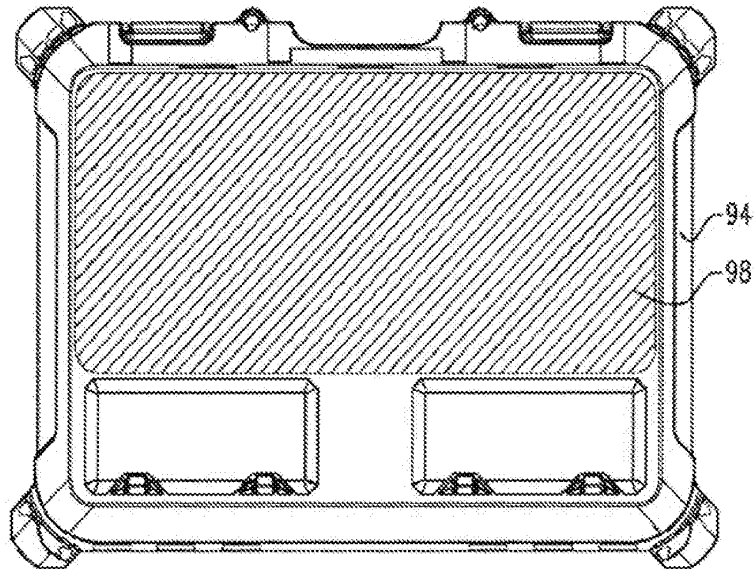


FIG. 5C

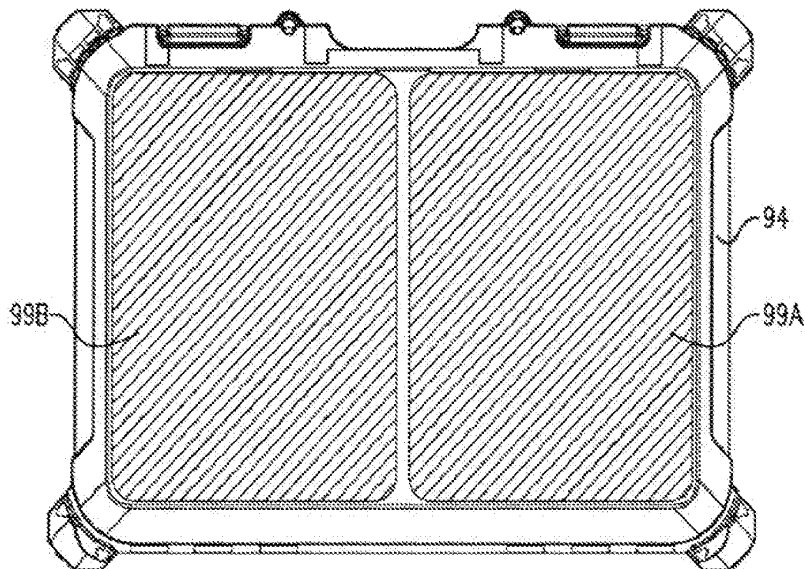
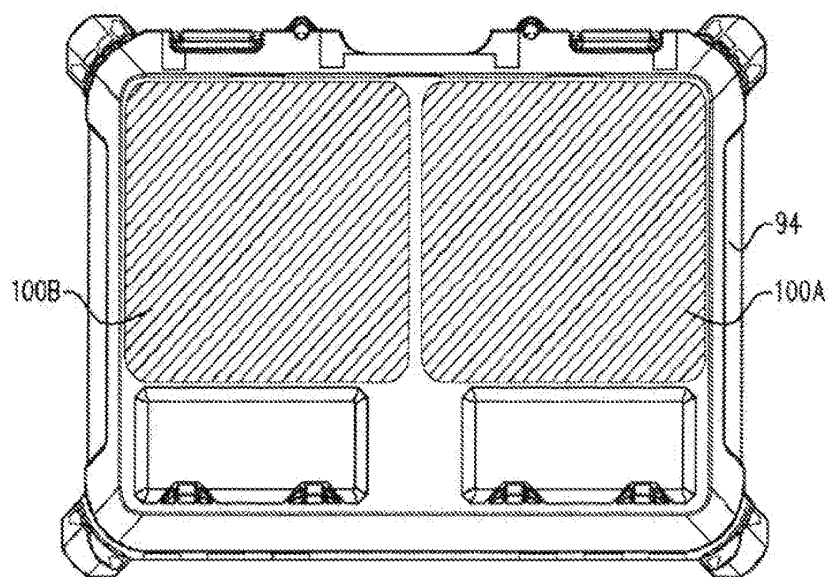


FIG. 5D

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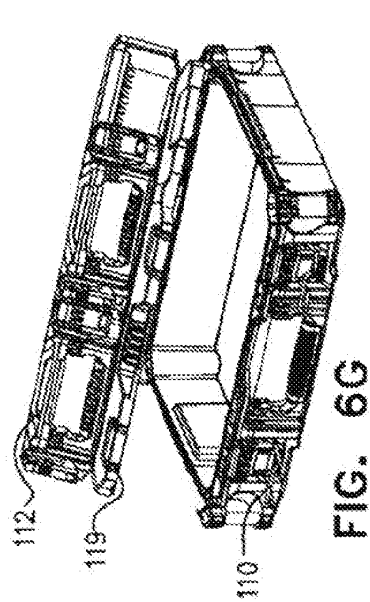


FIG. 6G

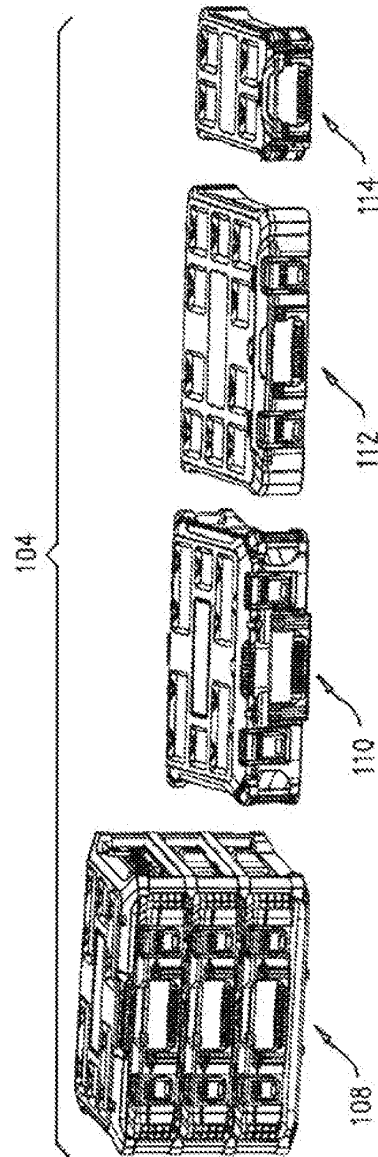
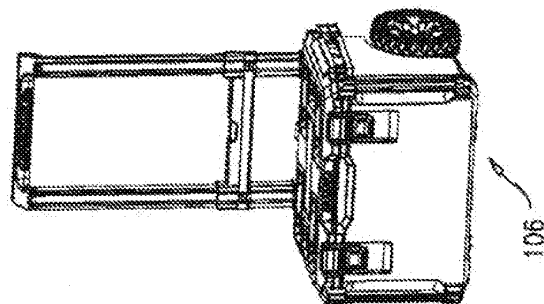


FIG. 6A



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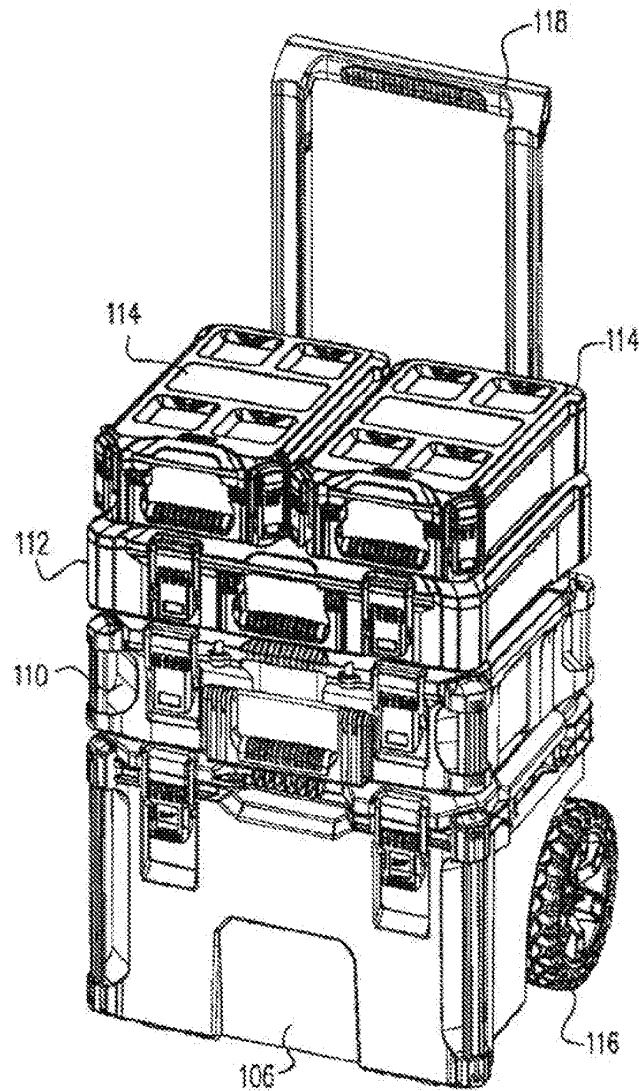


FIG. 6B

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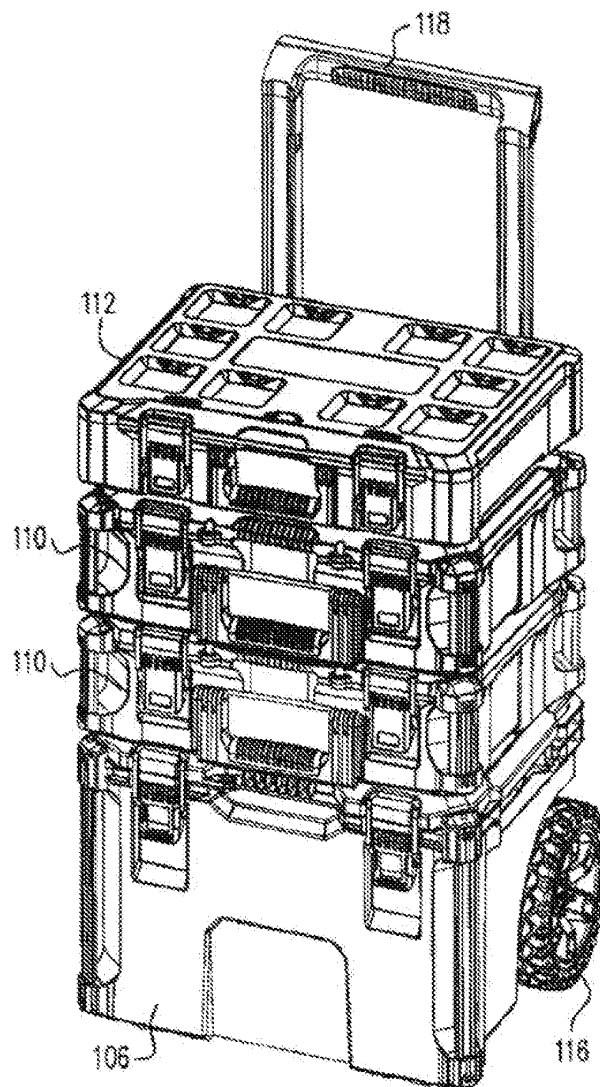


FIG. 6C

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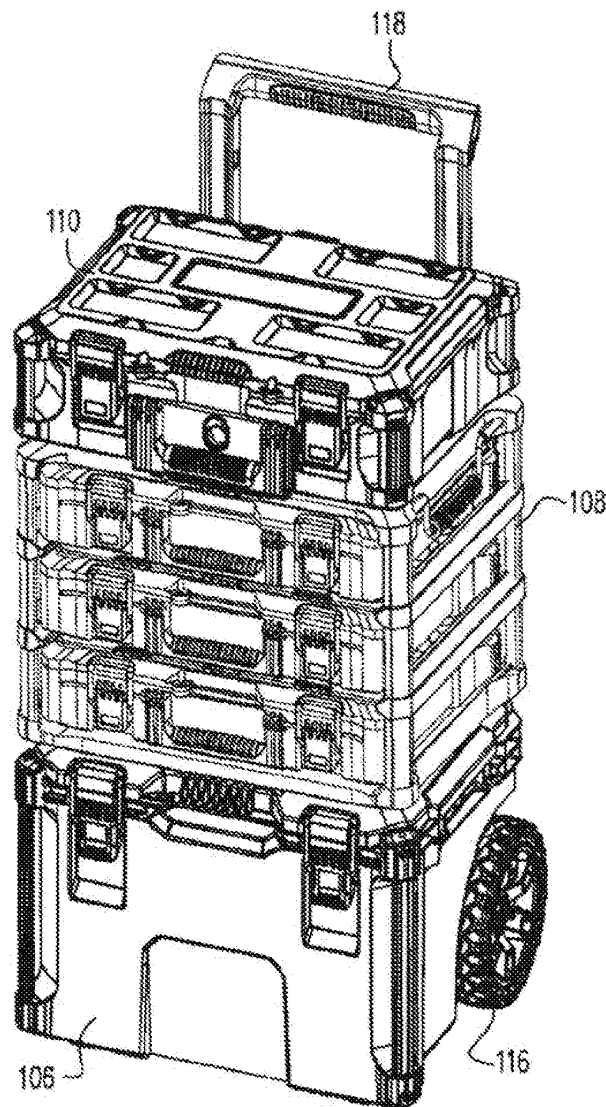


FIG. 6D

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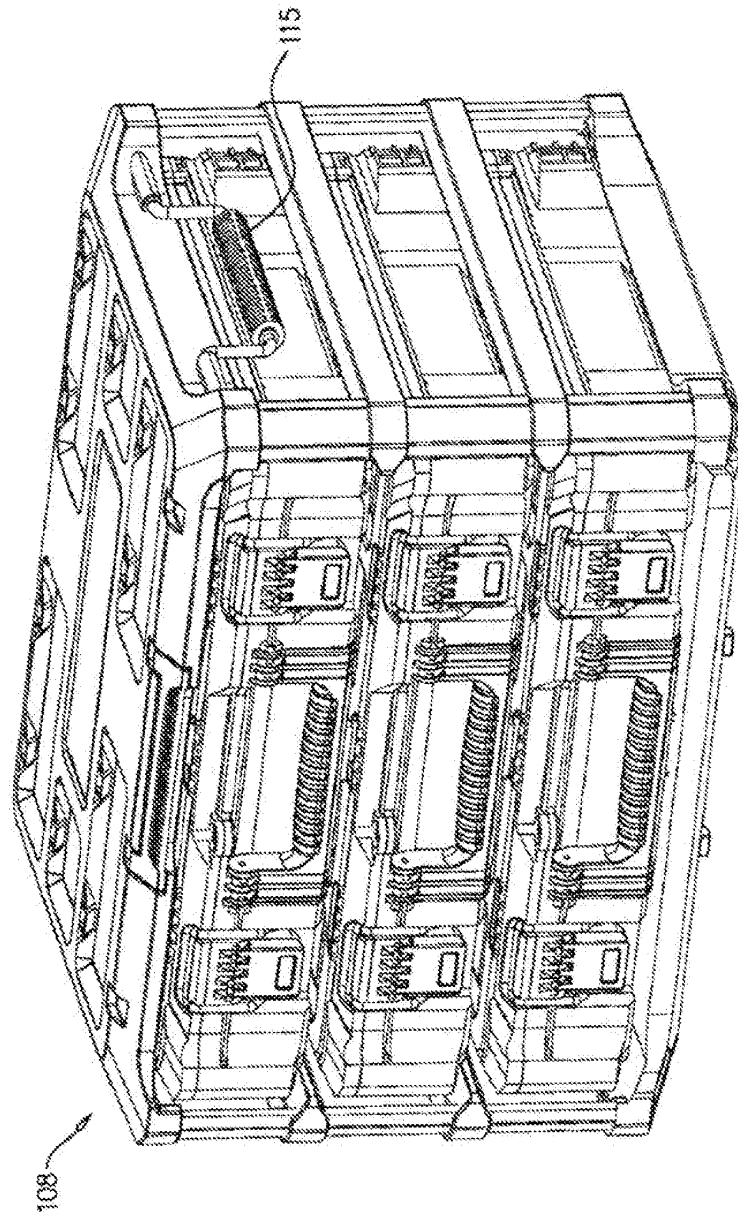


FIG. 6E

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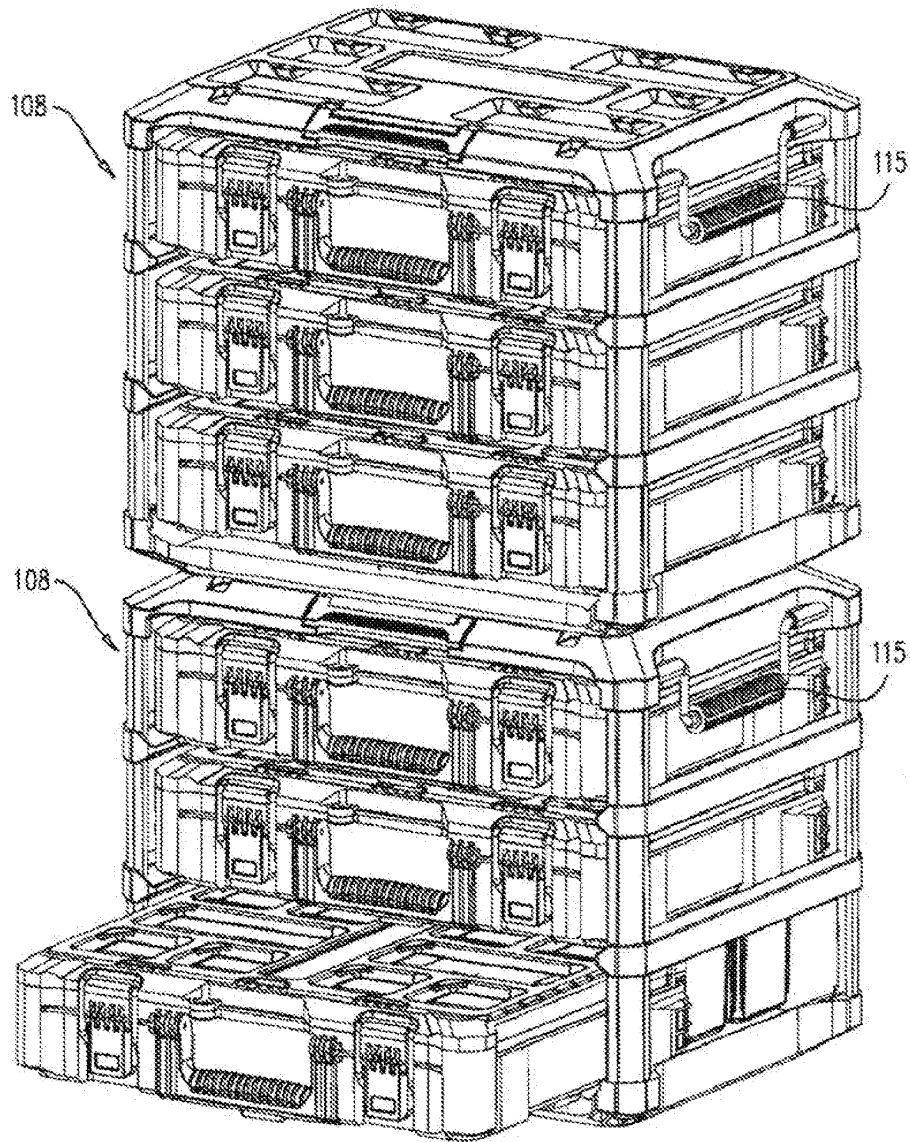


FIG. 6F

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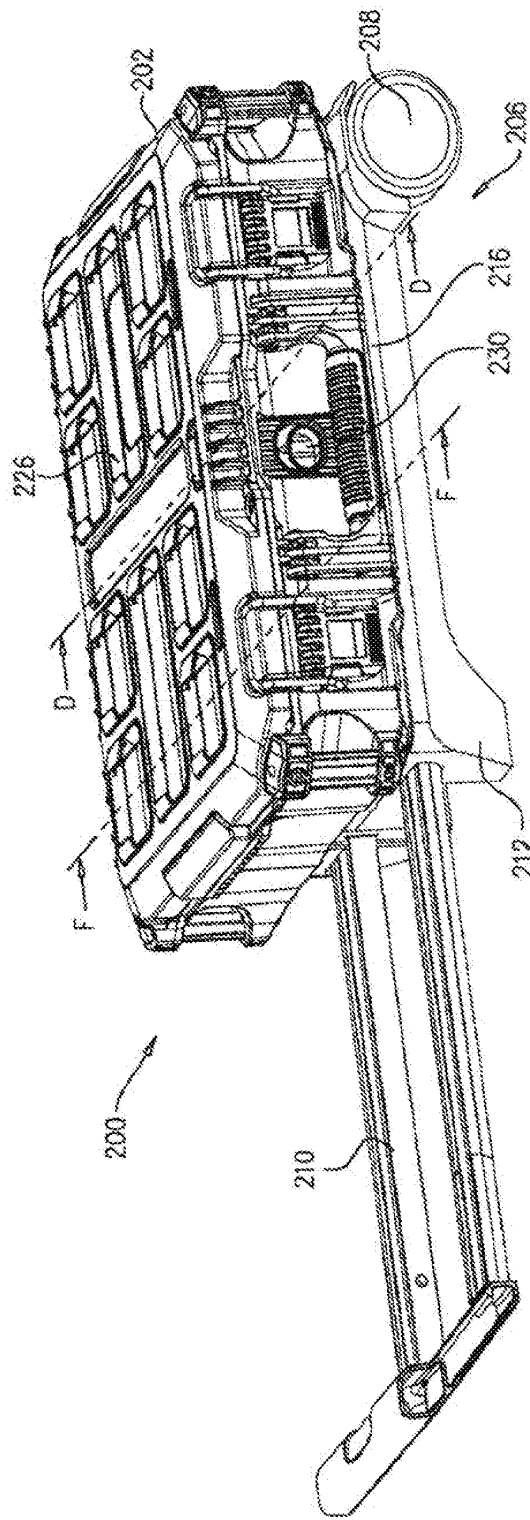


FIG. 7A

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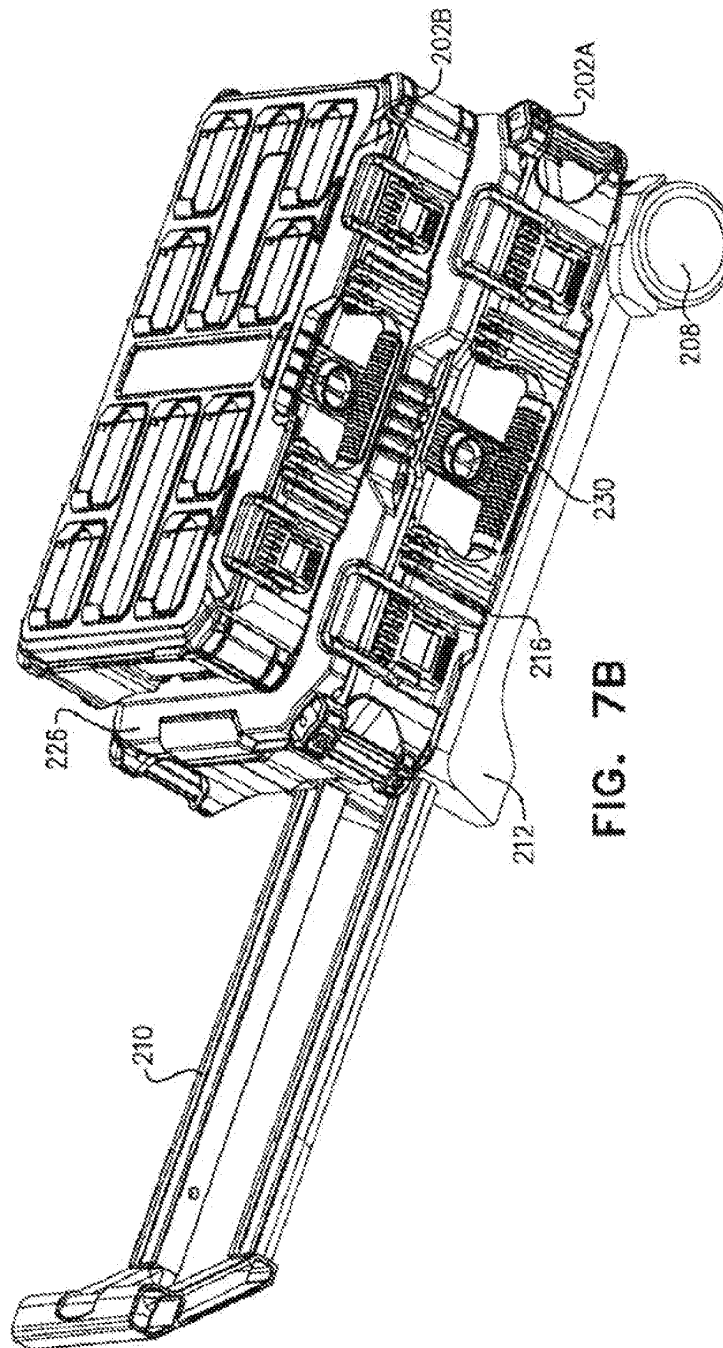


FIG. 7B

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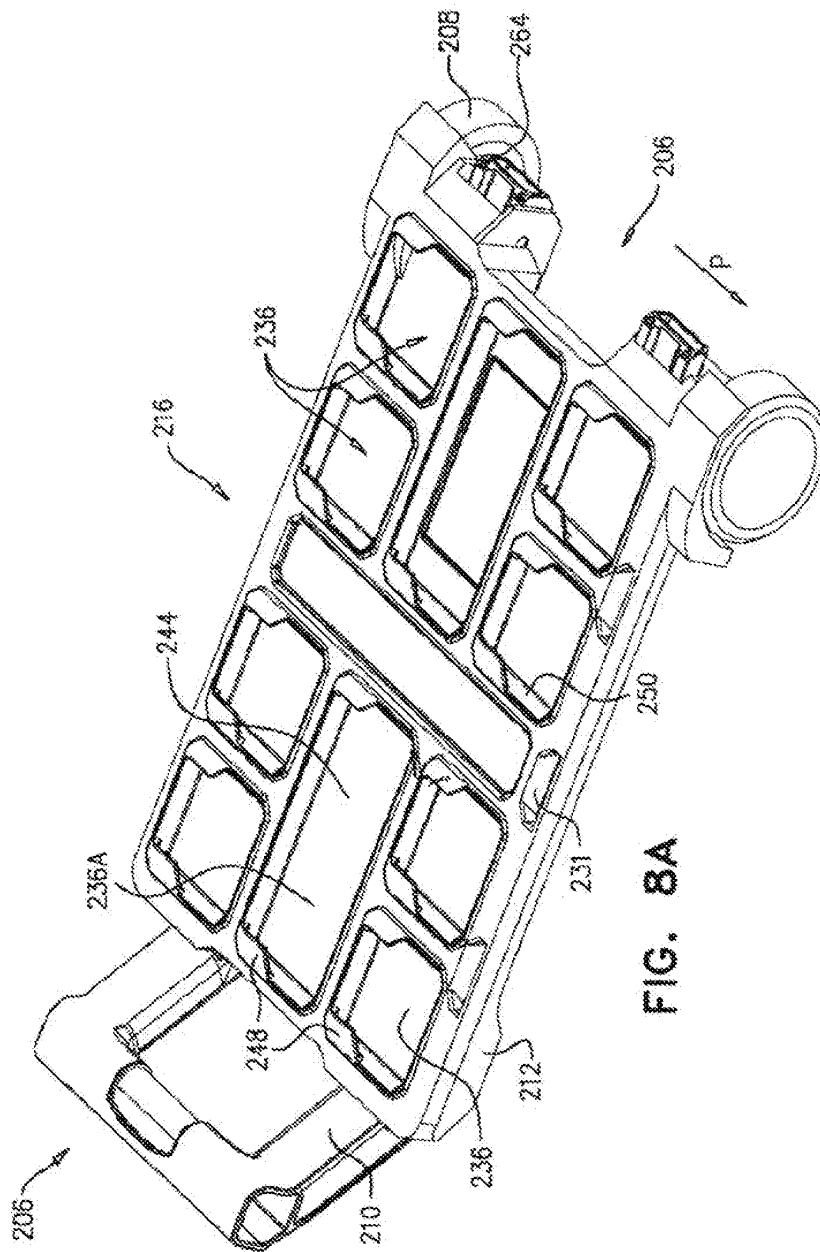


FIG. 8A

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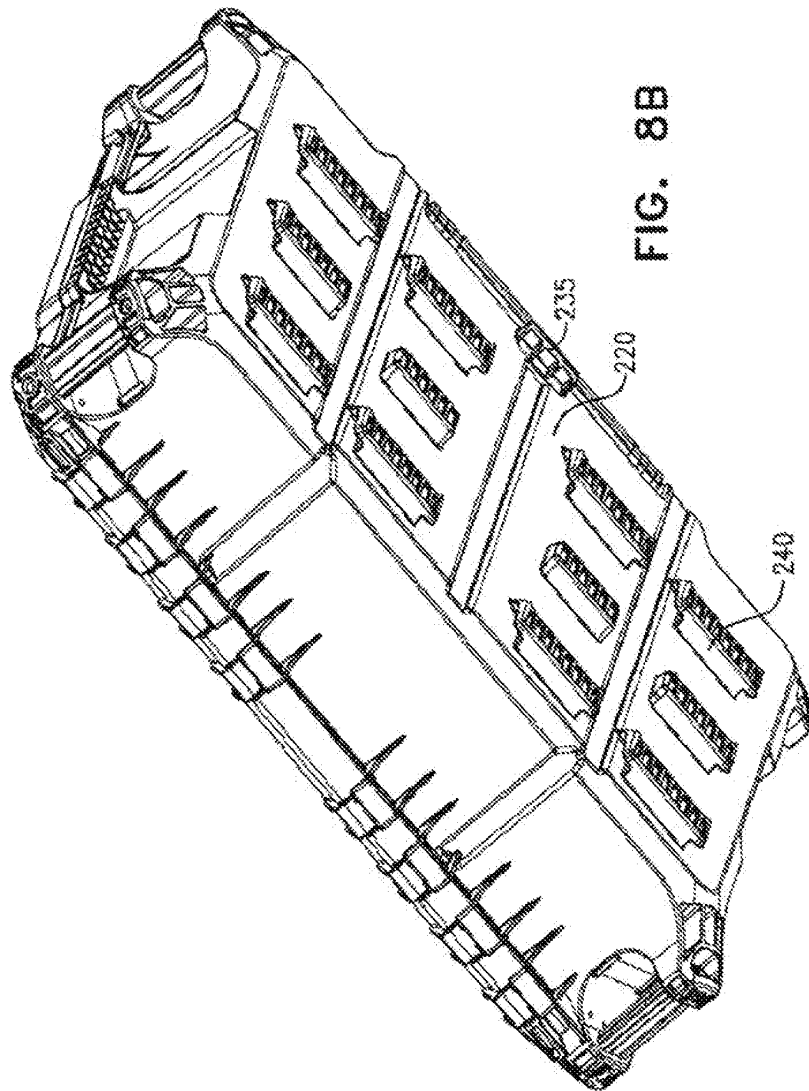
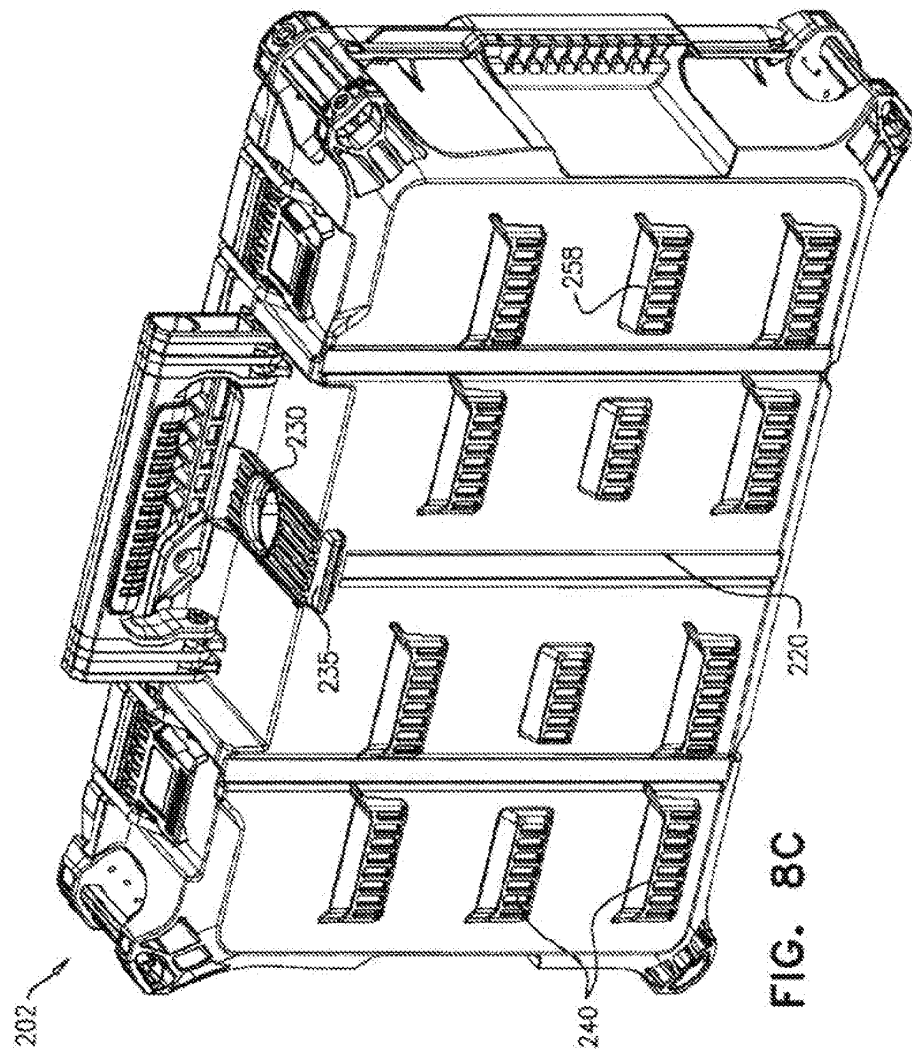


FIG. 8B

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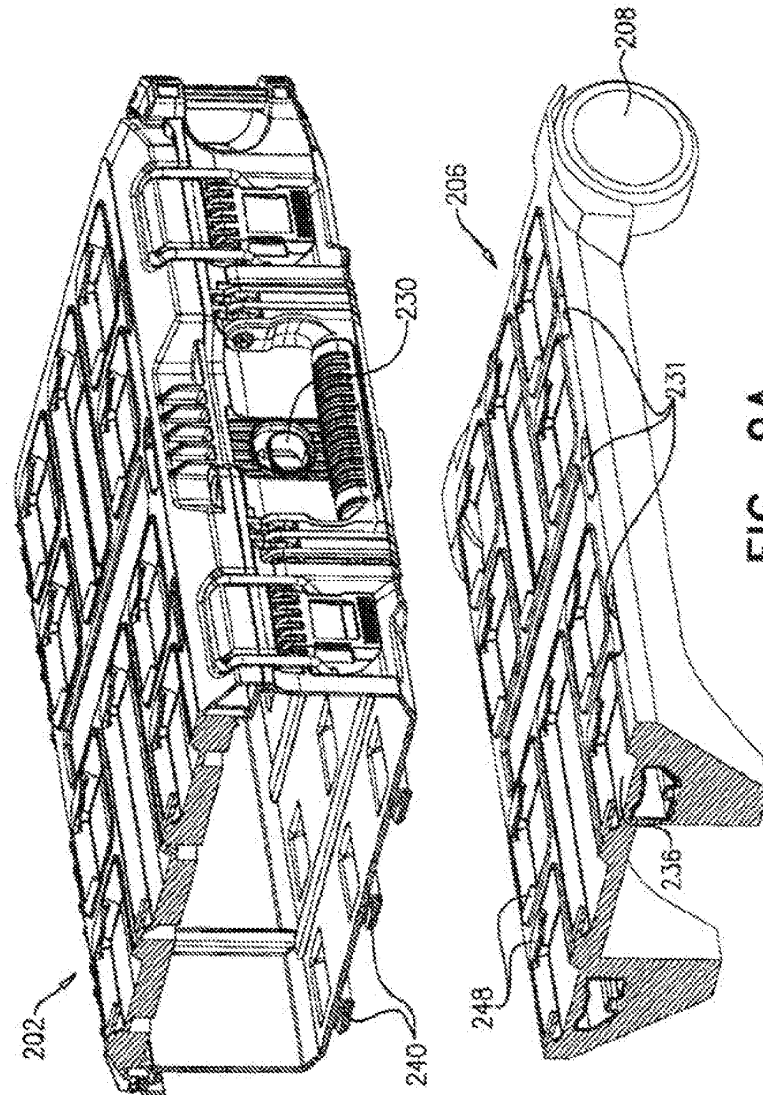


FIG. 9A

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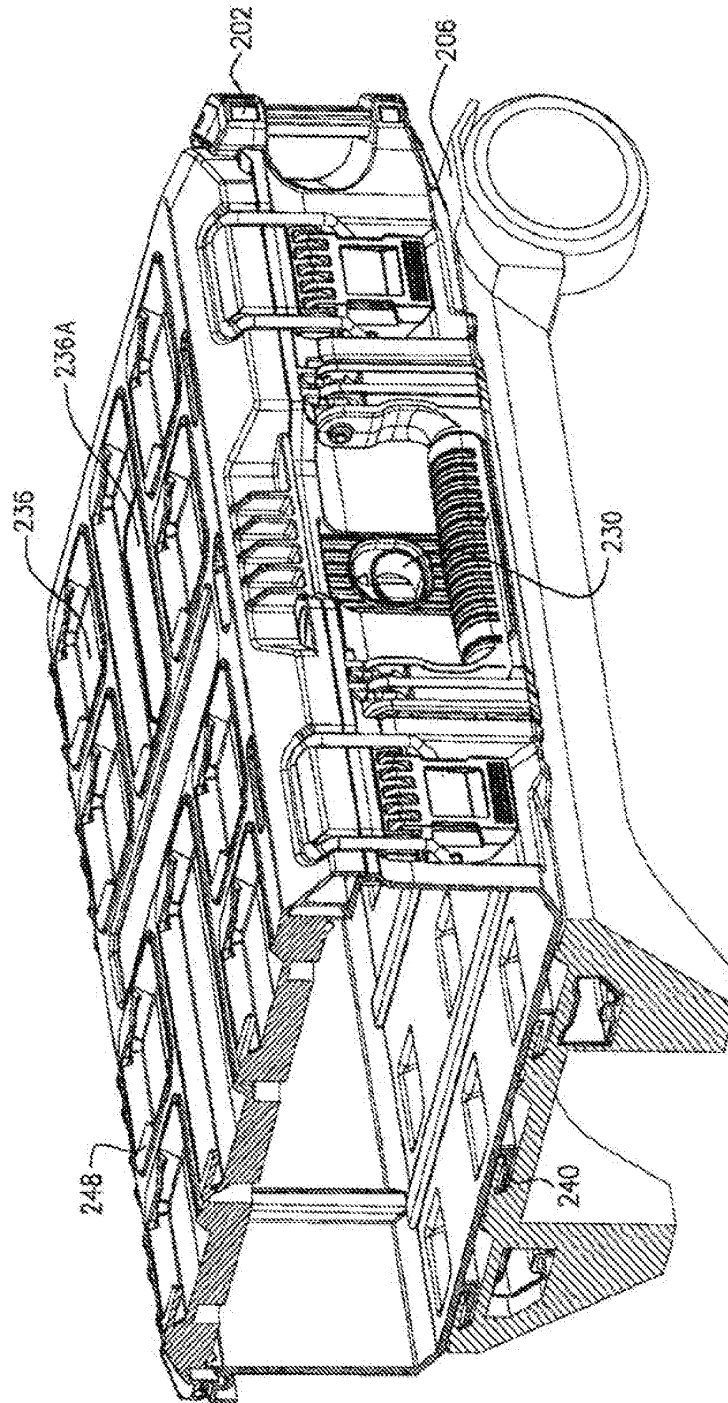


FIG. 9B

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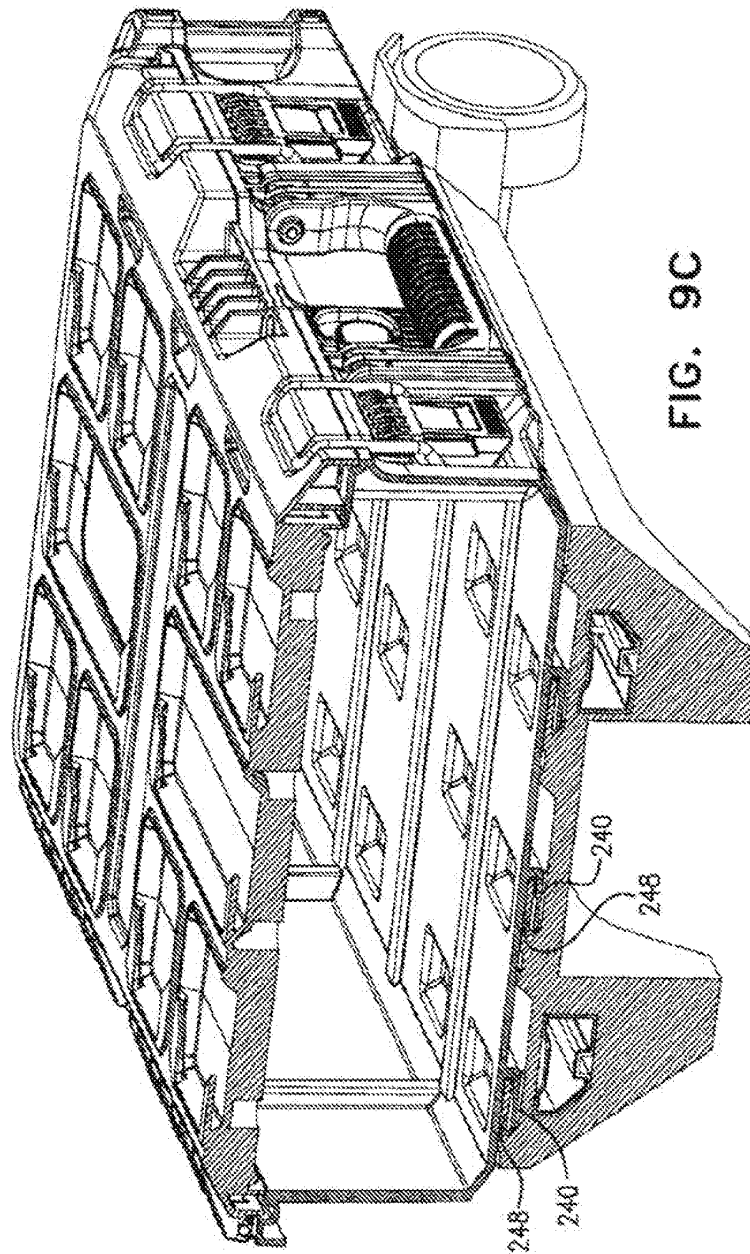


FIG. 9C

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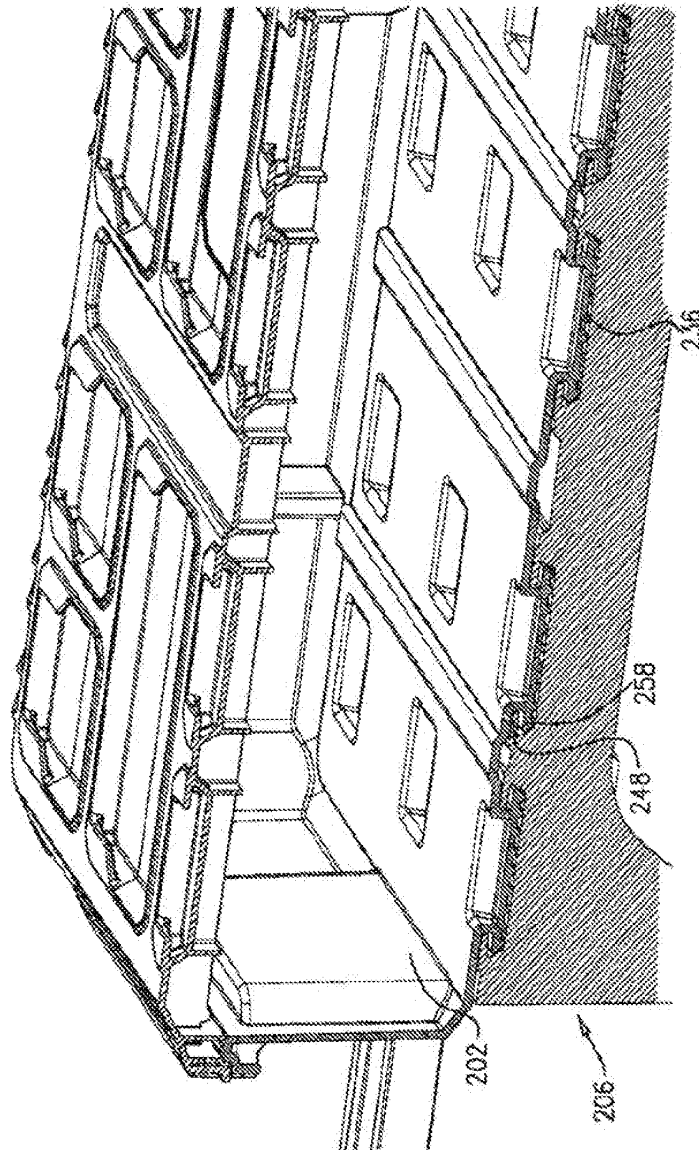


FIG. 9D

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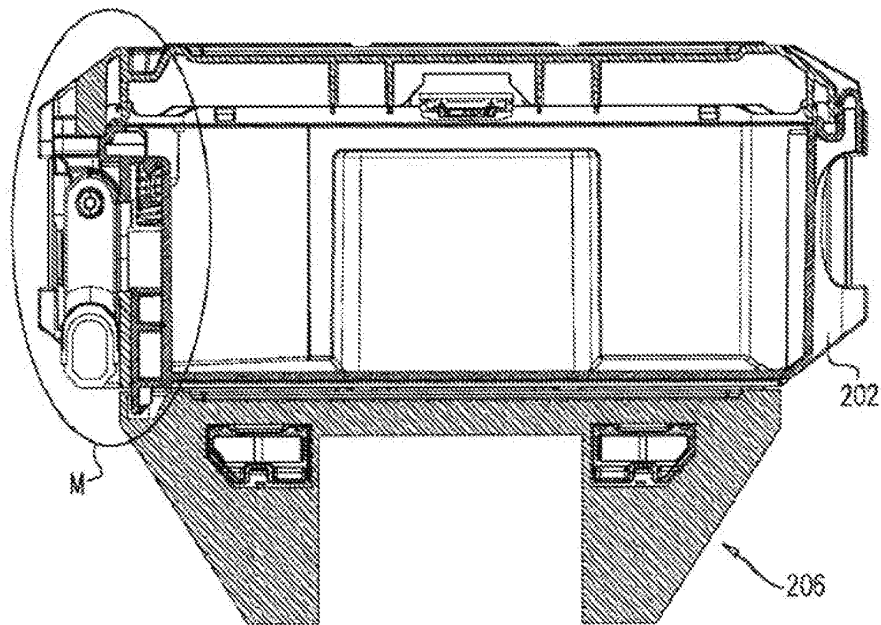


FIG. 10A

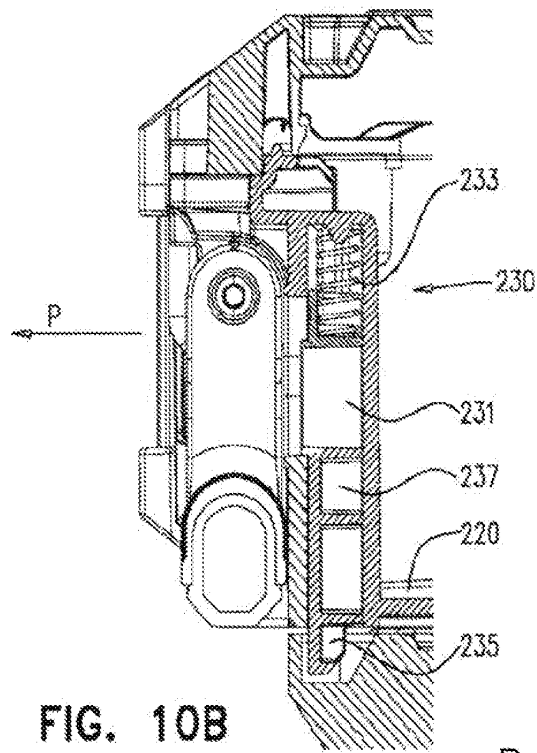


FIG. 10B

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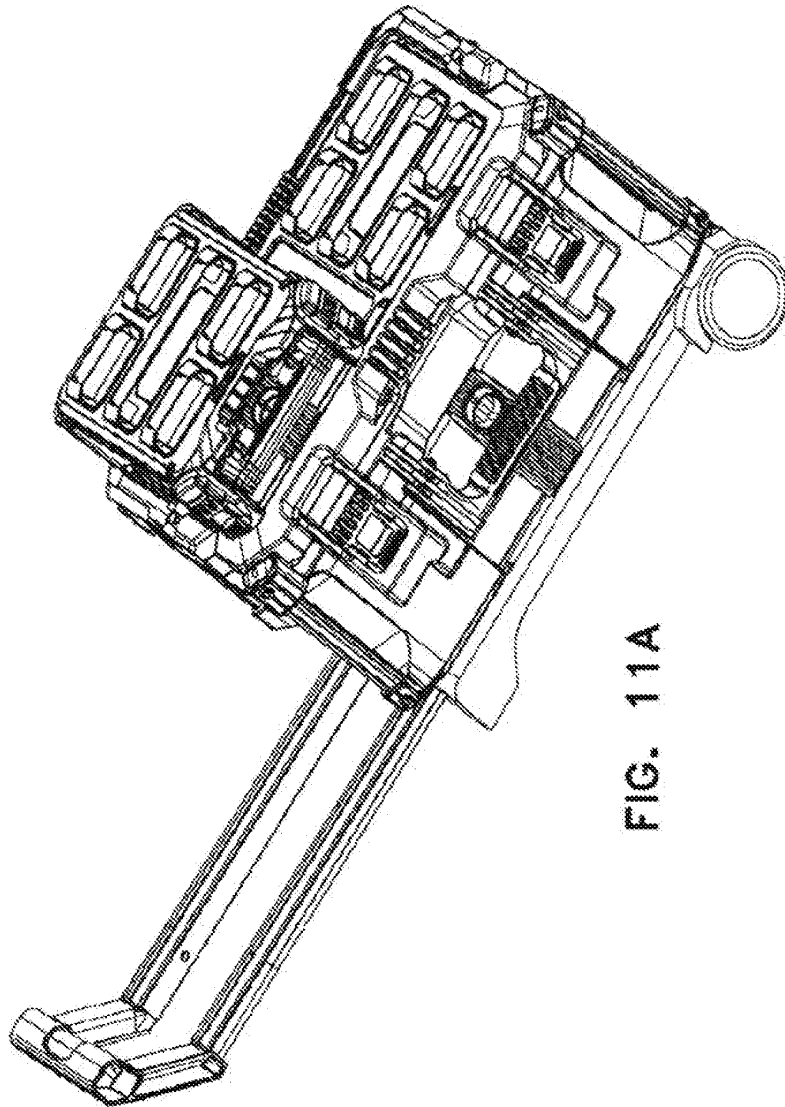


FIG. 11A

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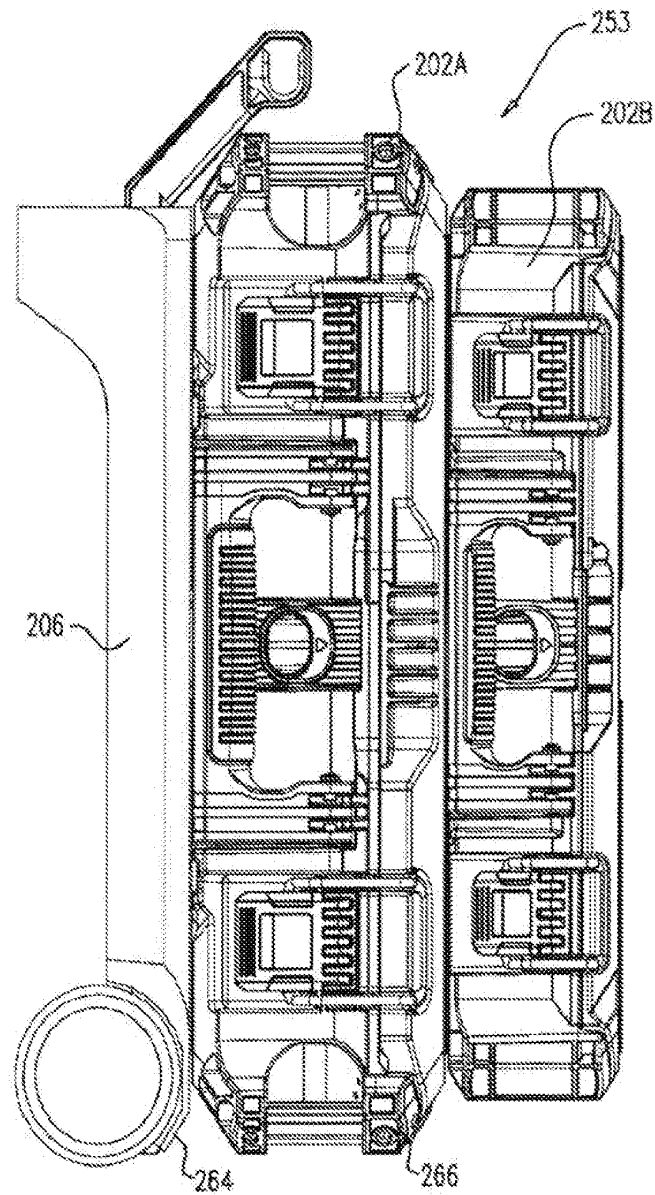
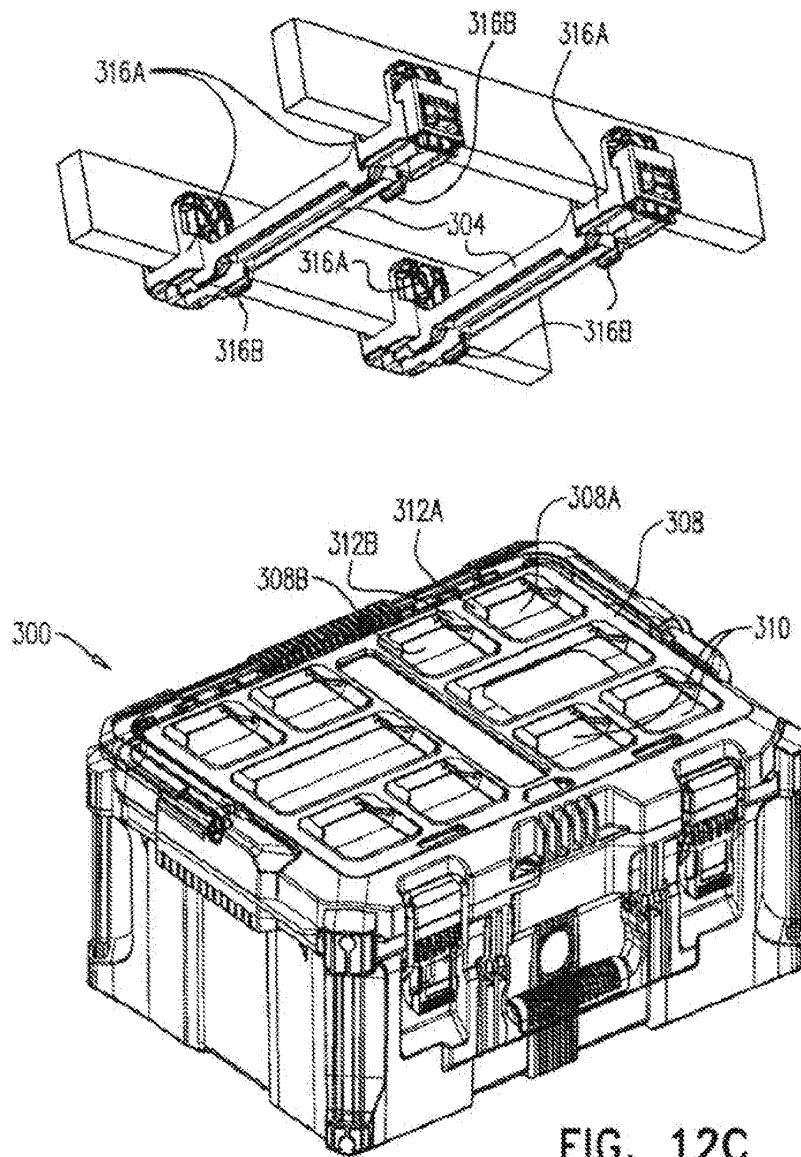


FIG. 11B

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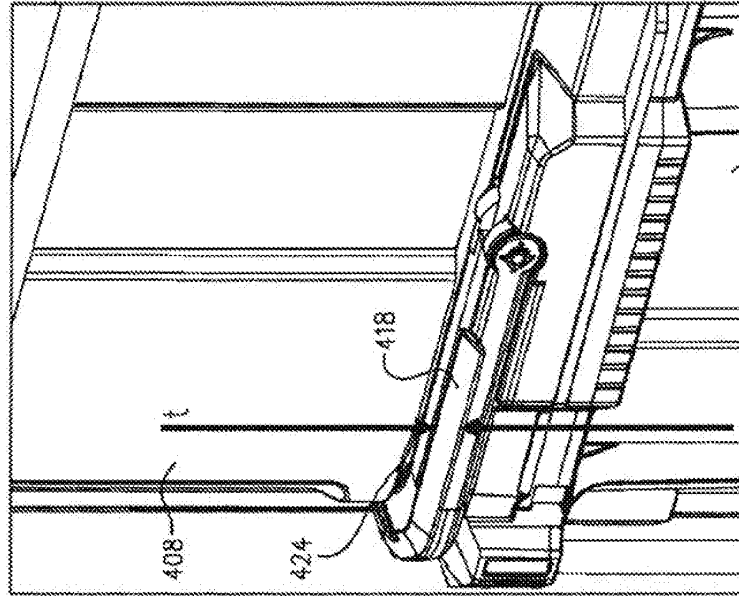


FIG. 13B

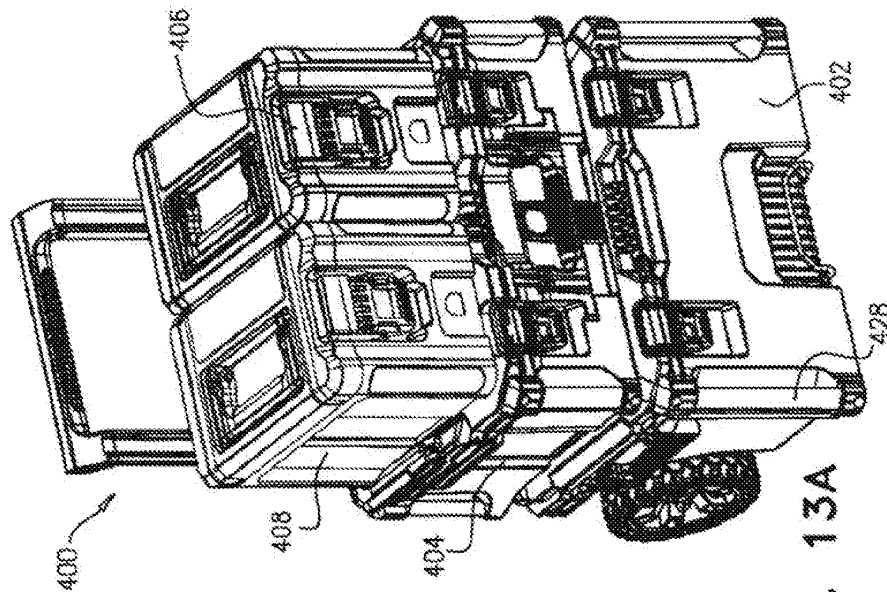


FIG. 13A

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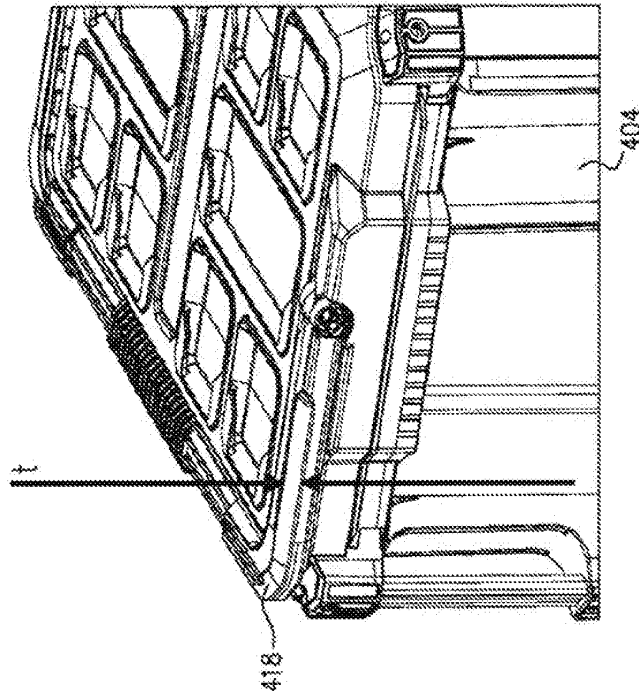


FIG. 13D

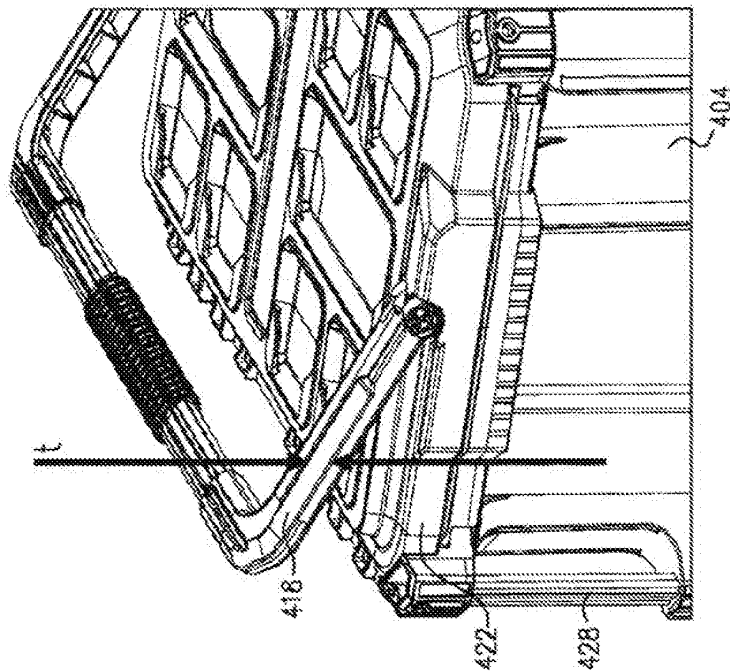
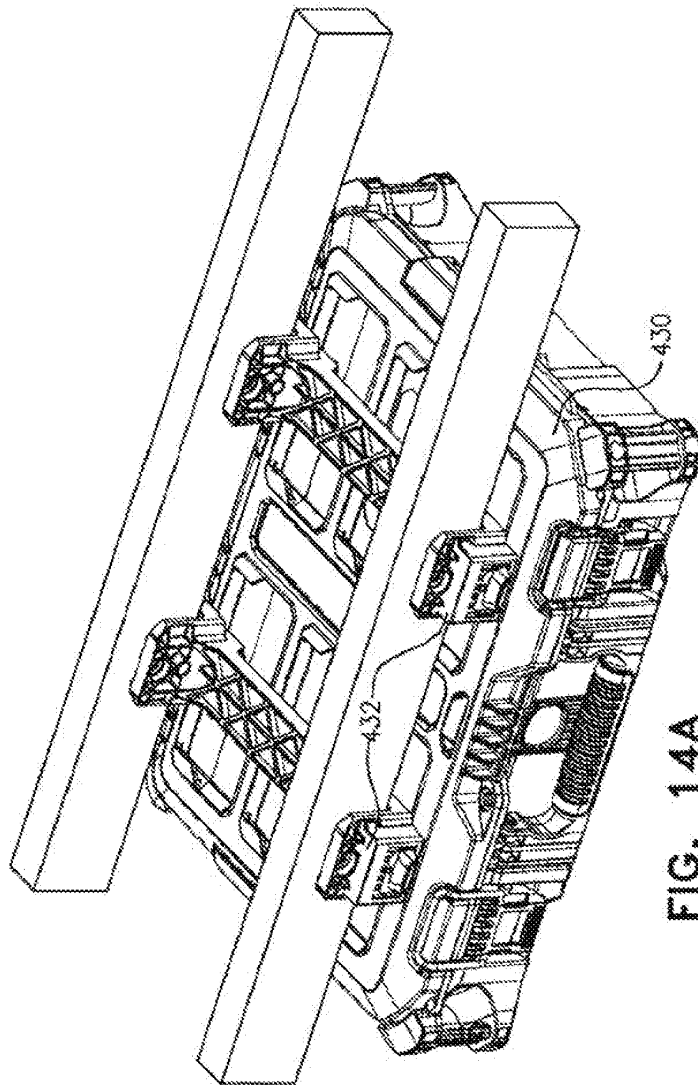


FIG. 13C

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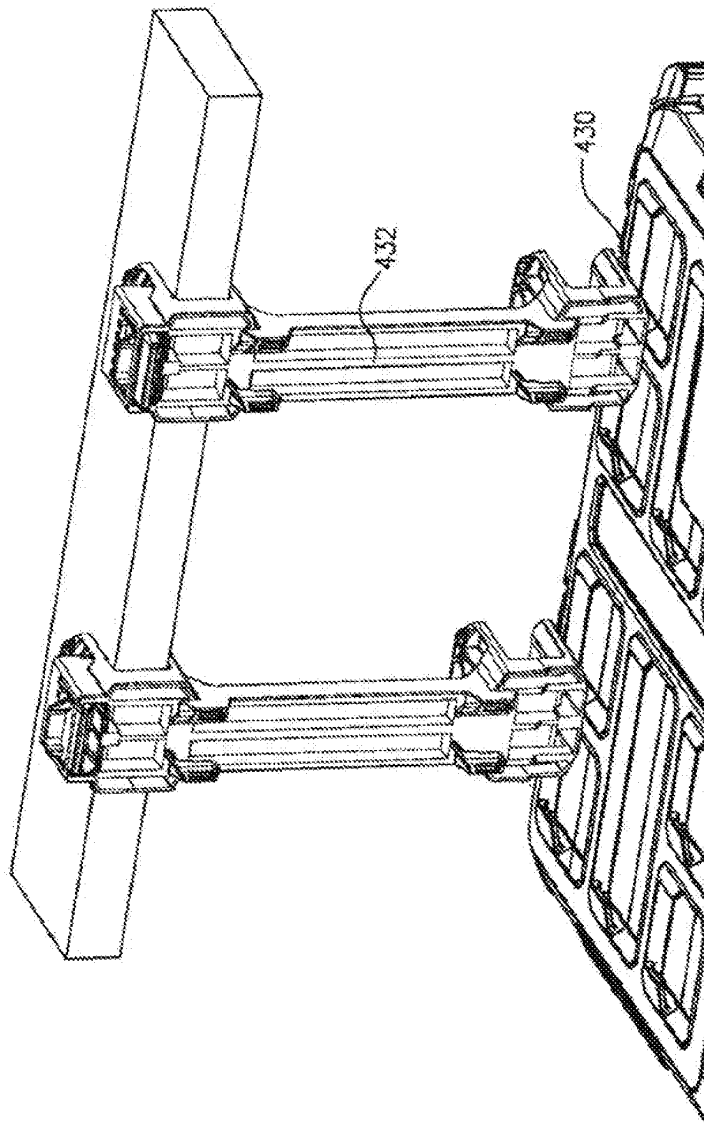
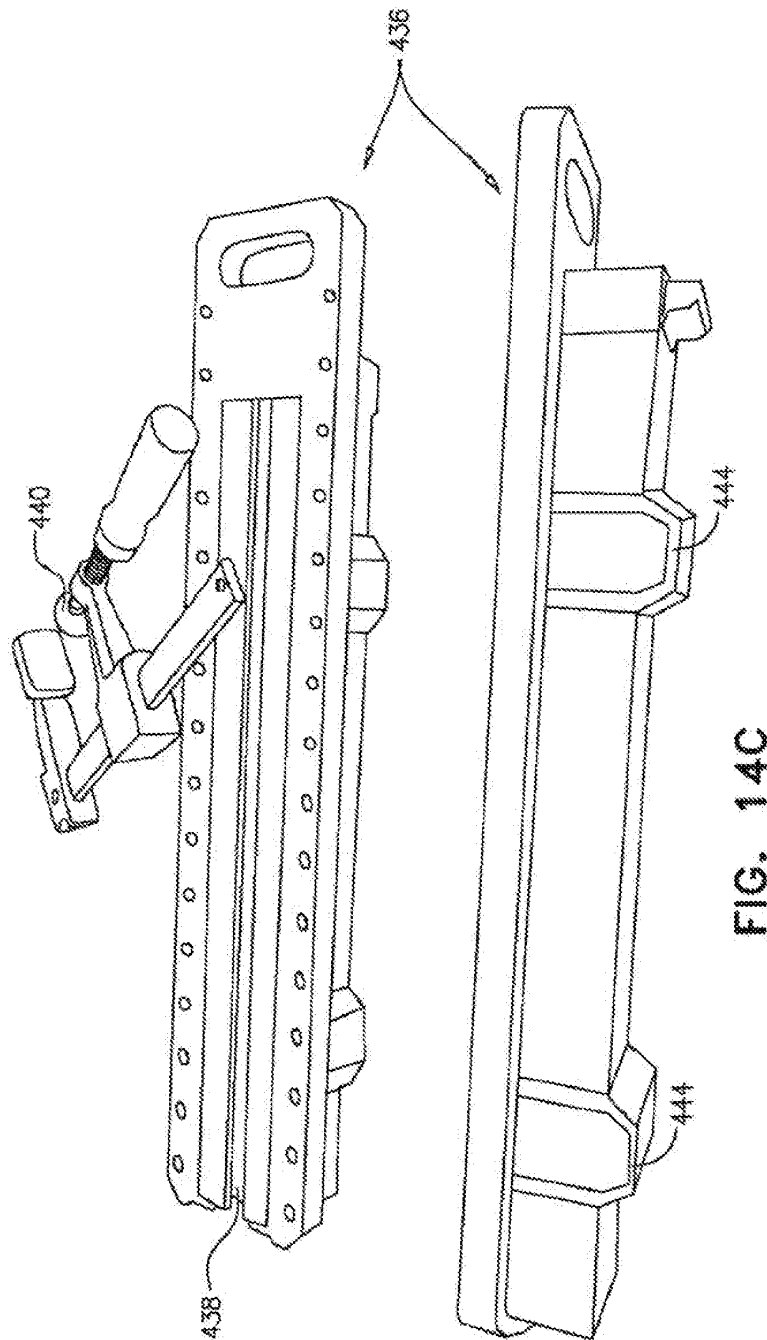
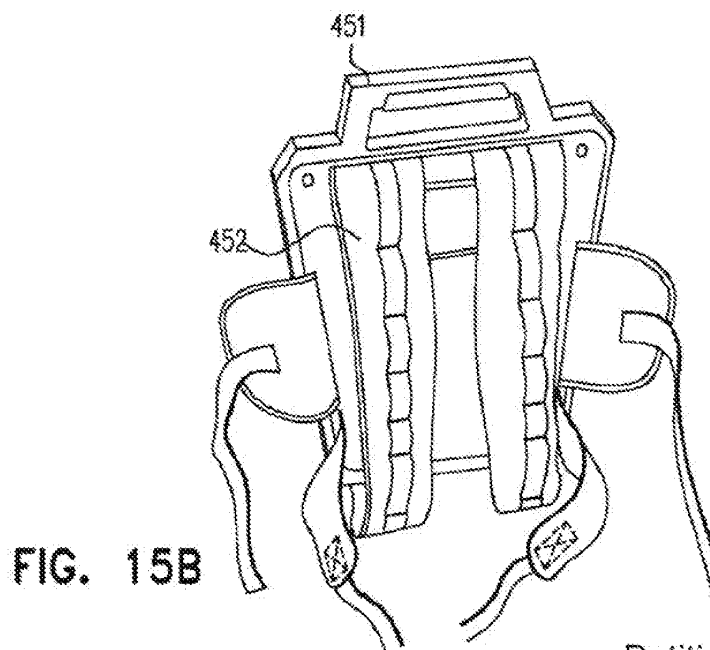
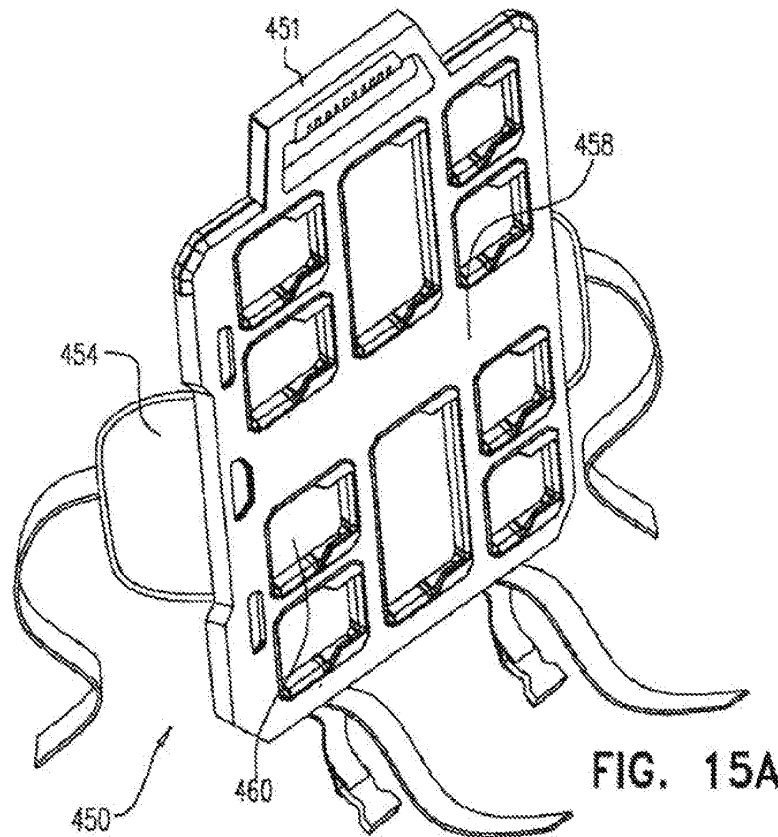


FIG. 14B

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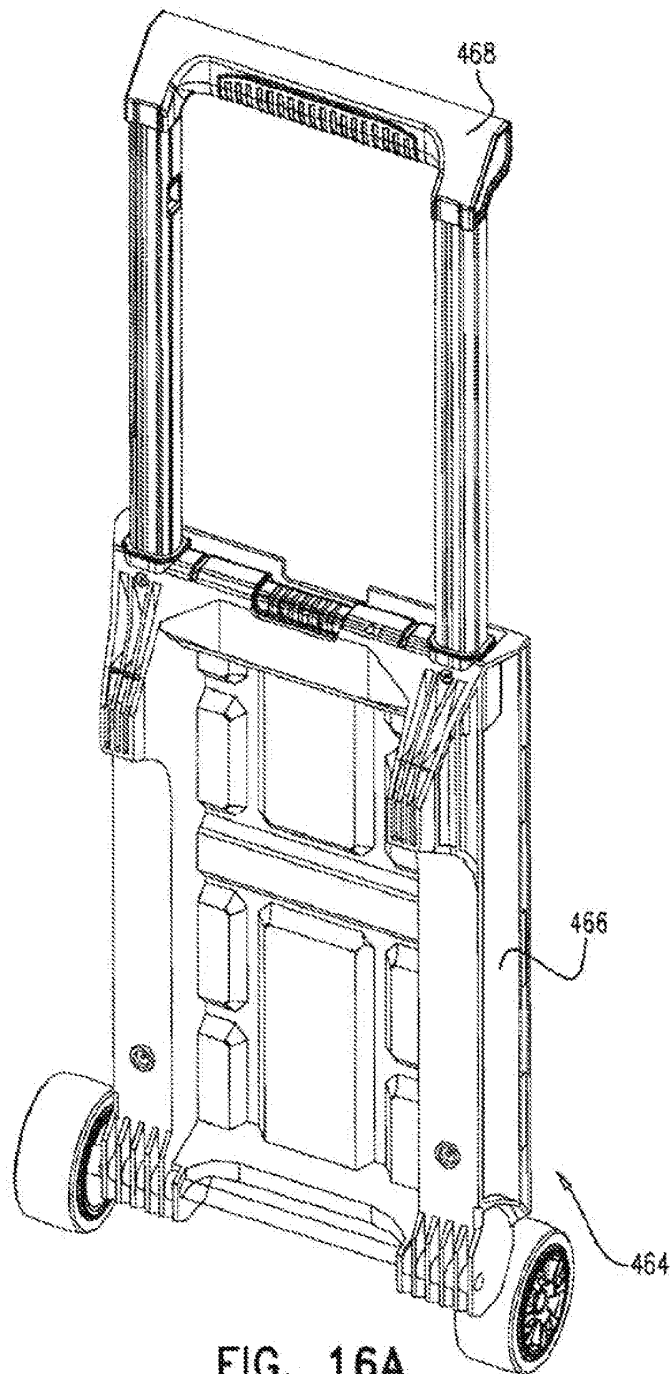


FIG. 16A

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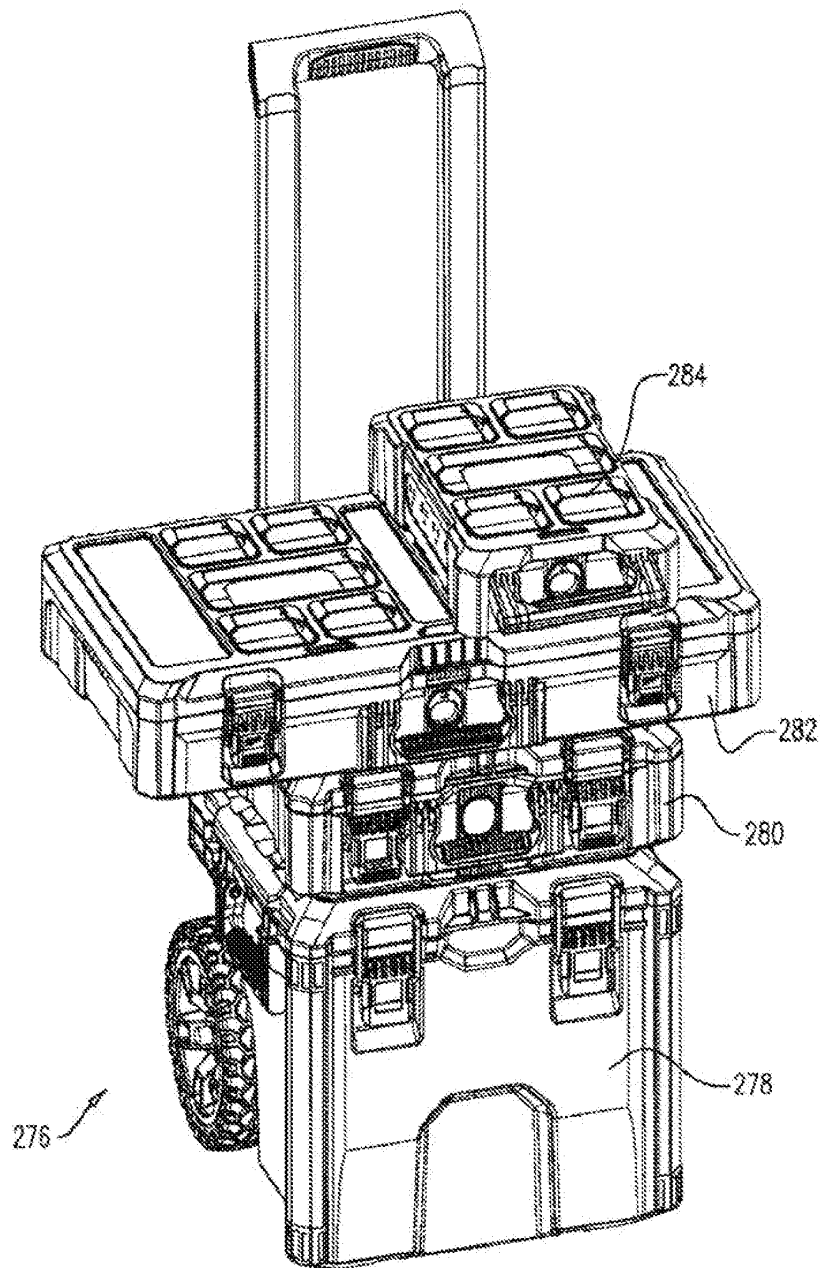


FIG. 16B

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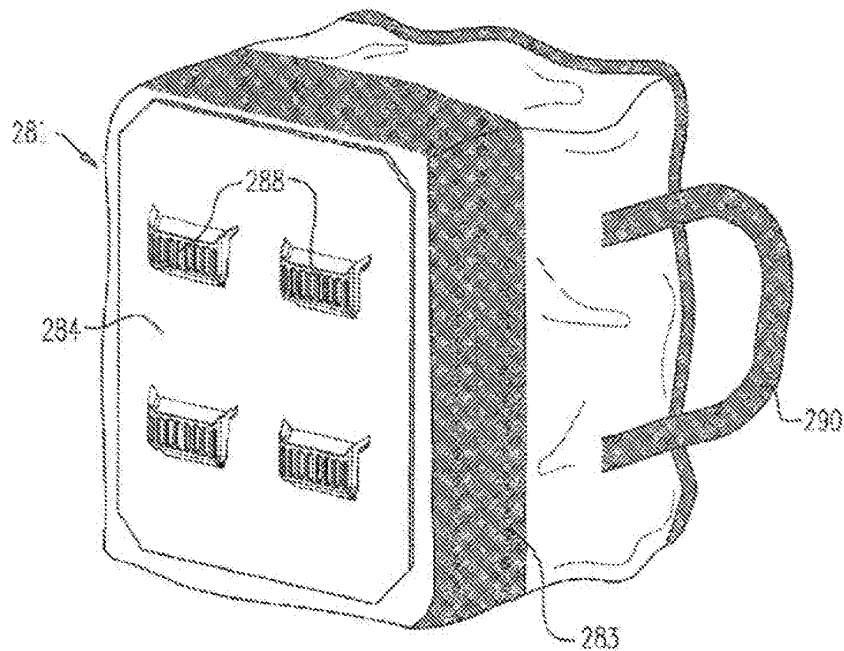


FIG. 17

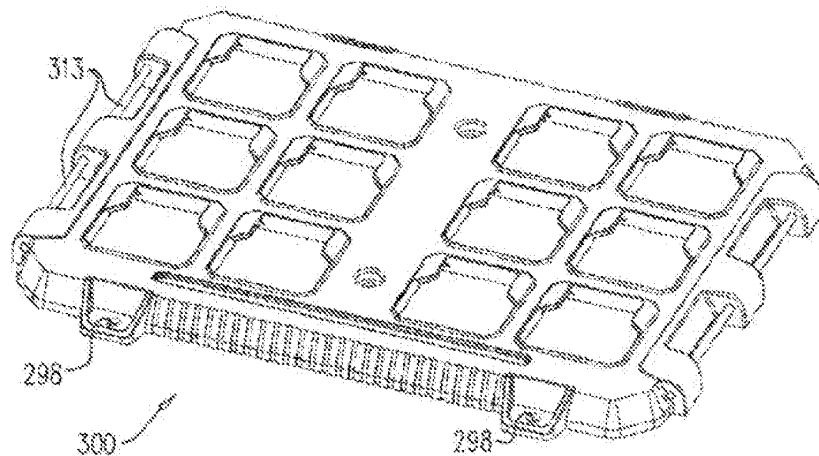
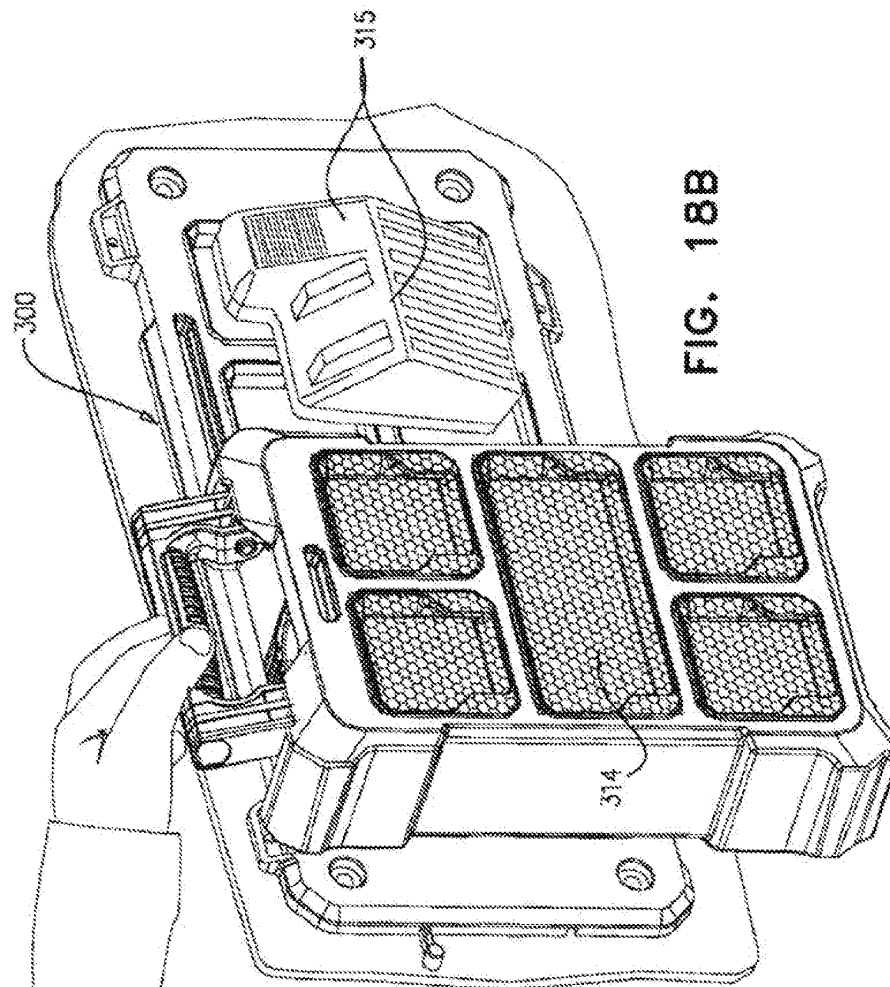


FIG. 18A

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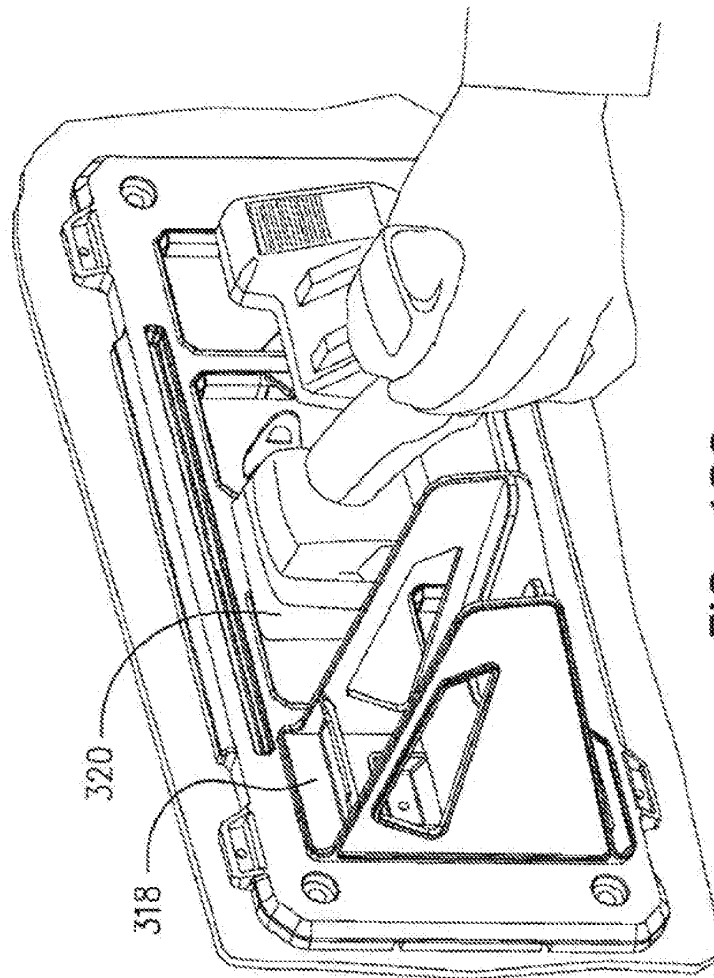
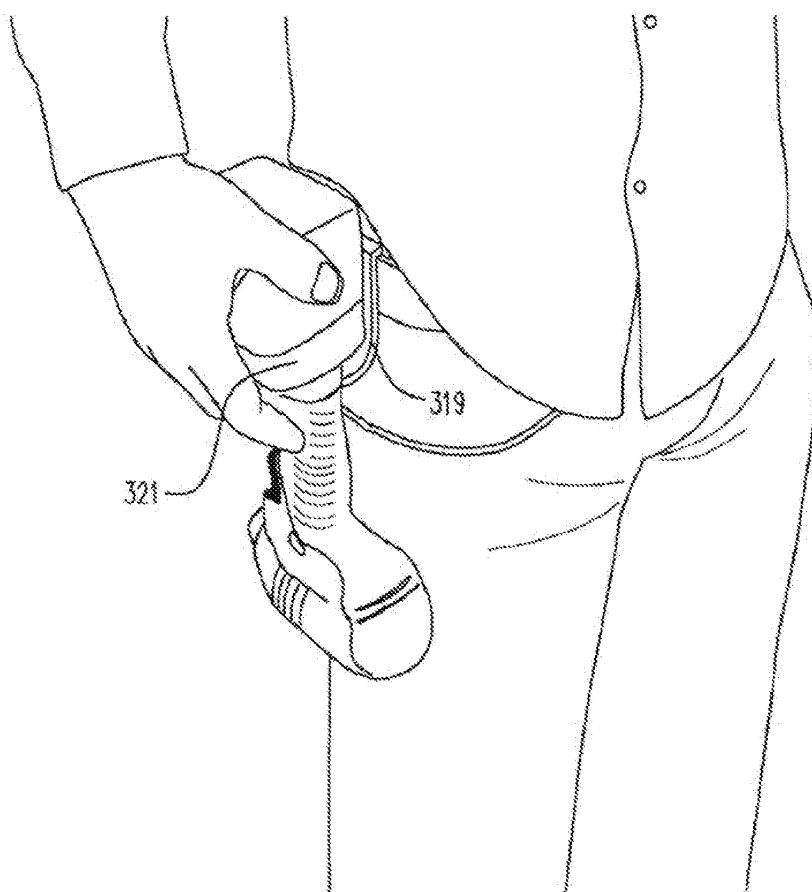


FIG. 18C

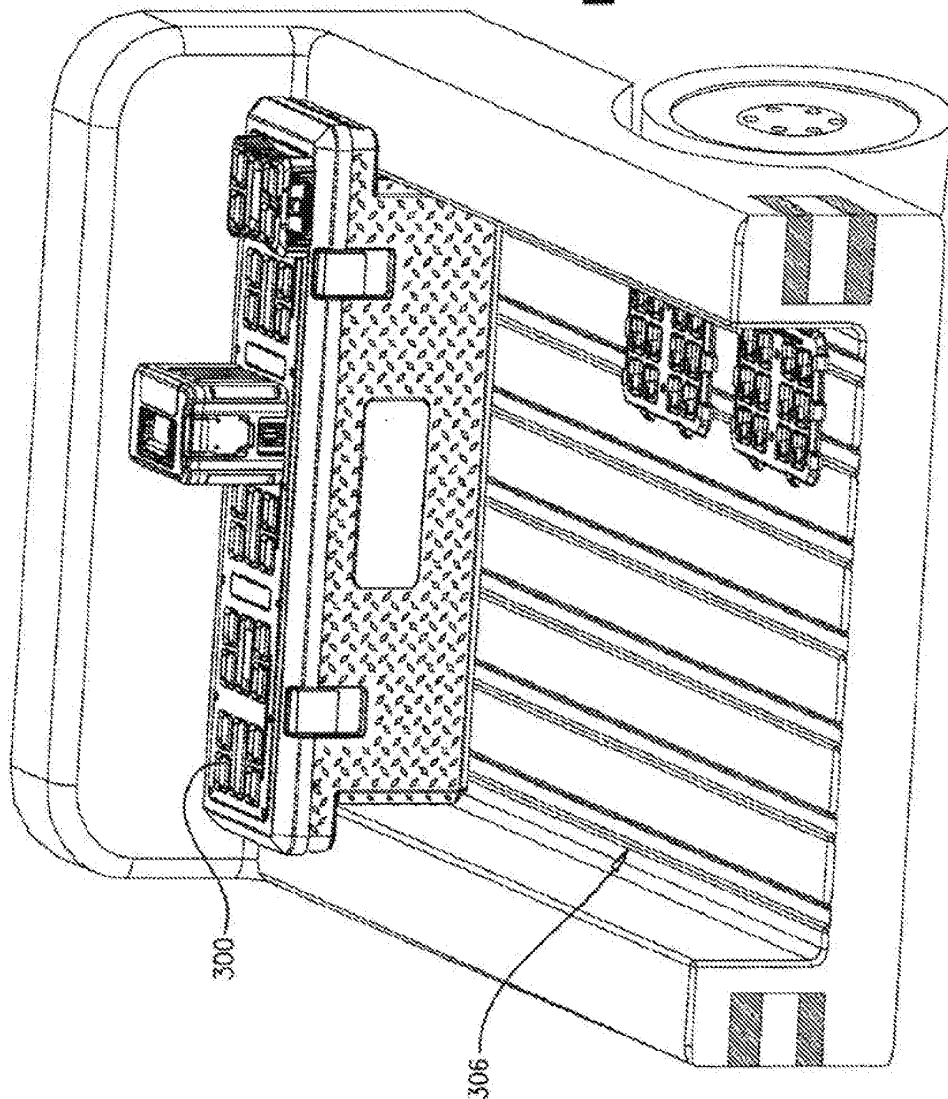
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**FIG. 19**

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FIG. 20



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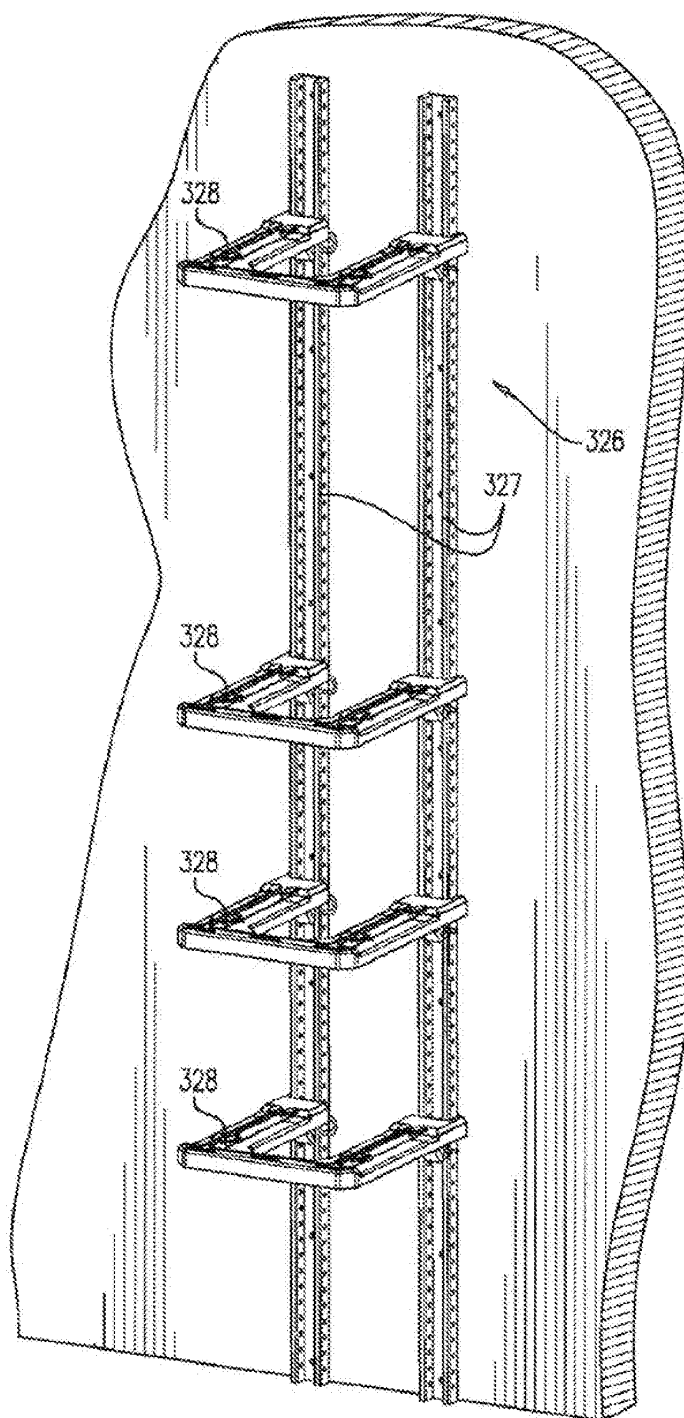


FIG. 21

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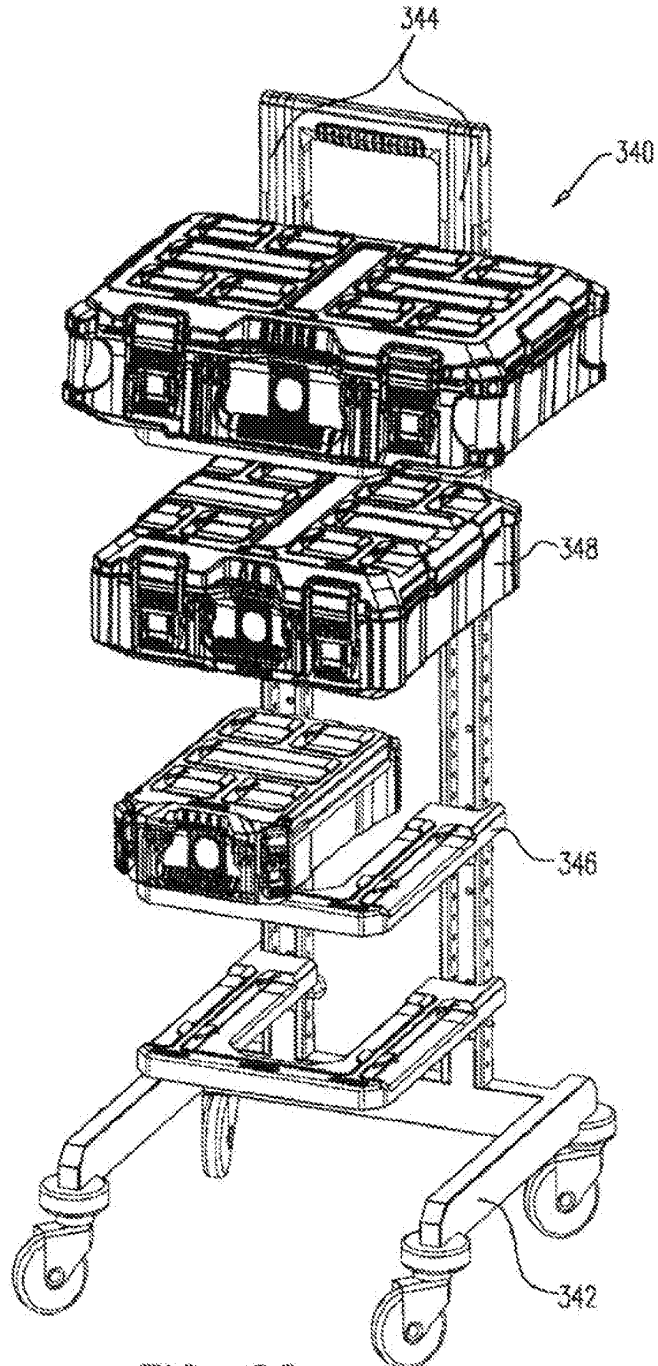
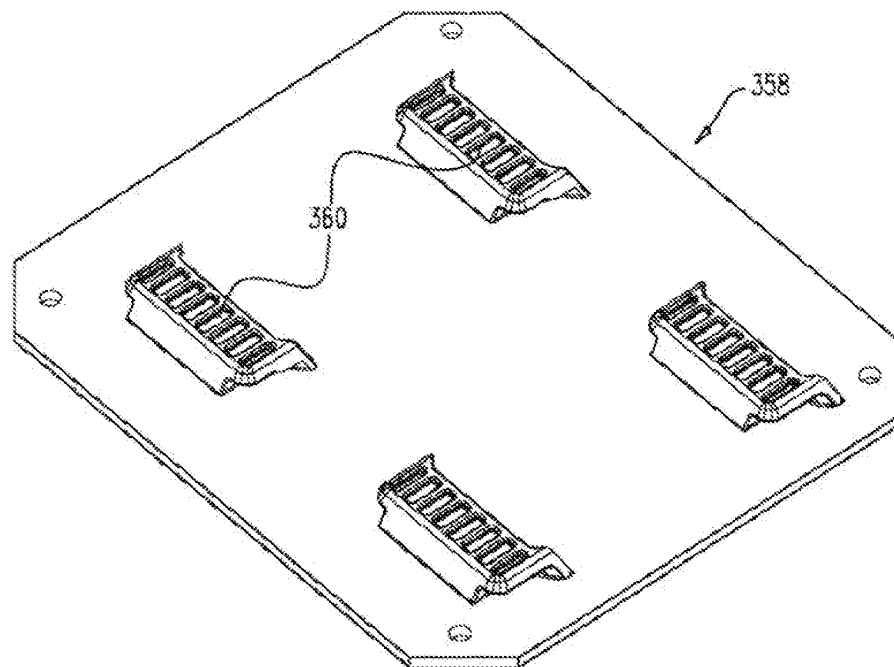
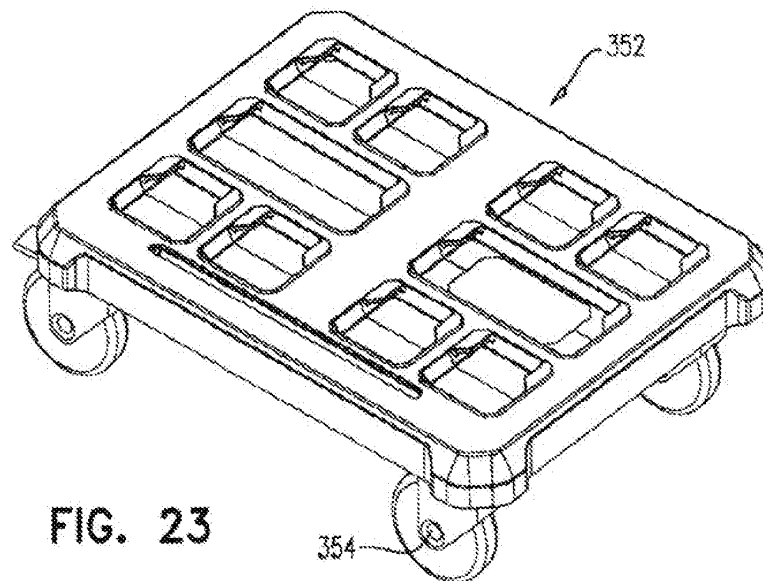


FIG. 22

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UTILITY ASSEMBLY AND COUPLING
MECHANISMCROSS-REFERENCE TO RELATED PATENT
APPLICATION

This application is a continuation of U.S. application Ser. No. 15/826,232, filed Nov. 29, 2017, which is a continuation of International Application No. PCT/IL2017/050481, filed Apr. 30, 2017, which claims priority to U.S. Provisional Application No. 62/459,076, filed Feb. 15, 2017 and to U.S. Provisional Application No. 62/330,334, filed May 2, 2016, which are incorporated herein by reference in their entireties.

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.

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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 provided 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 first 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

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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.

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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 against the carrier engagement surface, such that the utility module's first engaging elements

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ments are disposed shifted over the respective carrier engaging elements of the carrier unit, and are then slidably 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 slidably 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 snapably 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 thus it prevents said engaging elements from being slidably 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;

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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, or for interconnecting two or more utility modules to the vehicle;

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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 another 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 extruded. 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 in a first sense, and configured in a second sense, opposite to said first sense, and configured

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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.

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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 guiding 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

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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.

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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, configured for facilitating engagement in a detachable manner with a first engagement surface.

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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 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.

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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 snappingly protruding from one of the engagement surfaces into a designated nock 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. 1A to 6G 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 rib of the first container.

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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 relative 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. 13A-13D, 14A-14C, 15A-15B, 16A-16B, 17, 18A-18C, and 19-24 are different embodiments and configurations of utility modules and utility assemblies according to examples of this disclosure.

DETAILED DESCRIPTION OF EMBODIMENTS

Reference is first being made to FIGS. 1A to 6G, 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 illustrated 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. 1A to 4D, 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 24 to 28 are organizers or the like.

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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. 1A-2C, 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 slanted 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 slanted 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 56 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 slanted 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.

The locking latch 70 is typically axially displaceable between its locking position and its retraction position.

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such that manipulation of the locking latch to disengage it from the locking latch arresting location 50 can be easily facilitated using one hand simultaneously with gripping the carrying handle 80. As seen in FIGS. 1A-2C, manipulating the finger engaging aperture 73, being part of locking latch 70, is disposed opposite to and at finger-reach distance from the carrying handle 80 when the handle is at its carrying position tilted upwards. This enables a grab, release and go detachment of the second utility module from the first utility module in a simple single-handed operation.

When it is required to detachably attach a second container over a first container, the former is placed over the latter (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. 1A-4D, 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 planer 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 114 (typically two of which) It

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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. 7A to 16B, 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 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 236 is secured to the carrier coupler and has a depressed locking location configured

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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 10B). 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. 236 and 236A in FIG. 8A, respectively), 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. 10A and 10B. 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, 11B), 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 FIGS. 16A-16B 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 306 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 312B of a single depressed locking location 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 312B 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 312B by two individual (separate) male couplers 316A and 316B, each configured for arresting one of the respective engaging ribs 312A and 312B. 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. 13A-13D, 14A-14C, 15A-15B, 16A-16B, 17, 18A-18C, and 19-24, 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. The intermediate container 404 is configured with a similar

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female coupling arrangement, and can thus engage with one of 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 430 supporting two detachable workpiece-piece supports 432 (attached as discussed herein before with reference to FIGS. 12A-12C). FIG. 14C illustrates a utility module in the form of a work surface 436 configured with a vice race 438, so that a vice 440, or other workshop tools can be used. The workpiece-piece supports 432 are configured with a male type coupling having projecting locking locations 444 for engaging with respective female couplers.

In FIGS. 15A and 15B there is illustrated a back-rack 450 being a substantially rigid platform having a carrying handle 451 and configured at one side thereof with a pair of adjustable shoulder harnesses 452, and an adjustable waist harness 454. The other side of the back-rack is configured as a universal utility mounting platform 456, configured with a plurality of attachment locations 460. In the illustrated example all attachment locations 460 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 user 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 464 (shown from a bottom side), similar to that disclosed in connection with FIGS. 7A to 11B. The carrying unit 464 comprises a rigid platform 466 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 468 and a pair of wheels 466. 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

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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 281 having soft side walls 283 (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 281 has a carrying strap 290 useful for hand held or shoulder carrying of the bag.

FIG. 18A shows a rigid coupling platform 300, 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 300 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 300 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 342 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.

What is claimed is:

1. A container assembly comprising:

a first container comprising:

a first coupler extending from a first face of the first container, the first coupler comprises two sidewalls, a back wall, and a rib, the back wall extends between the two sidewalls, the two sidewalls and the back wall project from a depressed surface of the first face, and the rib extends from the back wall in a first direction above the depressed surface; and

a latch recess; and

a second container comprising:

a second coupler extending from a second face of the second container, the second coupler includes a tongue that is offset from the first face and extends in a second direction opposite the first direction, the

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Page 63 of 64

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tongue of the second container is engageable with the rib of the first container; and

a latch coupled to the second container, the latch positionable in a locked position in which the latch prevents disengagement of the first container and the second container when the tongue and rib are engaged.

2. The container assembly of claim 1, wherein the first and second couplers on the first and second containers, respectively, engage when the first and second containers are slid along a sliding path defined by the rib and the tongue.

3. The container assembly of claim 1, wherein when the tongue and rib are engaged:

a first side wall of the first coupler and a second side wall of the second coupler interface to restrict displacement between the first container and the second container in a third direction perpendicular to the first direction and parallel to the first face of the first container.

4. The container assembly of claim 1,

the first container further comprising:

a third coupler extending from a second face of the first container, the third coupler including a tongue that is offset from the second face of the first container and extending in the second direction, the tongue of the first container configured to engage a rib of a third container, the first and third containers entering an engaged position by the third container sliding with respect to the first container; and

a latch coupled to the first container, the latch positionable in a locked position in which the latch prevents disengagement of the first container and the third container when the tongue of the first container and the rib of the third container are engaged.

5. The first container of claim 1, wherein the first coupler extends from a bottom face of the first container, and the second coupler extends from a top face of the second container.

6. The first container of claim 1, wherein the first face comprises a plurality of depressed surfaces, one of which the rib extends above, and wherein the plurality of depressed surfaces of the first face comprise at least 50% of the area of the first face.

7. A first container configured to be removably coupled to a second container, the first container comprising:

a top face;

a bottom face; and

a first coupler extending from a first face of the first container that is one of the top face and the bottom face, the first coupler comprises a tongue that is offset from the first face and extends in a first direction;

a second coupler extending from a second face of the first container that is the other of the top face and the bottom face, the second face comprising a plurality of depressed surfaces, the second coupler comprises a back wall, two sidewalls, and a rib, the back wall and the two sidewalls project from one of the plurality of

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depressed surfaces of the second face, the rib offset from the second face and extends above the one of the plurality of depressed surfaces in a second direction opposing the first direction, the rib engageable with a second tongue coupled to a second container, the first container enters an engaged position with the second container by the first and second containers sliding with respect to each other, wherein the plurality of depressed surfaces of the second face cover at least 50% of the second face;

a latch recess; and

a latch, the latch positionable in a locked position in which the latch interlocks with a second latch recess in the second container restricting displacement between the first container and the second container.

8. The first container of claim 7, wherein the rib is engaged between the second tongue of the second container and a first face of the second container when the first container is removably coupled to the second container.

9. The first container of claim 7, the first coupler of the first container engageable with a second rib of a third container.

10. The first container of claim 9, the latch recess of the first container engageable with a second latch of the third container.

11. The first container of claim 7, wherein the first face of the first container is the bottom face of the first container, and the second face of the first container is the top face of the first container.

12. A container assembly comprising:

a first container comprising:

a first coupler extending from a first face of the first container, the first coupler comprises two sidewalls, a back wall, and a rib, the back wall extends between the two sidewalls, the first face comprises a plurality of depressed surfaces, the back wall and the two sidewalls project from one of the plurality of depressed surfaces, the rib extends from the back wall in a first direction above the one of the plurality of depressed surfaces, the plurality of depressed surfaces of the first face cover at least 50% of the first face; and

a latch recess; and

a second container comprising:

a second coupler extending from a second face of the second container, the second coupler includes a tongue that is offset from the second face and extends in a second direction opposite the first direction, the tongue of the second container is engageable with the rib of the first container; and

a latch coupled to the second container, the latch positionable in a locked position in which the latch prevents disengagement of the first container and the second container when the tongue and rib are engaged.

* * * * *

Electronic Patent Application Fee Transmittal				
Application Number:		17064371		
Filing Date:		06-Oct-2020		
Title of Invention:		Utility Assembly and Coupling Mechanism		
First Named Inventor/Applicant Name:		Yaron Brunner		
Filer:		Derek Howard Campbell/Andrea Dietzel		
Attorney Docket Number:		066749-2792		
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:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	260	260
Total in USD (\$)				260

Electronic Acknowledgement Receipt	
EFS ID:	41583134
Application Number:	17064371
International Application Number:	
Confirmation Number:	4794
Title of Invention:	Utility Assembly and Coupling Mechanism
First Named Inventor/Applicant Name:	Yaron Brunner
Customer Number:	142078
Filer:	Derek Howard Campbell/Andrea Dietzel
Filer Authorized By:	Derek Howard Campbell
Attorney Docket Number:	066749-2792
Receipt Date:	07-JAN-2021
Filing Date:	06-OCT-2020
Time Stamp:	16:15:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$260
RAM confirmation Number	E202117G16056934
Deposit Account	180882
Authorized User	Andrea Dietzel
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)					
37 CFR 1.20 (Post Issuance fees)					
37 CFR 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	066749-2792_IDS_Transmittal.pdf	83309	no	3
			a1c1613ff76c41680f07ddc484f1cf78408eb25		
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	066749-2792_SB08.pdf	113549	no	3
			ea016f1d47334c55c0ab884ca6db1d23b5fc4259		
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Non Patent Literature	IPR_Petition.pdf	13540134	no	198
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4	Non Patent Literature	Exhibit_1001.pdf	10112880	no	64
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5	Non Patent Literature	Exhibit_1002.pdf	6352951	no	75
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6	Non Patent Literature	Exhibit_1003.pdf	1417733	no	13
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7	Non Patent Literature	Exhibit_1004.pdf	1572415	no	18
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8	Non Patent Literature	Exhibit_1005.pdf	591768	no	9
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9	Non Patent Literature	Exhibit_1006.pdf	24299284	no	176
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11	Non Patent Literature	Exhibit_1008.pdf	376920	no	6
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12	Non Patent Literature	Exhibit_1009.pdf	5678033	no	24
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13	Non Patent Literature	Exhibit_1010.pdf	2791427	no	19
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14	Non Patent Literature	Exhibit_1011.pdf	5246461	no	26
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15	Non Patent Literature	Exhibit_1012.pdf	509327	no	3
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17	Non Patent Literature	Exhibit_1014_Part_A.pdf	16168233	no	166
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18	Non Patent Literature	Exhibit_1014_Part_B.pdf	16281023	no	154
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20	Non Patent Literature	Exhibit_1015.pdf	546604	no	6
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22	Non Patent Literature	Exhibit_1017.pdf	633720	no	6
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26	Non Patent Literature	Exhibit_1021.pdf	57187	no	1
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28	Non Patent Literature	Exhibit_1023.pdf	2800070	no	24
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Information:					
29	Non Patent Literature	Exhibit_1024.pdf	3131565	no	28
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Warnings:					
Information:					
30	Fee Worksheet (SB06)	fee-info.pdf	30695	no	2
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Warnings:					
Information:					
Total Files Size (in bytes):			203971909		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Milwaukee Electric Tool Corporation
Title: Utility Assembly and Coupling Mechanism
Appl. No.: 17/064,371
Filing Date: October 6, 2020
Examiner: WEINERTH, GIDEON R
Art Unit: 3736
Confirmation Number: 4794

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §1.56

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Submitted herewith on Form PTO/SB/08 is a listing of the documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR § 1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR § 1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(c), before the mailing date of any of a final action under 37 CFR § 1.113, a notice of allowance under 37 CFR §1.311, or an action that otherwise closes prosecution in the application.

FEES

The IDS Fee of \$260.00 under 37 CFR 1.17(p) is being paid via Deposit Account No. 18-0882 via EFS-web.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 18-0882. If any extensions of time are needed for timely acceptance of papers submitted herewith, applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 18-0882.

Although Applicant believes that no fee is required for this Request, the Commissioner is hereby authorized to charge any additional fees which may be required for this Request to Deposit Account No. 18-0882.

Respectfully submitted,

Date January 7, 2021

By /Derek H. Campbell/

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Attorney for Applicant
Registration No. 70,608



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/064,371	10/06/2020	Yaron Brunner	066749-2792	4794
142078	7590	12/01/2020		
Reinhart (Milwaukee Tool)			EXAMINER	
ATTN: TRAVIS MCDONNELL, PARALEGAL			WEINERTH, GIDEON R	
1000 NORTH WATER STREET				
SUITE 2100			ART UNIT	PAPER NUMBER
MILWAUKEE, WI 53202			3736	
			NOTIFICATION DATE	DELIVERY MODE
			12/01/2020	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):

IPAdmin@reinhartlaw.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Election/Restrictions

2. This application contains claims directed to the following patentably distinct species.

- a. A utility module assembly comprising two modules with couplers (Claims 1-8).
- b. A coupling platform with female couplers (Claims 9-14).
- c. A coupling platform with male couplers (Claims 15-17).
- d. A male coupler with a locking tongue (Claims 18-20)

3. The species are independent or distinct because each is directed to a substantially different embodiment, implementation, or form of male or female couplers. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

There is a search and/or examination burden for the patentably distinct species as set forth above because at least the following reason(s) apply: There is significant breadth in the type of coupler claimed, the platform, and the coupler structure.

Furthermore, there may be significant issues in double patenting or duplication with the prior applications 15/826201, 15/826232, 16216724, 16/752441, 16/893591.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species or grouping of patentably indistinct species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species or grouping of patentably indistinct species.

Should applicant traverse on the ground that the species, or groupings of patentably indistinct species from which election is required, are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing them to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103 or pre-AIA 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

4. During a telephone conversation with Mr. Derek Campbell on November 9, 2020, a provisional election was made without traverse to prosecute the invention of Species **b, claims 9-14**. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-8 and 15-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be corrected in compliance with 37 CFR 1.48(a) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. A request to correct inventorship under 37 CFR 1.48(a) must be accompanied by an application data sheet in accordance with 37 CFR 1.76 that identifies each inventor by his or her legal name and by the processing fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the bolt eyes, or apertures recited in Claims 10 and 11 which secures the coupling platform **to the** stackable utility module must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 10 and 11 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

6. Regarding Claim 10, the claim recites a plurality of “bolt eyes”. This term is not standard in the art.

7. As shown below in Diagram 1, the Specification Paragraph 00237 identifies element 298 as “bolt eyes”. These bolt eyes are discussed to secure the rigid coupling platform (300) to any desired surface. Please see Diagram 1 which reproduces Applicant’s Figure 18A.

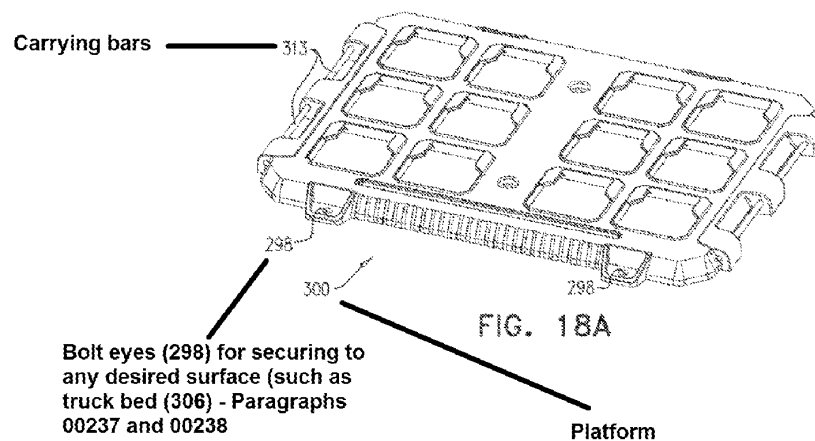


Diagram 1 - Annotated Figure 18A as discussed in Paragraphs 00237-00238