

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☒ Practitioners associated with the Customer Number:

23486

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

☒ The address associated with Customer Number:

23486

OR

☐ Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone	Email		

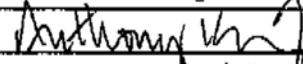
Assignee Name and Address:

Meridian International Co., Ltd.
1886 Layin Road
Songjiang, Shanghai, CHINA

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	12/3/10
Name	Anthony KRIZ	Telephone	303 462 4532
Title	Manager		

The collection of information is required by 37 CFR 1.31, 1.32 and 1.33. 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 1.11 and 1.14. This collection is estimated to take 3 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.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ToughBuilt EX1002
ToughBuilt v. Meridian
IPR2025-01462

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Shujun CAI

Application No./Patent No.: _____ Filed/Issue Date: _____

Titled: STACKED STORAGE CONTAINER LATCH

Meridian International Co., Ltd., a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 048288, Frame 0459, or for which a copy thereof is attached.
- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). 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 1.11 and 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.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Jason R. Sytsma/

March 20, 2020

Signature

Date

Jason R. Sytsma

62262

Printed or Typed Name

Title or Registration Number

NONPROVISIONAL PATENT ASSIGNMENT

Please return signed/recorded to:

Attorney Docket No. 17157-0094

[Customer Number: 23486]

Shuttleworth & Ingersoll, PLC
115 3rd Street SE, Suite 500
Cedar Rapids, IA 52401

Phone: (319) 365-9461

Fax: (319) 365-8443

Email: uspto@shuttleworthlaw.com

In consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration paid to each of the undersigned, to wit:

INSERT NAME(S) OF INVENTOR(S)	1.	Shujun, CAI	4.	
	2.		5.	
	3.		☐ X box if continued on page 2	

the receipt and sufficiency of which are hereby acknowledged by the undersigned who at the request of, hereby sell(s), assign(s) and transfer(s) unto:

INSERT NAME(S) OF ASSIGNEE(S) & ADDRESS(ES)	Meridian International Co., Ltd.		
	1886 Laiyin Road		
	Songjiang, Shanghai		
	CHINA		

(hereinafter designated "ASSIGNEE") the entire right, title and interest in the invention and all applications including any and all previously filed applications; any and all future divisions, continuations, substitutes, reissues, foreign and PCT applications thereof; and all resulting patents, known as

INVENTION TITLE	STACKED STORAGE CONTAINER LATCH
-----------------	--

for which the undersigned executed an application for Letters Patents of the United States of America:

☒	on even date herewith		
☐	U.S. Appin. No.	:	filed on

AND the undersigned hereby authorize(s) and request(s) the United States Commissioner of Patents and Trademarks to issue said Letters Patent to said ASSIGNEE, for its interest as ASSIGNEE, its successors, assigns and legal representatives; the undersigned agree(s) that the attorney of record in said application shall hereinafter act on behalf of said ASSIGNEE;

AND the undersigned hereby agree(s) to testify and execute any papers for ASSIGNEE, its successors, assigns and legal representatives, deemed essential by ASSIGNEE to ASSIGNEE'S full protection and title in and to the invention hereby transferred.

The undersigned hereby authorize(s) Shuttleworth & Ingersoll, PLC of the above address to insert hereon any further identification necessary or desirable for recordation of this document.

INVENTOR

DATE SIGNED

Shujun CAI
Name: Shujun CAI

2020.8.20

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Shujun, CAI	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	17157-0094	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	8567796		2013-10-29	Bar-Erez et al.	
	2	8936258		2015-01-20	Bar-Erez et al.	
	3	9132543		2015-09-15	Bar-Erez et al.	
	4	9566990		2017-02-14	Bar-Erez et al.	
	5	9643629		2017-05-09	Bar-Erez et al.	
	6	10106180		2018-10-23	Bar-Erez et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Shujun, CAI	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	17157-0094	

	1	20170151972	A1	2017-06-01	Bar-Erez et al.
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If you wish to add additional U.S. Published Application citation information please click the Add button.

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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
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NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		

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

EXAMINER SIGNATURE	
Examiner Signature	Date Considered

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

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

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

Application Number	
Filing Date	
First Named Inventor	Shujun, CAI
Art Unit	
Examiner Name	
Attorney Docket Number	17157-0094

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Jason R. Sytsma/	Date (YYYY-MM-DD)	2020-04-13
Name/Print	Jason R. Sytsma	Registration Number	62262

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

Privacy Act Statement

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

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

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

INTERIM COPY OF PRIORITY DOCUMENT
IN ACCORDANCE WITH RULE 1.55(i)

I certify that the accompanying copy is a true copy of the original application as filed in Intellectual Property Office of China [Specification, Claims and Drawings].

Application No.

Country of Origin

Filed

201922118361.7

CHINA

December 2, 2019

March 19, 2020

/Jason R. Sytsma/

Date

Name:



国家知识产权局

200011

上海市黄浦区制造局路 787 号二幢 202B 室
上海晨皓知识产权代理事务所（普通合伙） 成丽杰(021-63132065)

发文日：

2019 年 12 月 02 日



申请号或专利号：201922118361.7

发文序号：2019120201299460

专 利 申 请 受 理 通 知 书

根据专利法第 28 条及其实施细则第 38 条、第 39 条的规定，申请人提出的专利申请已由国家知识产权局受理。现将确定的申请号、申请日、申请人和发明创造名称通知如下：

申请号：201922118361.7
申请日：2019 年 11 月 27 日
申请人：上海美瑞实业有限公司
发明创造名称：箱体互锁结构

经核实，国家知识产权局确认收到文件如下：

说明书附图 每份页数:7 页 文件份数:1 份
实用新型专利请求书 每份页数:4 页 文件份数:1 份
权利要求书 每份页数:2 页 文件份数:1 份 权利要求项数： 10 项
说明书 每份页数:8 页 文件份数:1 份
摘要附图 每份页数:1 页 文件份数:1 份
说明书摘要 每份页数:1 页 文件份数:1 份

提示：

1. 申请人收到专利申请受理通知书之后，认为其记载的内容与申请人所提交的相应内容不一致时，可以向国家知识产权局请求更正。
2. 申请人收到专利申请受理通知书之后，再向国家知识产权局办理各种手续时，均应当准确、清晰地写明申请号。
3. 国家知识产权局收到向外国申请专利保密审查请求书后，依据专利法实施细则第 9 条予以审查。

审 查 员：金智俊

审查部门：专利局初审及流程管理部-06

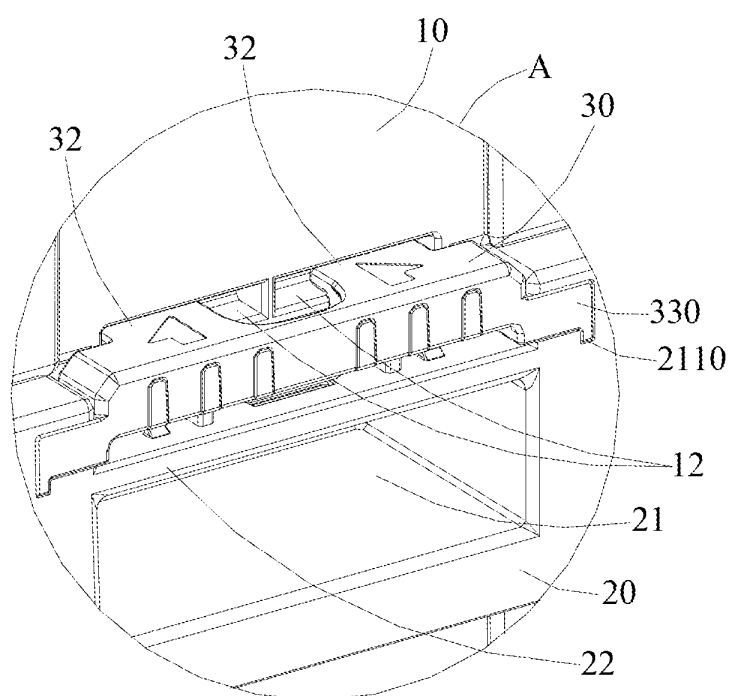
联系电话：021-23110898

200101 纸件申请，回函请寄：100088 北京市海淀区蓟门桥西土城路 6 号 国家知识产权局受理处收
2019.11 电子申请，应当通过电子专利申请系统以电子文件形式提交相关文件。除另有规定外，以纸件等其他形式提交的文件视为未提交。

说明书摘要

本实用新型揭露一种箱体互锁结构，其包括第一箱体及第二箱体，所述第一箱体叠放于所述第二箱体上，还包括水平滑动设置于所述第二箱体上的滑块，所述第一箱体设有锁定槽，所述滑块设有与所述锁定槽对齐的插入部，当所述插入部插入所述锁定槽时，所述滑块将所述第一箱体与所述第二箱体锁定连接在一起；当所述插入部退出所述锁定槽后，所述滑块解除对所述第一箱体的锁定，滑块在很短的距离内即可实现锁定与解锁的功能，可靠性方面大幅度提高，可避免产品松松紧紧手感不好的缺陷。

摘要附图



权 利 要 求 书

1. 一种箱体互锁结构，其包括第一箱体及第二箱体，所述第一箱体叠放于所述第二箱体上，其特征在于：还包括水平滑动设置于所述第二箱体上的滑块，所述第一箱体设有锁定槽，所述滑块设有与所述锁定槽对齐的插入部，当所述插入部插入所述锁定槽时，所述滑块将所述第一箱体与所述第二箱体锁定连接在一起；当所述插入部退出所述锁定槽时，所述滑块解除对所述第一箱体的锁定。
2. 根据权利要求 1 所述的箱体互锁结构，其特征在于：所述锁定槽凹设于所述第一箱体的底端外侧面。
3. 根据权利要求 1 所述的箱体互锁结构，其特征在于：所述第二箱体设有沿所述滑块移动方向延伸的导向筋，所述滑块下表面设有与所述导向筋滑动连接的导向槽。
4. 根据权利要求 3 所述的箱体互锁结构，其特征在于：所述导向筋与所述导向槽设置为 T 形。
5. 根据权利要求 1 所述的箱体互锁结构，其特征在于：所述第二箱体设有用于阻止所述滑块过度滑动脱离所述第二箱体的挡块。
6. 根据权利要求 5 所述的箱体互锁结构，其特征在于：所述滑块设有限位槽，当所述滑块过度移动时，所述限位槽内壁抵靠所述挡块以防止所述滑块脱离所述第二箱体。
7. 根据权利要求 1 所述的箱体互锁结构，其特征在于：所述第二箱体的顶面与侧面的连接处设有开槽及位于所述开槽内的支撑臂，所述开槽包括左右相对的第一侧壁及连接两所述第一侧壁的第二侧壁和底壁，所述支撑臂位于所述底壁上方，所述支撑臂连接两所述第一侧壁，并且与所述第二侧壁隔开，所述滑块滑动设置于所述支撑臂上。

8. 根据权利要求 7 所述的箱体互锁结构, 其特征在于: 两所述第一侧壁分别设有导引槽, 所述滑块左右两端分别设有与所述导引槽滑动连接的导引部。
9. 根据权利要求 7 所述的箱体互锁结构, 其特征在于: 所述支撑臂设有前后隔开的第一扣合槽和第二扣合槽, 所述滑块下表面设有弹性臂, 所述弹性臂末端设有扣合凸部, 当所述插入部插入所述锁定槽时, 所述扣合凸部与所述第二扣合槽扣合, 当所述插入部脱离所述锁定槽时, 所述扣合凸部与所述第一扣合槽扣合。
10. 根据权利要求 1 所述的箱体互锁结构, 其特征在于: 所述滑块上表面设有供手指或工具进入的凹部, 所述凹部位于左右隔开的两所述插入部之间。

说明书

箱体互锁结构

技术领域

本实用新型涉及箱体技术领域，尤其涉及一种多个箱体彼此连接在一起的箱体互锁结构。

背景技术

为了便于在携带多个箱体(比如工具箱)的情况下方便用户使用，各个箱体之间如何能牢固的互锁，从而便于用户移动和使用。市面上已经有了一些不同类型的实现方式：

第一种实现方式为箱体上设置单一的塑料扣，塑料扣可以转动，用来扣住另一箱体上的凸出部达到互锁的目的，该种实现方式结构简单，只需要设置一个部件即可实现两个箱体互锁的功能，但是容差率不高，因为箱体注塑后难免会出现收缩与变形，而此种方式属于翻转后硬卡到凸出部上，即必须过一个干涉的位置才能锁定及防止其容易脱出。这类结构很难避免塑料注塑变形及公差的影响，锁定后要么松，要么紧，使用手感差，大批量注塑制造出来的箱体无可避免的会有锁定后有松有紧的问题，而造成这个问题的原因就是塑料无可避免的注塑收缩及变形。

第二种是箱体常规使用的两段式搭扣的方式，用以实现两箱体之间的锁定。两段式搭扣在原理上能够容许更大的误差，所以同样在塑料件注塑变形的情况下，两段式搭扣的锁定效果好于上述第一种实现方式里的单一的塑料扣，但是两段式搭扣的活动空间较大，锁定及解锁的位置都需要空出较大的结构排布空间，同时因为两段式都需要两个转轴，在部件上面都需要至少三个零部件，而且在解锁后因其是活动部件，单独拎出一个箱体

后此部件多处于自由活动状态，来回晃动，单个箱体放在地面时可能会造成搭扣直接接触地或搭扣歪在两侧凸出于整个箱体的情况。

所以，有必要设计一种新的箱体互锁结构以解决上述技术问题。

实用新型内容

本实用新型的目的在于提供了一种具有改善锁定可靠性的箱体互锁结构。

为实现前述目的，本实用新型采用如下技术方案：一种箱体互锁结构，其包括第一箱体及第二箱体，所述第一箱体叠放于所述第二箱体上，还包括水平滑动设置于所述第二箱体上的滑块，所述第一箱体设有锁定槽，所述滑块设有与所述锁定槽对齐的插入部，当所述插入部插入所述锁定槽时，所述滑块将所述第一箱体与所述第二箱体锁定连接在一起；当所述插入部退出所述锁定槽时，所述滑块解除对所述第一箱体的锁定。

进一步的改进，所述锁定槽凹设于所述第一箱体的底端外侧面。

进一步的改进，所述第二箱体设有沿所述滑块移动方向延伸的导向筋，所述滑块下表面设有与所述导向筋滑动连接的导向槽。

进一步的改进，所述导向筋与所述导向槽设置为T形。

进一步的改进，所述第二箱体设有用于阻止所述滑块过度滑动脱离所述第二箱体的挡块。

进一步的改进，所述滑块设有限位槽，当所述滑块过度移动时，所述限位槽内壁抵靠所述挡块以防止所述滑块脱离所述第二箱体。

进一步的改进，所述第二箱体的顶面与侧面的连接处设有开槽及位于所述开槽内的支撑臂，所述开槽包括左右相对的第一侧壁及连接两所述第一侧壁的第二侧壁和底壁，所述支撑臂位于所述底壁上方，所述支撑臂

连接两所述第一侧壁，并且与所述第二侧壁隔开，所述滑块滑动设置于所述支撑臂上。

进一步的改进，两所述第一侧壁分别设有导引槽，所述滑块左右两端分别设有与所述导引槽滑动连接的导引部。

进一步的改进，所述支撑臂设有前后隔开的第一扣合槽和第二扣合槽，所述滑块下表面设有弹性臂，所述弹性臂末端设有扣合凸部，当所述插入部插入所述锁定槽时，所述扣合凸部与所述第二扣合槽扣合，当所述插入部脱离所述锁定槽时，所述扣合凸部与所述第一扣合槽扣合。

进一步的改进，所述滑块上表面设有供手指或工具进入的凹部，所述凹部位于左右隔开的两所述插入部之间。

本实用新型箱体互锁结构还包括水平滑动设置于第二箱体上的滑块，第一箱体设有锁定槽，所述滑块设有与所述锁定槽对齐的插入部，当所述插入部插入所述锁定槽时，所述滑块将所述第一箱体与所述第二箱体锁定连接在一起；当所述插入部退出所述锁定槽时，所述滑块解除对所述第一箱体的锁定，滑块在很短的距离内即可实现锁定与解锁的功能，可靠性方面大幅度提高，在第一箱体与第二箱体的配合间可以给足够的公差间隙来防止因为塑料注塑变形所引起的尺寸变化，本实用新型箱体互锁结构只需在水平方向配合好尺寸即可，可避免产品松松紧紧手感不好的缺陷，结构简单，零件少，降低成本的同时还能减少占用空间。

附图说明

图 1 为本实用新型箱体互锁结构的立体图。

图 2 为图 1 中 A 部分的放大图。

图 3 为本实用新型箱体互锁结构的部分剖视图。

图 4 为本实用新型箱体互锁结构的第一箱体的立体图。

图 5 为图 4 中 B 部分的放大图。

图 6 为本实用新型箱体互锁结构的第二箱体与滑块的立体图。

图 7 为图 6 中 C 部分的放大图。

图 8 为本实用新型箱体互锁结构的第二箱体的立体图。

图 9 为图 8 中 D 部分的放大图。

图 10 为本实用新型箱体互锁结构的滑块的立体图。

图 11 为本实用新型箱体互锁结构的滑块另一角度的立体图。

具体实施方式

请参阅图 1 至图 5 所示，本实用新型提供一种箱体互锁结构，其包括第一箱体 10、第二箱体 20 及滑块 30，第一箱体 10 叠放于第二箱体 20 上，滑块 30 滑动设置于第二箱体 20 上。

考虑到箱体的对称结构，以下仅针对第一箱体 10 和第二箱体 20 一侧的互锁结构进行描述。

第一箱体 10 外侧面凹设有左右水平间隔开的两锁定槽 12，锁定槽 12 靠近于第一箱体 10 的底端。

请参阅图 3 至图 9 所示，第二箱体 20 的顶面与侧面的连接处设有一开槽 21 及位于该开槽 21 内的水平支撑臂 22，滑块 30 位于所述开槽 21 内，并且部分地向上凸出于第二箱体 20。开槽 21 包括左右相对的两第一侧壁 211、垂直连接该两第一侧壁 211 内侧端的第二侧壁 212 及垂直连接该两第一侧壁 211 底端的底壁 213。支撑臂 22 位于底壁 213 上方，并且与两第一侧壁 211 垂直连接；支撑臂 22 位于第二侧壁 212 前方并且与第二

侧壁 212 隔开，两第一侧壁 211 向上延伸的高度超过支撑臂 22 相对于底壁 213 的高度。两第一侧壁 211 分别自与支撑臂 22 相接处沿背向彼此的方向延伸形成相对的倒 L 形的导引槽 2110，两导引槽 2110 进一步沿靠近第二侧壁 212 的方向延伸形成凹孔。

支撑臂 22 的前表面与第二箱体 20 的侧表面共面，支撑臂 22 的上表面设有左右间隔开的两 T 形导向筋 221、与导向筋 221 垂直连接的加强筋 222、位于该两导向筋 221 之间的第一扣合槽 2231 和第二扣合槽 2232 及位于该两导向筋 221 外侧的两挡块 224。加强筋 222 位于支撑臂 22 的后边缘，并自支撑臂 22 的上表面向上延伸一定高度，其两端分别与第一侧壁 211 垂直连接。第一扣合槽 2231 和第二扣合槽 2232 左右延伸设置，并且前后间隔开，用于固定滑块 30 并便于使用者确认滑块 30 是否滑动到位，第一扣合槽 2231 和第二扣合槽 2232 解锁位置与锁定位置，挡块 224 具有朝向前方的斜面 2240。

请参阅图 7 至图 11 所示，滑块 30 上表面设有凹部 31 及位于凹部 31 左右两侧的插入部 32，插入部 32 设置为水平板状，与第一箱体 10 的锁定槽 12 水平对齐。凹部 31 用于提供手指或工具进入，便于拨动滑块 30 滑动。滑块 30 左右两端设有与第二箱体 20 导引槽 2110 配合的导引部 330。

滑块 30 下表面设有左右间隔开的两 T 形导向槽 34、位于该两导向槽 34 之间的弹性臂 35 及位于导向槽 34 外侧的两限位槽 36，两导向槽 34 分别与两导向筋 221 滑动连接，一方面为滑块 30 提供导向作用，另一方面增加滑块 30 与第二箱体 20 之间的受力从而提供支撑作用，防止滑块 30 向上脱离第二箱体 20。弹性臂 35 可以上下弹性摆动，其末端设有扣合凸部 350，用于与第二箱体 20 的第一扣合槽 2231 或第二扣合槽 2232 扣合，便于固定滑块 30 以及使用者确认是否滑动到了解锁位置或锁定位置。两限位槽 36 朝向挡块 224 的一侧敞开并设置有开口，当滑块 30 安装至第二

箱体 20 时,挡块 224 可通过该侧开口进入限位槽 36,挡块 224 的斜面 2240 用于导引挡块 224 进入限位槽 36。与之相对的另一侧封闭设置,当滑块 30 从锁定位置滑动至解锁位置后,该侧侧壁可抵靠挡块 224,从而防止滑块 30 过度滑动脱离第二箱体 20。不难理解的是,可与挡块 224 相抵持的限位结构也可设置为除了限位槽 36 的其他形式,如限位筋、限位挡片等,只要能够实现当滑块 30 解锁时,滑块 30 与挡块 224 之间的相互抵持,防止滑块 30 过度滑动脱离第二箱体 20 即可。

优选的,在本实施例中,第二箱体 20 上的两导向槽 2110 沿靠近第二侧壁 212 延伸形成的凹孔的深度大于支撑臂 22 在该方向上的延伸长度,相对应的,滑块 30 上的两导引部 330 的延伸长度也大于两插入部 32 的延伸长度,如此能够更加稳定地将滑块 30 安装在第二箱体 20 上。可以理解的是,在其他实施例中,导向槽 2110 和导引部 330 的延伸深度和长度也可等于或小于支撑臂 22 的延伸长度,只要能满足滑块 30 的安装及滑动并且不脱离箱体即可。同样的,导向筋 221 的延伸长度只要能满足滑块 30 无论处于解锁位置还是锁定位置导向筋 221 和导向槽 34 都不会彼此脱离即可。

值得注意的是,在本实施例中,如图 9 所示,第二箱体 20 上的两导向槽 2110 呈向下弯折的倒 L 型,相对应的,滑块 30 上的两导引部 330 也为相适配的形状。在其他实施例中,两导引槽 2110 与相对应的导引部 330 也可设计为其他相适配的形状,如向上弯折的倒 L 型等,只要能满足滑块 30 与第二箱体 20 的相互固定及滑动即可。同样的,导向筋 221 和导向槽 34 也可设计为其他相适配的形状,如上大下小的楔形等,只要能满足二者之间的相互滑动以及防止滑块 30 向上脱离即可。

可以理解的是,在本实施例中,导向筋 221 和其对应的导向槽 34、挡块 224 和其对应的限位槽 36,以及插入部 32 和其对应的锁定槽 12 均设置了两对,在其他实施例中,可根据箱体尺寸等实际情况调整各自的数量。

当第一箱体 10 和第二箱体 20 需要彼此连接时,第一箱体 10 堆叠放置于第二箱体 20 上方,使用者拨动滑块 30 向内侧滑动,扣合凸部 350 脱离第一扣合槽 2231,与第二扣合槽 2232 扣合,插入部 32 插入第一箱体 10 的锁定槽 12 内,实现第一箱体 10 与第二箱体 20 之间的彼此锁定,此时,第二箱体 20 的侧表面与滑块 30 的外侧面共面,第一箱体 10 和第二箱体 20 之间实现非常可靠的互锁连接;需要解锁时,只需利用凹部 31 反向即向外拨动滑块 30,插入部 32 退出锁定槽 12,扣合凸部 350 与第二扣合槽 2232 脱离,并与第一扣合槽 2231 相扣合,加之挡块 24 与限位槽 36 之间的相互抵持,即使向外拨动滑块 30,滑块 30 也不会脱离第二箱体 20。当单独使用第二箱体 20 时,滑块 30 上的扣合凸部 350 可与第二扣合槽 2232 扣合,此时,滑块 30 也不会凸出于第二箱体 20 的侧表面影响使用,同时,支撑臂 22 和滑块 30 与底壁 213、第二侧壁 212 之间的空隙,还可供使用者的手指插入,充作把手以便于使用者移动箱体。

值得注意的是,在本实施例中,第一箱体 10 和第二箱体 20 皆为带箱盖的工具箱,为便于二箱体之间的堆叠锁定,第一箱体 10 上的锁定槽 12 设置在第一箱体 10 的侧面底端,第二箱体 20 上对应的支撑臂 22、滑块 30 以及导向槽 2110 皆设置在箱盖的侧面顶端,从而实现第一箱体 10 和第二箱体 20 之间的堆叠互锁。而在其他实施例中,第一箱体 10 和/或第二箱体 20 也可以是没有箱盖的储存工具如收纳篮,当位于下方的第二箱体是没有箱盖的储存工具时,支撑臂、滑块以及导引槽可以设置在箱体侧面顶端,只要能实现与位于上方的第一箱体侧面底端的锁定槽的互相锁定和解锁即可。可以理解的是,本实施例中仅描述了上下两个箱体堆叠的情况,为便于理解,仅针对两个箱体之间的互锁连接的结构也就是下方箱体即第

二箱体 20 上的支撑臂 22、滑块 30 以及导向槽 2110 和上方箱体即第一箱体 10 上的锁定槽 12 进行了描述，但在其他堆叠系统中，还可包括三个甚至多个设有同样相适配的互锁结构的储存工具，此处的储存工具包括但不限于工具箱、工具箱、收纳篮等。

本实用新型箱体互锁结构利用滑块 30 在很短的距离内即可实现锁定与解锁的功能，可靠性方面大幅度提高，在第一箱体 10 与第二箱体 20 的配合间可以给足够的公差间隙来防止因为塑料注塑变形所引起的尺寸变化，本实用新型箱体互锁结构只需在水平方向配合好尺寸即可，可避免产品松松紧紧手感不好的缺陷，结构简单，零件少，减低成本的同时还能减少占用空间。

尽管为示例目的，已经公开了本实用新型的优选实施方式，但是本领域的普通技术人员将意识到，在不脱离由所附的权利要求书公开的本实用新型的范围和精神的情况下，各种改进、增加以及取代是可能的。

说明书附图

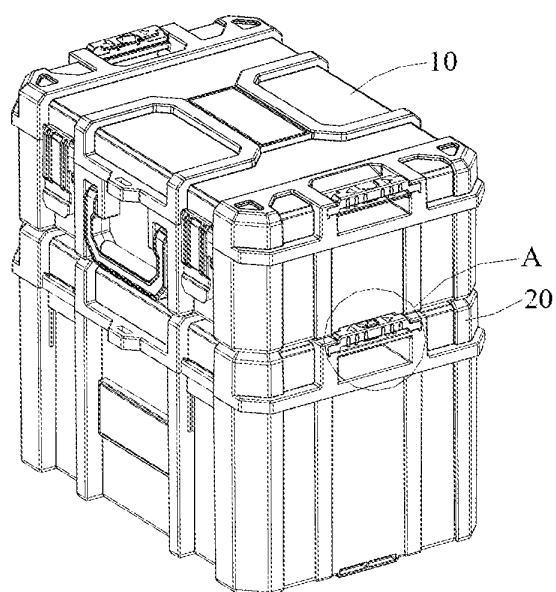


图 1

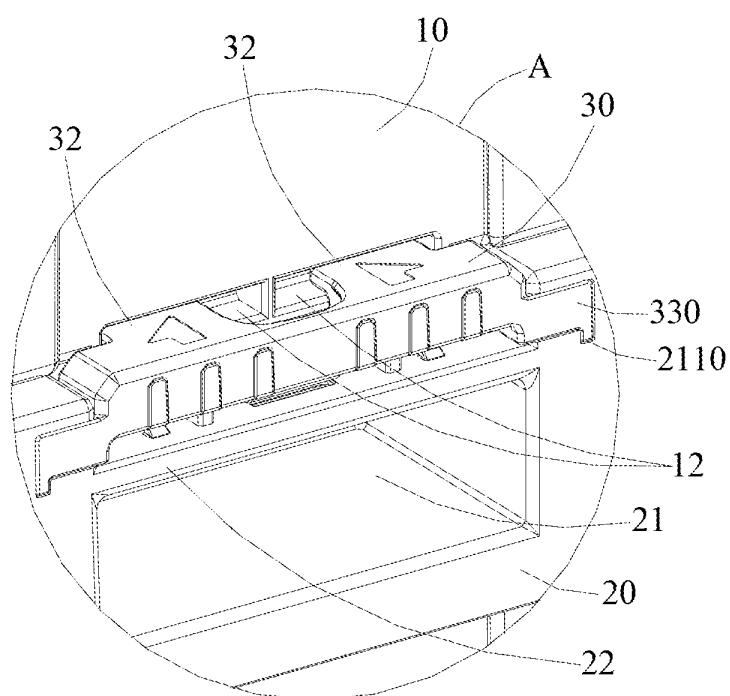


图 2

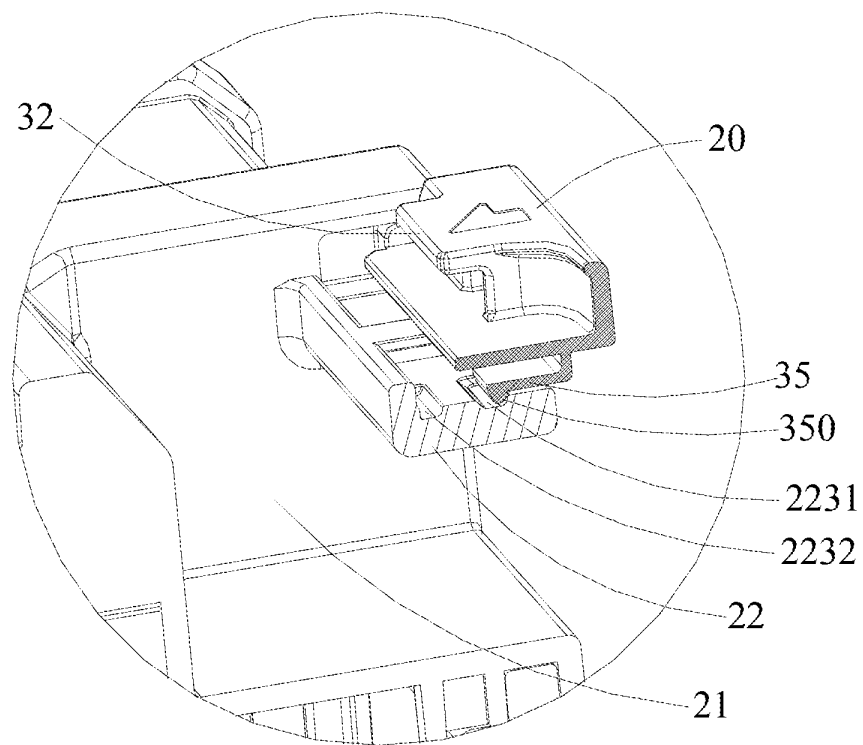


图 3

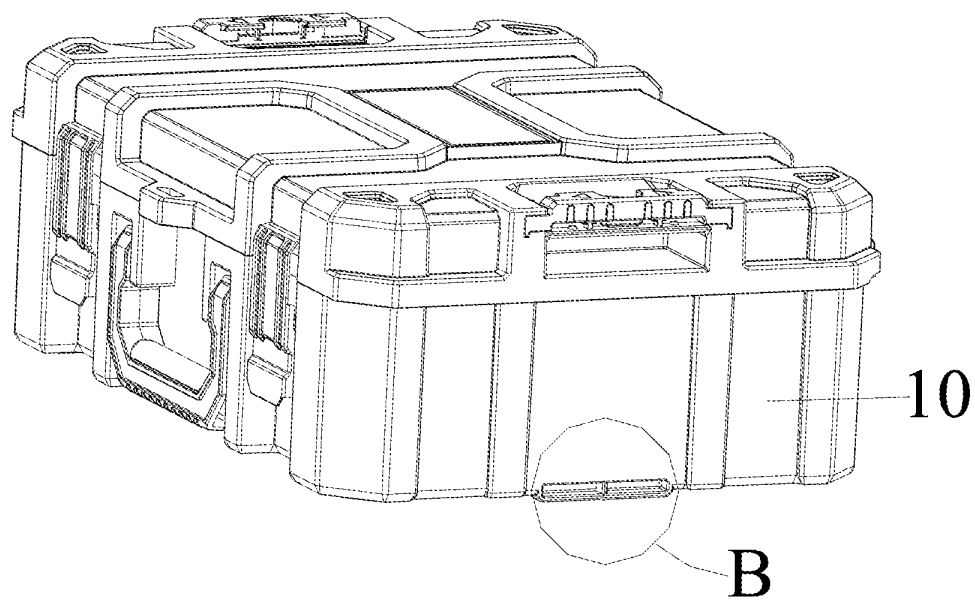


图 4

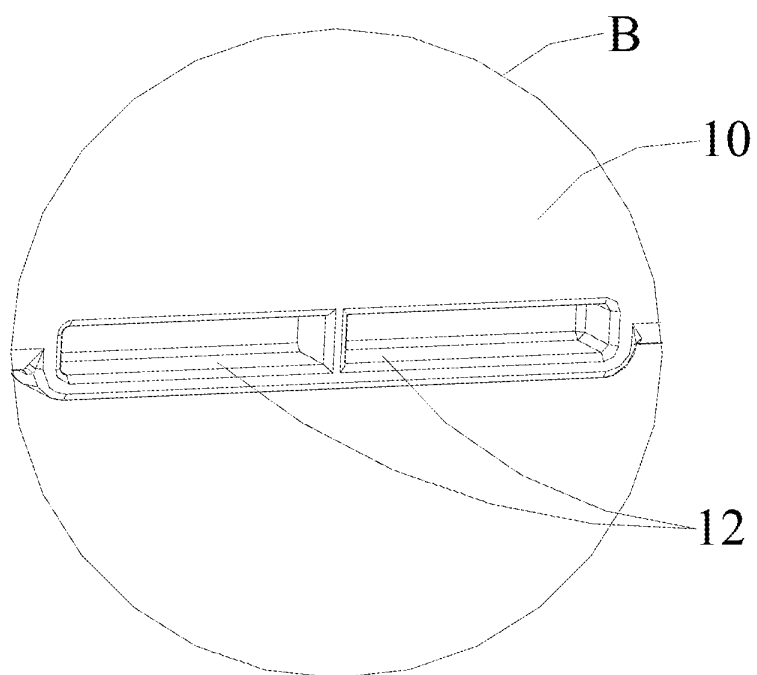


图 5

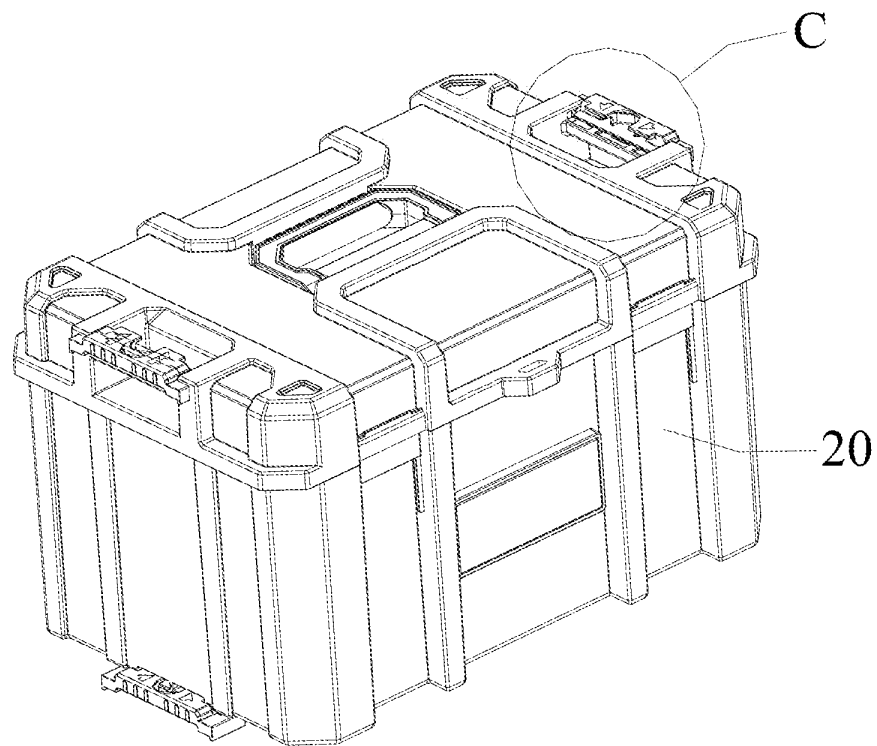


图 6

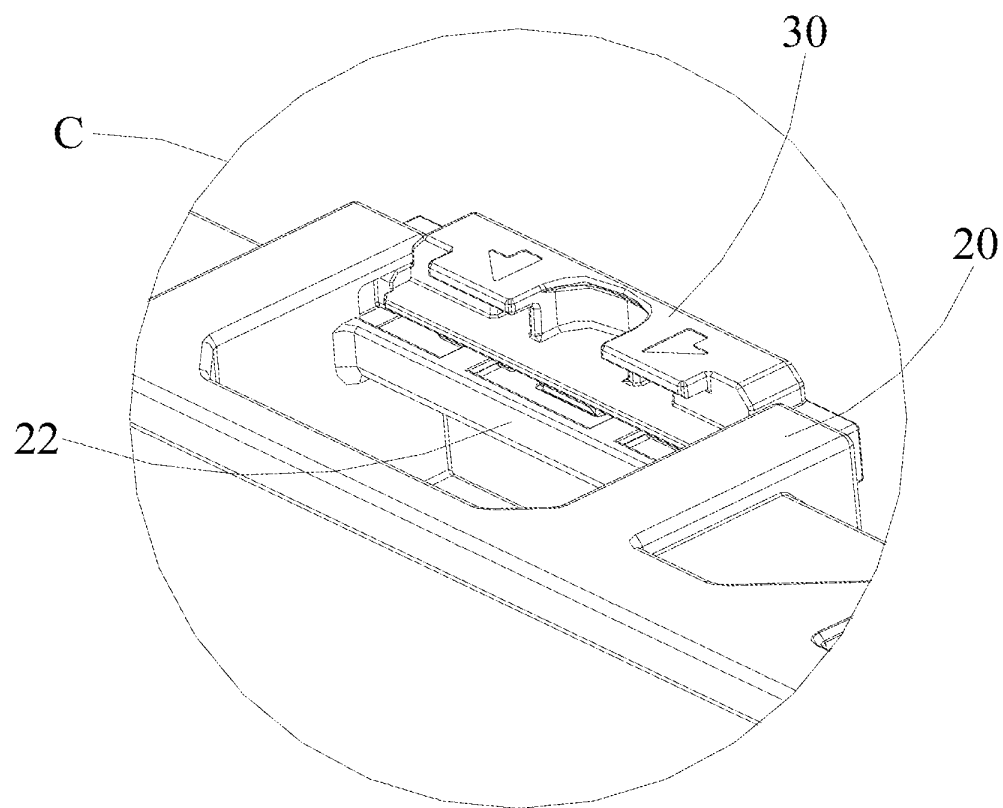


图 7

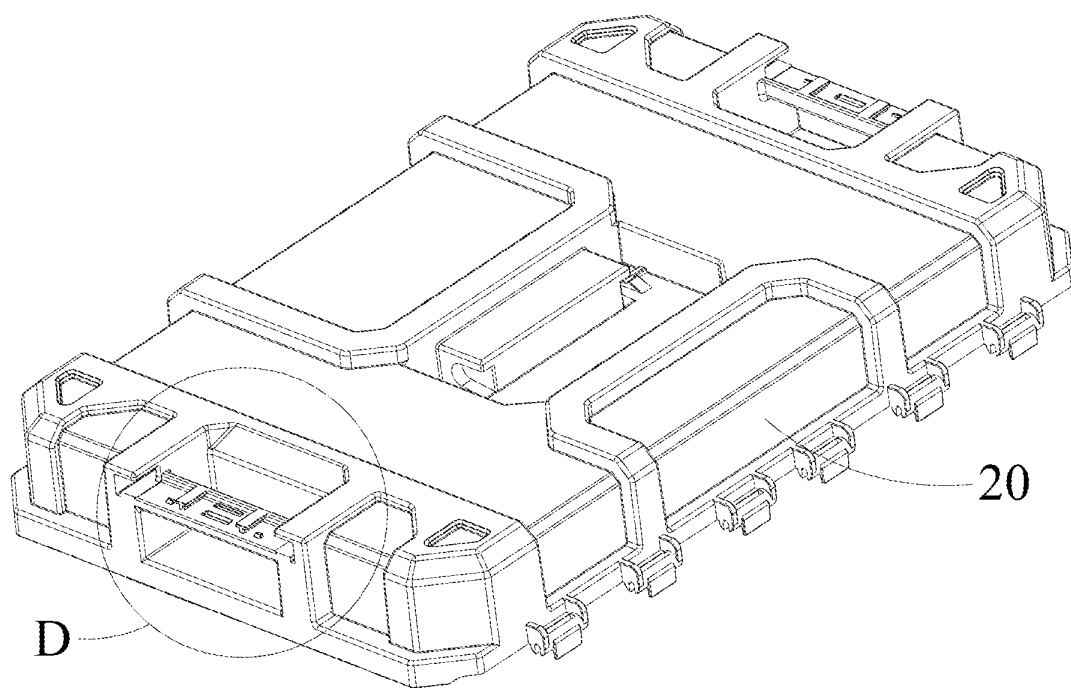


图 8

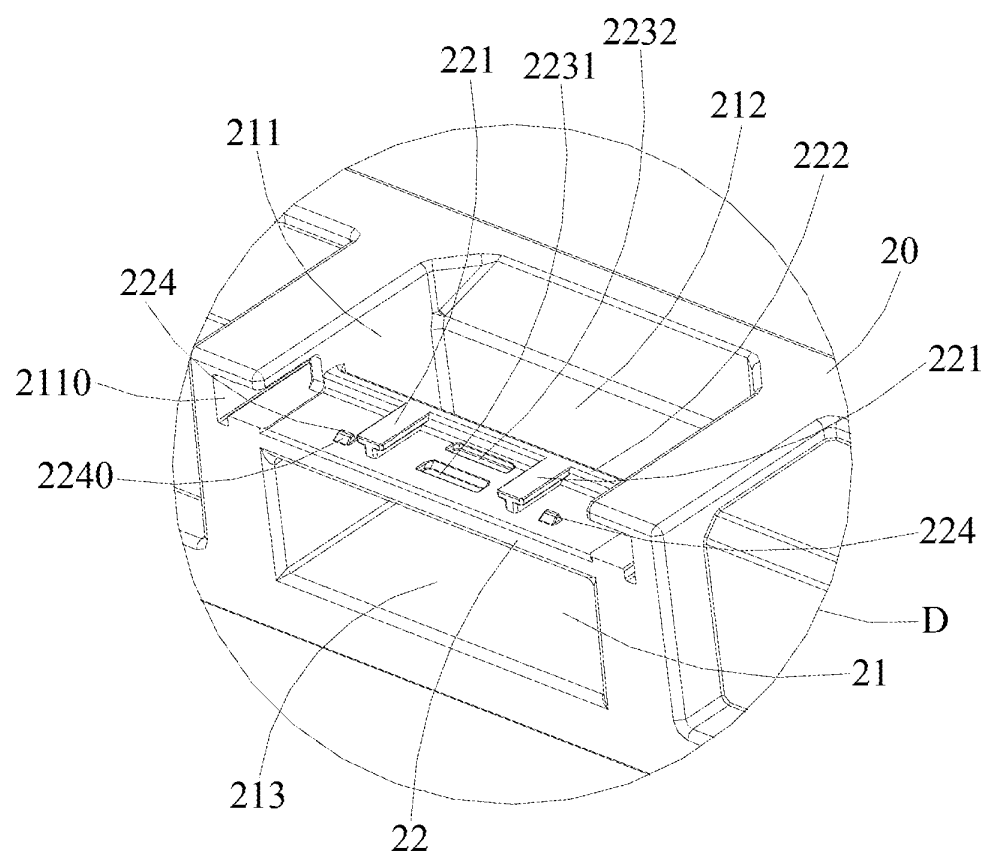


图 9

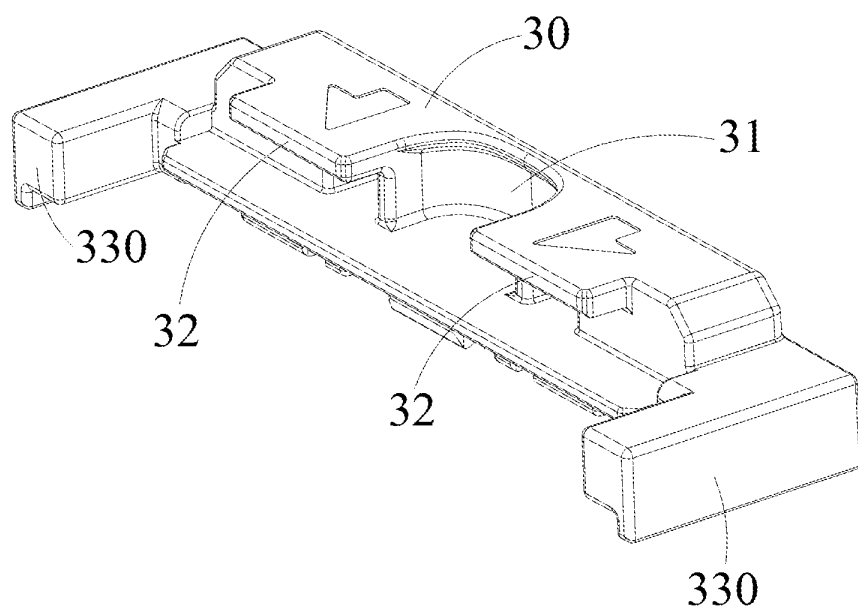


图 10

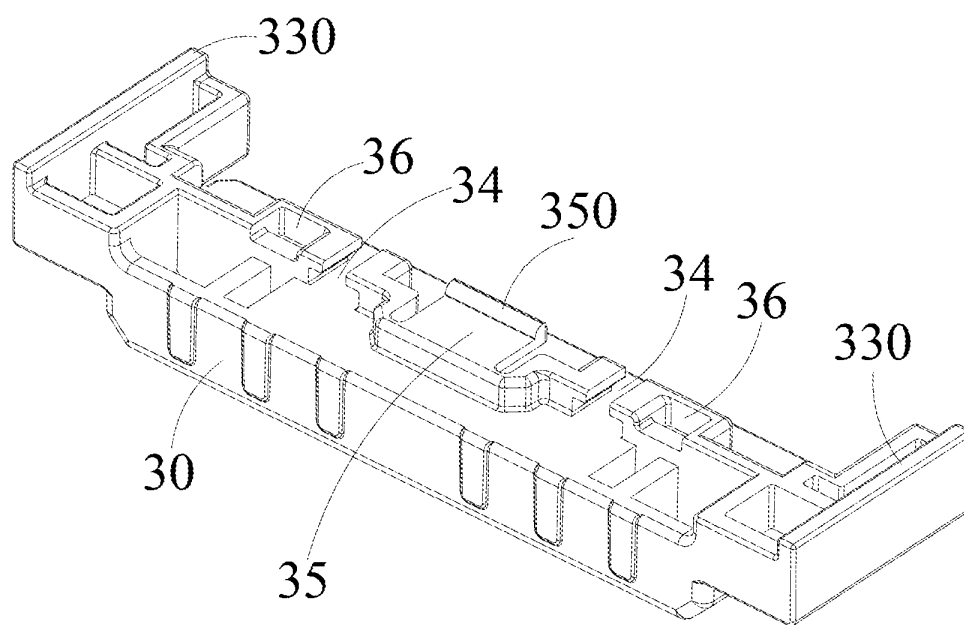


图 11

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		STACKED STORAGE CONTAINER LATCH		
First Named Inventor/Applicant Name:		Shujun CAI		
Filer:		Jason R. Sytsma/Kathy Ibsen		
Attorney Docket Number:		17157-0094		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1720

Electronic Acknowledgement Receipt

EFS ID:	39140361
Application Number:	16846878
International Application Number:	
Confirmation Number:	6004
Title of Invention:	STACKED STORAGE CONTAINER LATCH
First Named Inventor/Applicant Name:	Shujun CAI
Customer Number:	23486
Filer:	Jason R. Sytsma/Kathy Ibsen
Filer Authorized By:	Jason R. Sytsma
Attorney Docket Number:	17157-0094
Receipt Date:	13-APR-2020
Filing Date:	
Time Stamp:	14:47:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1720
RAM confirmation Number	E20204CE47384412
Deposit Account	504904
Authorized User	Kathy Ibsen
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.17 (Patent application and reexamination processing fees)	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	01354599.PDF	1823094	no	8
			237768cf2ccb0a71b7b673e05ab8d1c462905a2		
Warnings:					
Information:					
2		01370816.PDF	100743	yes	16
			86ad40213692ac225c5fb34dcef5708683e55477		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	10	
	Claims		11	15	
	Abstract		16	16	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	01371440.PDF	1963956	no	7
			d45e4ba59e2e764c7f1173ed14b70c47288d9133f		
Warnings:					
Information:					
4	Oath or Declaration filed	01355308.PDF	1540893	no	1
			699196252382e6f3b3761437030b1d410c436dff		
Warnings:					
Information:					
5	Power of Attorney	01354590.PDF	45004	no	1
			09d9b4e4ce0f63865d234704d3f6ab82ac4f2ef8		

Warnings:					
Information:					
6	Assignee showing of ownership per 37 CFR 3.73	01355310.PDF	3686113 6d5d4cdb9a05032018e683b61329cf8f6ceafecf	no	3
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	01354621.PDF	1034388 a14b108991aeecaa93dac85fb65a8dfdc6ffaa39e6	no	4
Warnings:					
Information:					
8	Interim Copy of the Foreign Priority Document	01371451.PDF	11315094 839b6f791722d271b58864b42c836e9448f718f	no	21
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	34993 a8f2d0146389f2d74ecc0d0fc73df329abb9a4a0	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			21544278		
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.					

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17157-0094
		Application Number	
Title of Invention	STACKED STORAGE CONTAINER LATCH		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Shujun		CAI		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Songjiang, Shanghai		Country of Residence ⁱ	CN	
Mailing Address of Inventor:					
Address 1	106 Laiyin Road				
Address 2					
City	Songjiang, Shanghai		State/Province		
Postal Code		Country ⁱ	CN		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	23486		
Email Address	uspto@shuttleworthlaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	STACKED STORAGE CONTAINER LATCH		
Attorney Docket Number	17157-0094	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	Suggested Figure for Publication (if any)	

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17157-0094
		Application Number	
Title of Invention	STACKED STORAGE CONTAINER LATCH		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	23486		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Remove
Application Number	Continuity Type	Prior Application Number
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.		Add

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17157-0094
		Application Number	
Title of Invention	STACKED STORAGE CONTAINER LATCH		

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)	Remove
201922118361.7	CN	2019-11-27		

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17157-0094
		Application Number	
Title of Invention	STACKED STORAGE CONTAINER LATCH		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17157-0094
		Application Number	
Title of Invention	STACKED STORAGE CONTAINER LATCH		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant	1	Remove
------------------	---	---------------------------------------

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

☒ Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Meridian International Co., Ltd.		
-------------------	----------------------------------	--	--

Mailing Address Information For Applicant:

Address 1	1886 Laiyin Road		
Address 2			
City	Songjiang, Shanghai	State/Province	
Country	CN	Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17157-0094
		Application Number	
Title of Invention	STACKED STORAGE CONTAINER LATCH		

Assignee	1			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
				Remove
If the Assignee or Non-Applicant Assignee is an Organization check here.				☐
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country i		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				Add

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Jason R. Sytsma/		Date (YYYY-MM-DD)	2020-04-13
First Name	Jason	Last Name	Sytsma	Registration Number
				62262
Additional Signature may be generated within this form by selecting the Add button.				Add

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	17157-0094
		Application Number	
Title of Invention	STACKED STORAGE CONTAINER LATCH		

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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

SPECIFICATION

TO WHOM IT MAY CONCERN:

BE IT KNOWN that Shujun Cai, a citizen and resident of the country of China, has
invented a new and useful improvement in a

STACKED STORAGE CONTAINER LATCH

of which the following is a specification:

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of Chinese Patent Application No. 201922118361.7 filed November 27, 2019, which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present invention relates to a container constructed and arranged to be connected to other containers.

BACKGROUND INFORMATION

[0003] Numerous container storage systems are known in the art. There is, however, a constant need in the industry to improve upon existing container storage systems by making them more efficient, easy to use, modular, and/or multifunctional.

SUMMARY

[0004] In accordance with one aspect of the present invention, a stackable storage system is provided. The system comprises of a first storage container configured and arranged to be selectively connected to a second storage container. The first storage container can comprise at least one locking groove for receiving a sliding mechanism combined to the second storage container. The sliding mechanism selectively engages the locking groove of the first storage container to connect and hold the first storage container to the second storage container such that a portion of the sliding mechanism extends laterally away from the side surface of the container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the container when the sliding mechanism is engaged with the locking groove.

[0005] In one implementation, the sliding mechanism further comprises of a slider that moves between the engaged and disengaged position with respect to the locking

groove. The slider has a side surface that is perpendicular to the direction of travel of the slider between the engaged and disengaged position with respect to the locking groove and the side surface is coplanar with the side surface of the second storage container when the slider is engaged with the locking groove. The second storage container can further comprise of a slot in the side surface of the container with a support arm extending across the slot. The slider is engaged with the support arm to move between a locked position that corresponds to the engaged position of the locking groove and an unlocked position that corresponds to the disengaged position of the locking groove.

[0006] The support arm can further comprise of a first engaging groove for holding the slider in the unlocked position and a second engaging groove for holding the slider in the locked position. The first engaging groove is closer to the side surface of the container than the second engaging groove. The slider can further comprise of an elastic arm with an engaging protrusion that selectively engages the first engaging groove and the second engaging groove in the support arm.

[0007] The support arm can further comprise at least one block comprising a bevel. The slider further comprises of a recess with a sloped entry surface and a stopping surface for receiving the bevel and arresting outward movement of the slider wherein the stopping surface of the recess is parallel with the engaging protrusion of the elastic arm of the slider. The support arm and the slider can further comprise of a cooperating guide to constrain lateral movement of the slider with respect to the support arm. The cooperating guide can be a guiding rib on the support arm that cooperates with a guiding slot on the slider to constrain lateral movement of the slider with respect to the support arm.

[0008] The slot in the side surface of the container can be described by two laterally spaced apart side surfaces, a second side surface perpendicular thereto, and a bottom surface perpendicular thereto. The support arm is located across the slot between the

two laterally spaced apart side surfaces and above the bottom surface and spaced apart from the second side surface for gripping and carrying the second storage container.

[0009] In one embodiment, the slot is in a side wall of the container portion of the container. In another implementation, the slot is in the lid of the second storage container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] These and other features and advantages of the present invention will be better understood by reading the following detailed description, taken together with the drawings wherein:

[0011] FIG. 1 is shows a side perspective view of a first storage container stacked on top of a second storage container and latched together according to an embodiment of this disclosure.

[0012] FIG. 2 shows an enlarged area A of FIG. 1.

[0013] FIG. 3 shows a partial side cross-sectional view of the structure shown in enlarged area A of FIG. 2.

[0014] FIG. 4 shows a side perspective view of the first storage container of FIG. 1

[0015] FIG. 5 shows an enlarged area B of FIG. 4.

[0016] FIG. 6 shows a side perspective view of the second storage container of FIG. 1.

[0017] FIG. 7 shows an enlarged area C of FIG. 6.

[0018] FIG. 8 shows a detached lid from the second storage container of FIG. 1.

[0019] FIG. 9 shows an enlarged area D of FIG. 8.

[0020] FIG. 10 shows a top perspective view of the slider.

[0021] FIG. 11 shows a bottom perspective view of the slider of FIG. 10.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0022] Referring to FIG. 1, shown is a first storage container 10 stacked on top of a second storage container 20 and latched together by a cooperating sliding mechanism 100. As will be appreciated, each first storage container 10 and second storage container

20 may be of the same or different configurations and be separated from each other for their respective particular uses. In the illustrated embodiment, first storage container 10 has a smaller volume than second storage container 20 for carrying articles of varying sizes.

[0023] First storage container 10, for example and referring to FIG. 4, may comprise a container portion 102 that contains opposing sides walls and a bottom portion defining an interior space. A pivotally attached lid 104 is provided for ease of selective access to the interior of container portion 102. On the front side of first storage container 10, a carrying handle 106 is provided for ease of carrying. One or more lid latches 108 are provided to secure lid 104 to at least one of the sidewalls of container portion 102.

[0024] Second storage container 20, for example and referring to FIG. 6, similarly may comprise a container portion 110 that contains opposing sides walls and a bottom portion defining an interior space. A pivotally attached lid 112 is provided for ease of selective access to the interior of container portion 110. On the top side of lid 112, a carrying handle 114 is provided for ease of carrying. Noticeably, lid 114 pivots downward into a recess 116 in the top side of lid 112 when not in use. This allows for another storage container to be stacked on top without interference from handle 114. One or more lid latches can be provided to secure lid 112 to at least one of the sidewalls of container portion 110.

[0025] Referring to FIGS. 1-5, the present invention provides an interlocking structure, which includes first storage container 10, second storage container 20 and a slider 30. The first storage container 10 is stacked on the second storage container 20, and the slider 30 is slidably disposed on the second storage container 20 to secure the first storage container 10 to the second storage container 20. Considering the symmetrical structure of first storage container 10 and second storage container 20, the following only describes the interlocking sliding mechanism 100 on one side of the first storage container 10 and the second storage container 20 with it being understood that a similar structure can be provided on the other side.

[0026] Referring to FIG. 5, there are two spaced locking grooves 12 at the lower end of the outer side of the first storage container 10 to each receive an insertion portion 32 on slide 30 (shown in FIG. 10) for attaching first storage container 10 to second storage container 20. More specifically, with reference to FIGs. 3 and 9, the second storage container 20 is provided with a slot 21 which is located near the junction of the top surface and the side surface of lid 112 of second storage container 20. The slot 21 is described by two first side surfaces 211, a second side surface 212 and a bottom surface 213. A support arm 22 is located in and across the slot 21 between the two first side surfaces 211. The support arm 22 is located above the bottom surface 213 and is vertically connected to the two first side surfaces 211. And, the support arm 22 is located in front of the second surface 212 and is separated from the second side surface 212. The height of the two first side surfaces 211 extending upwards from the bottom surface 213 is higher than the height between the support arm 22 and the bottom surface 213. The two side surfaces 211 include a L-shaped guiding groove 2110 respectively, and those two guiding grooves 2110 extend towards the second side surface 212 to form a recessed hole, respectively.

[0027] The front surface of the support arm 22 is coplanar with the side surface of the second storage container 20, and the upper surface of the support arm 22 is provided with two spaced T-shaped guiding ribs 221, a reinforcing rib 222 connected perpendicularly to the guiding ribs 221, a first engaging groove 2231 and a second engaging groove 2232 located between the two guiding ribs 221, and two blocks 224 located outside two guiding ribs 221. The reinforcing rib 222 is located at the rear edge of the support arm 22 away from the front surface, and its two ends are respectively connected to the vertical first side surfaces 211. The first engaging groove 2231 and the second engaging groove 2232 are spaced apart and can be engaged with the slider 30 in the unlocked position and the locked position. Specifically, when the slider 30 is engaged with the second engaging groove 2232, the first storage container 10 and the second storage container 20 are locked, when the slider 30 is engaged with the first

engaging groove 2231, the first storage container 10 and the second storage container 20 are unlocked. The two blocks 224 have a bevel 2240, the purpose of which will be discussed below.

[0028] Slider 30 will now be more particularly described with reference to FIGS. 7 and 10-11, the upper surface of the slider 30 is provided with a recessed portion 31 and two insertion portions 32. The recessed portion 31 is used to provide finger or tool access to push the slider 30. The two insertion portions 32 can insert into the locking grooves 12 (shown in FIG. 5), respectively to lock the first storage container 10 and the second storage container 20. Both ends of the slider 30 are provided with guide portions 330 that cooperate with the guiding grooves 2110 of the second storage container 20, so that the slider 30 can slide relative to the second storage container 20.

[0029] The lower surface of the slider 30, shown in FIG. 11, is provided with two spaced T-shaped guiding slots 34, an elastic arm 35 located between the two guiding slots 34, and two recesses 36 located outside the two guiding slots 34. The two guiding ribs 221 on support arm 22 can slide in the two guiding slots 34, respectively. This setting can provide guidance for the sliding of the slider 30, also provide a support and prevent the slider 30 from detaching from the second storage container 20. The elastic arm 35 can swing up and down elastically, and an engaging protrusion 350 is provided at the end of the elastic arm 35. The engaging protrusion 350 can be selectively engaged with the first engaging groove 2231 or the second engaging groove 2232 of the second storage container 20, which is convenient for setting the slider 30 to the second storage container 20 and also convenient for users to confirm if the slider 30 is slid to the locked position or the unlocked position. The two recesses 36 are used to receive the bevel 2240 of each of the two blocks 224 respectively. An opening is provided on one side of the recess 36 to allow the bevel 2240 of the block 224 to slide into place, and the opposite side is sealed to arrest its movement. When the slider 30 slides from the locked position to the unlocked position, the block 224 can abut against the sealed side of the recess 36, thus preventing the slider 30 from detaching from the second storage container 20. It is

not difficult to understand that the recesses 36 can be set to other forms besides the recess, such as a rib is also effective, as long as it can resist the slider 30 and prevent it from sliding away from the second storage container 20.

[0030] Preferably, in this embodiment, the depth of the recessed holes formed by the two guiding grooves 2110 extending towards the second side surface 212 is greater than the length of the support arm 22 in this direction. Correspondingly, the length of the guide portion 330 is also greater than the length of the insertion portions 32, so that the slider 30 can be stably mounted on the second storage container 20. It can be understood that, in other embodiments, the depth of the recessed hole and the length of the guide portion 330 can be equal to or less than the length of the support arm 22, as long as it can ensure the installation and sliding of the slider 30 without detaching from the second storage container 20. Similarly, the length of the guiding rib 221 is required to ensure that the guiding rib 221 and the guiding slot 34 are not disengaged from each other regardless of whether the slider 30 is in the unlocked position or the locked position.

[0031] It is worth noting that, in this embodiment, as shown in Fig.9, the guiding grooves 2110 on the second storage container 20 are inverted L-shaped. Correspondingly, the guide portions 330 on the slider 30 are also inverted L-shaped. In other embodiments, the guiding grooves 2110 and the guide portions 330 also can be designed to other shapes. Similarly, the guiding ribs 221 and the guiding slots 34 can be designed to other shapes besides T-shaped, such as wedge-shaped.

[0032] The quantities can be adjusted according to the different situations. In this embodiment, two pairs of the guiding rib 221 and its corresponding guiding slot 34, two pairs of the block 224 and its corresponding recess 36, two pairs of the insertion portion 32 and its corresponding locking groove 12, are provided. In other embodiments, other quantities and of projections and slots can be provided.

[0033] When the first storage container 10 and the second storage container 20 need to be connected to each other, the first storage container 10 is stacked on top of the second

storage container 20, the user pushes the slider 30 so that the engaging protrusion 350 is disengaged with the first engaging groove 2231 and engaged with the second engaging groove 2232, and the insertion portions 32 are inserted into the locking grooves 12 of the first storage container 10 respectively to connect the first storage container 10 and the second storage container 20. At this time, the side surface of the second storage container 20 is coplanar with the outer side surface of the slider 30. When the first storage container 10 and the second storage container 20 need to be unlocked, the user needs to push the slider 30 in the reverse direction by using the recessed portion 31, so that the insertion portions 32 exit the locking grooves 12 of the first storage container 10, and the engaging protrusion 350 is disengaged with the second engaging groove 2232 and engaged with the first engaging groove 2231. In addition, the blocks 24 abut against the recesses 36 respectively to prevent the slider 30 from detaching from the second storage container 20. The first storage container 10 and the second storage container 20 also can be used separately. The engaging protrusion 350 on the slider 30 can be engaged with the second engaging groove 2232, so that the slider 30 will not protrude from the side surface of the second storage container 20. Besides, the gap between the support arm 22 (also the slider 30) and the second side surface 212, the bottom surface 213 can be inserted by fingers, which acts as a handle to move the storage container.

[0034] In this embodiment, both the first storage container 10 and the second storage container 20 include a cover, and the support arm 22, the slider 30 and the guiding grooves 2110 are provided at the side surface of the cover of the second storage container 20. In other embodiments, the first storage container 10 and/or the second storage container 20 can be other storage tools without a cover such as a basket.

[0035] For easy understanding, the storage system in this embodiment includes only two storage containers. It can be understood that, in other embodiments, three or more storage tools may be included in the system, and not limited to a storage container with cover. Also, the arrangements of the first storage container 10 and second storage

container 20 can be switched with the second storage container 20 on top of first storage container 10. Each of the respective storage containers can have the necessary sliding mechanism 100 so that either can be on top.

[0036] While the principles of the invention have been described herein, it is to be understood by those skilled in the art that this description is made only by way of example and not as a limitation as to the scope of the invention. Other embodiments are contemplated within the scope of the present invention in addition to the exemplary embodiments shown and described herein. Modifications and substitutions by one of ordinary skill in the art are considered to be within the scope of the present invention, which is not to be limited except by the following claims.

CLAIMS

We claim:

1. A stackable storage system comprising:
a first storage container configured and arranged to be selectively connected to a second storage container,
wherein the first storage container comprises of at least one locking groove and the second container comprises a sliding mechanism for selectively engaging the locking groove to connect and hold the first storage container to the second storage container, and
wherein a portion of the sliding mechanism extends laterally away from the side surface of the container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the container when the sliding mechanism is engaged with the locking groove.
2. The stackable storage system of claim 1, wherein the sliding mechanism further comprises of a slider that moves between the engaged and disengaged position with respect to the locking groove.
3. The stackable storage system of claim 2, wherein the slider has a side surface that is perpendicular to the direction of travel of the slider between the engaged and disengaged position with respect to the locking groove and the side surface is coplanar with the side surface of the container when the slider is engaged with the locking groove.
4. The stackable storage system of claim 3, wherein the second storage container further comprises of a slot in the side surface of the container with a support arm extending across the slot, wherein the slider is engaged with the support arm to move

between a locked position that corresponds to the engaged position of the locking groove and an unlocked position that corresponds to the disengaged position of the locking groove.

5. The stackable storage system of claim 4, wherein the support arm further comprises of a first engaging groove for holding the slider in the unlocked position and a second engaging groove for holding the slider in the locked position.

6. The stackable storage system of claim 5, wherein the first engaging groove is closer to the side surface of the container than the second engaging groove.

7. The stackable storage system of claim 6, wherein the slider further comprises of an elastic arm with an engaging protrusion that selectively engages the first engaging groove and the second engaging groove.

8. The stackable storage system of claim 7, wherein the support arm further comprises at least one block comprising a bevel, and the slider further comprises of a recess with a sloped entry surface and a stopping surface for receiving the bevel and arresting outward movement of the slider wherein the stopping surface of the recess is parallel with the engaging protrusion of the elastic arm of the slider.

9. The stackable storage system of claim 4, wherein the support arm and the slider further comprise a cooperating guide to constrain lateral movement of the slider with respect to the support arm.

10. The stackable storage system of claim 9, wherein the cooperating guide is a guiding rib on the support arm that cooperates with a guiding slot on the slider which to constrain lateral movement of the slider with respect to the support arm.

11. The stackable storage system of claim 4, wherein the second storage container further comprises of a guiding groove on each side of the support arm for receiving the slider and constraining lateral movement of the slider with respect to the support arm.
12. The stackable storage system of claim 4, wherein the slot in the side surface of the container is described by two laterally spaced apart side surfaces, a second side surface perpendicular thereto, and a bottom surface perpendicular thereto, wherein the support arm is located across the slot between the two laterally spaced apart side surfaces and above the bottom surface and spaced apart from the second side surface for gripping and carrying the second storage container.
13. The stackable storage system of claim 12, wherein the slot is in the lid of the second storage container.
14. A stackable storage container comprising:
a second storage container configured and arranged to be selectively connected to a locking groove of a first storage container,
wherein the second container comprises a sliding mechanism for selectively engaging the locking groove of the first storage container to connect and hold the first storage container to the second storage container, and
wherein a portion of the sliding mechanism extends laterally away from the side surface of the container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the container when the sliding mechanism is engaged with the locking groove.

15. The storage container of claim 14, wherein the sliding mechanism further comprises of a slider that moves between the engaged and disengaged position with respect to the locking groove, wherein the slider has a side surface that is perpendicular to the direction of travel of the slider between the engaged and disengaged position with respect to the locking groove and the side surface is coplanar with the side surface of the second storage container when the slider is engaged with the locking groove, and wherein the second storage container further comprises of a slot in the side surface of the container with a support arm extending across the slot, wherein the slider is engaged with the support arm to move between a locked position that corresponds to the engaged position of the locking groove and an unlocked position that corresponds to the disengaged position of the locking groove.

16. The storage system of claim 15, wherein the support arm further comprises of a first engaging groove for holding the slider in the unlocked position and a second engaging groove for holding the slider in the locked position, wherein the first engaging groove is closer to the side surface of the container than the second engaging groove, and wherein the slider further comprises of an elastic arm with an engaging protrusion that selectively engages the first engaging groove and the second engaging groove.

17. The storage system of claim 16, wherein the support arm further comprises at least one block comprising a bevel, and the slider further comprises of a recess with a sloped entry surface and a stopping surface for receiving the bevel and arresting outward movement of the slider wherein the stopping surface of the recess is parallel with the engaging protrusion of the elastic arm of the slider.

18. The storage system of claim 17, wherein the support arm and the slider further comprise a cooperating guide to constrain lateral movement of the slider with respect to the support arm, wherein the cooperating guide is a guiding rib on the support arm that

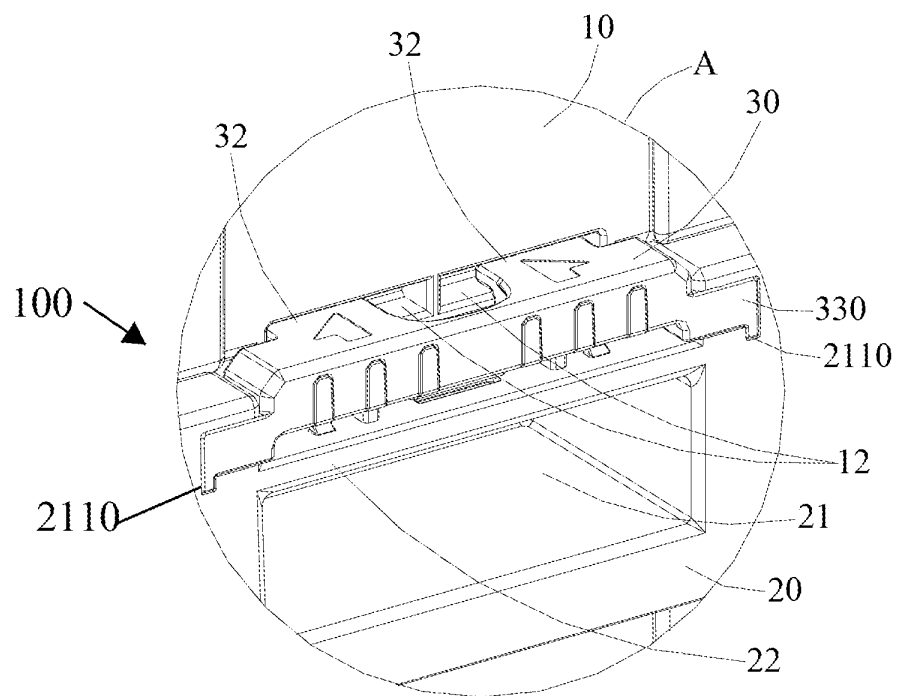
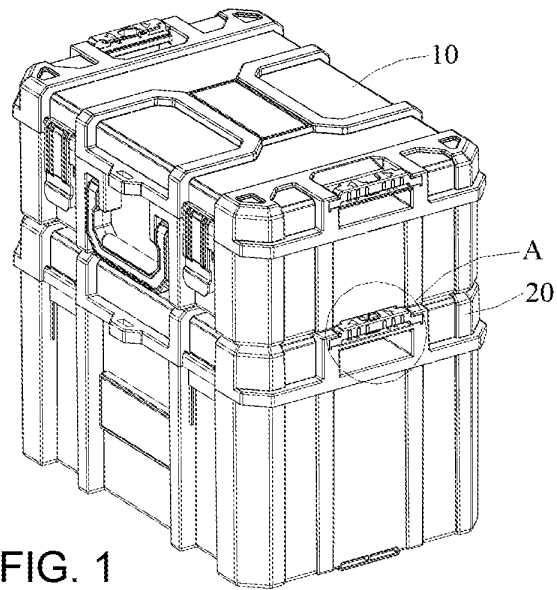
cooperates with a guiding slot on the slider which to constrain lateral movement of the slider with respect to the support arm.

19. The storage system of claim 14, wherein the slot in the side surface of the container is described by two laterally spaced apart side surfaces, a second side surface perpendicular thereto, and a bottom surface perpendicular thereto, wherein the support arm is located across the slot between the two laterally spaced apart side surfaces and above the bottom surface and spaced apart from the second side surface for gripping and carrying the second storage container.

20. The storage system of claim 15, wherein the slot is in the lid of the second storage container.

ABSTRACT

At least one locking groove in a first storage container for receiving a sliding mechanism combined to a second storage container. The sliding mechanism selectively engages the locking groove of the first storage container to connect and hold the first storage container to the second storage container such that a portion of the sliding mechanism extends laterally away from the side surface of the container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the container when the sliding mechanism is engaged with the locking groove.



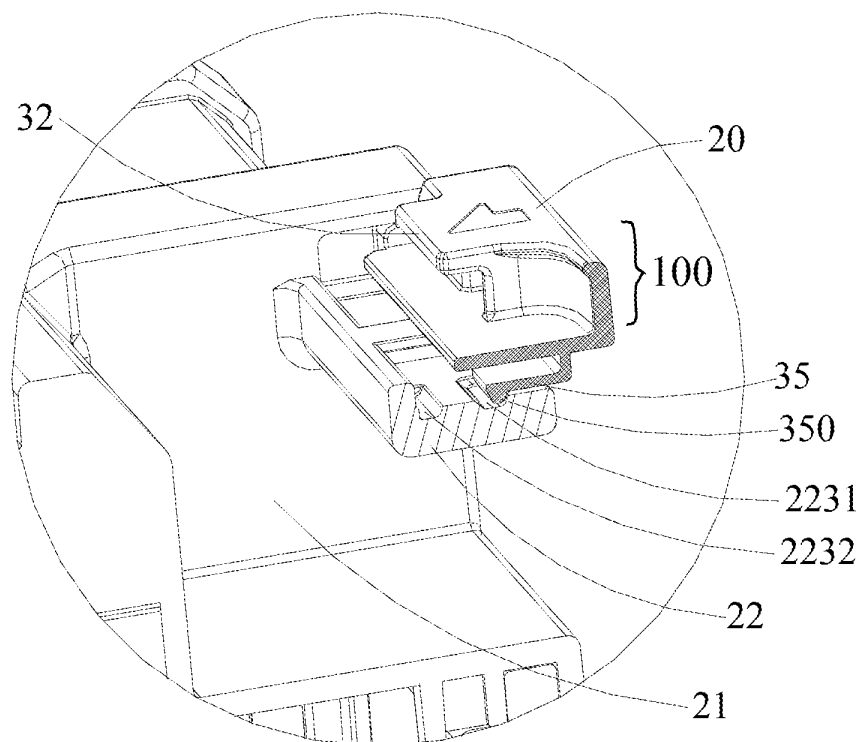


FIG. 3

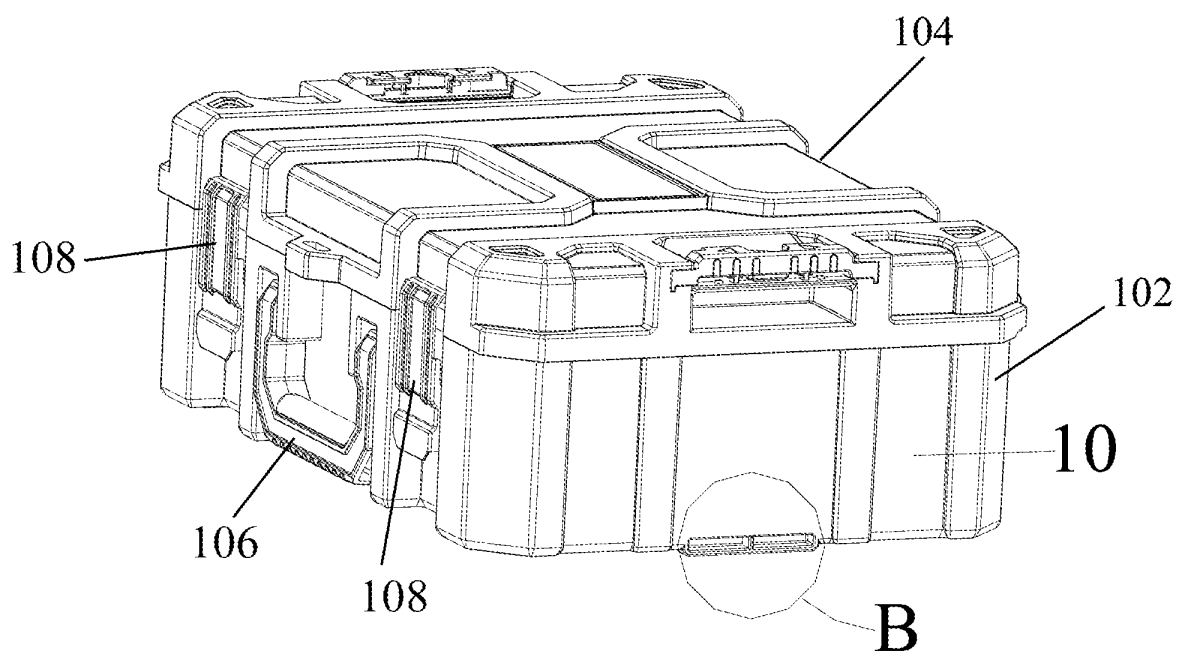


FIG. 4

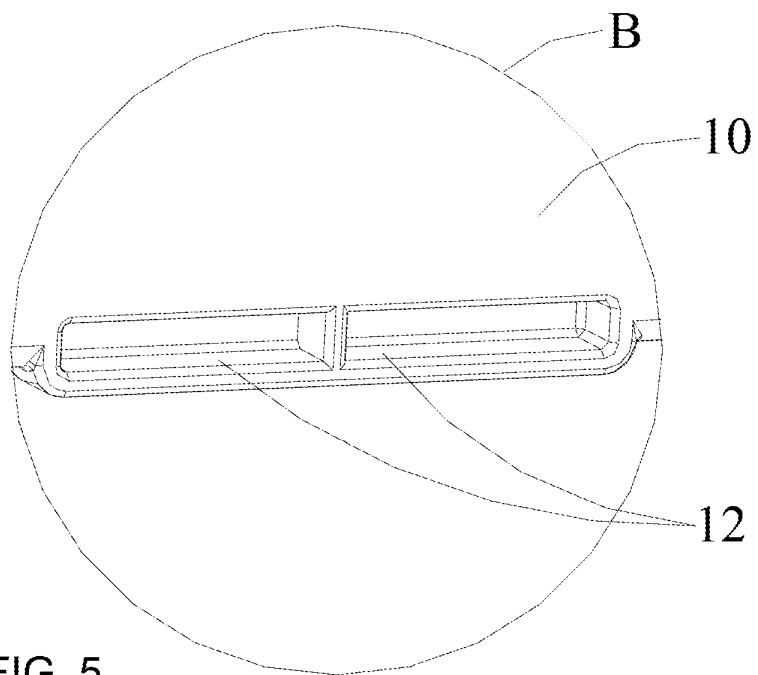


FIG. 5

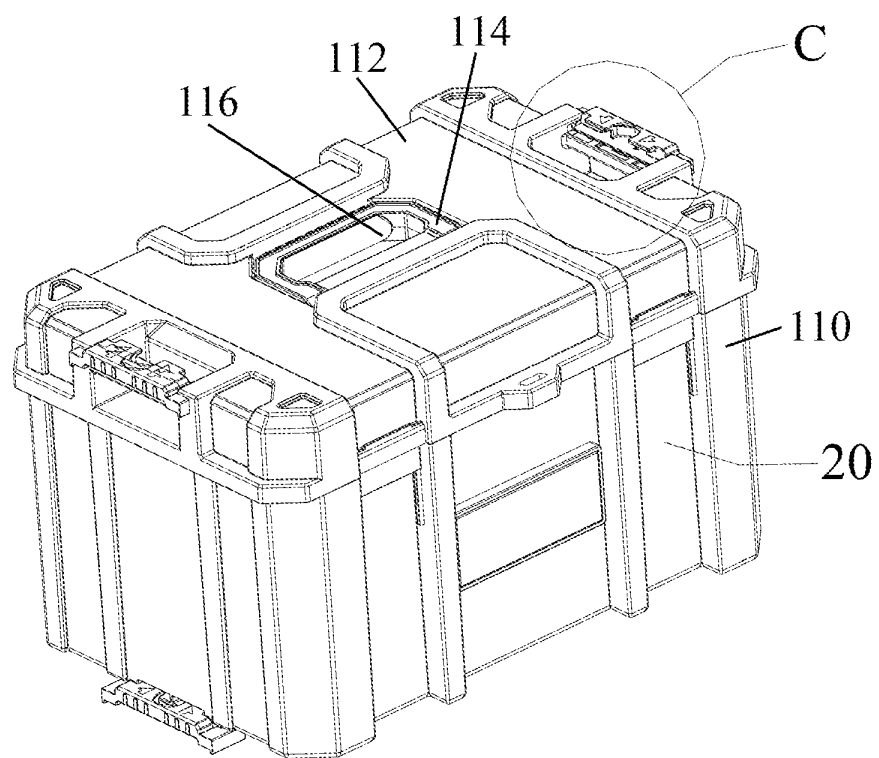


FIG. 6

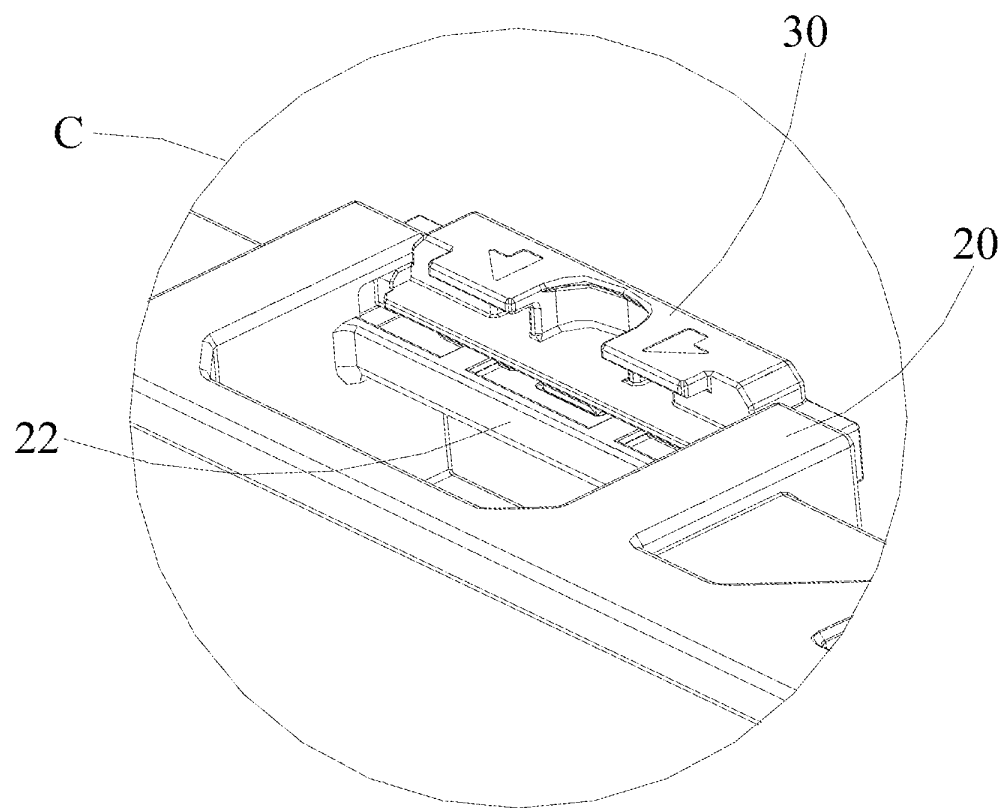


FIG. 7

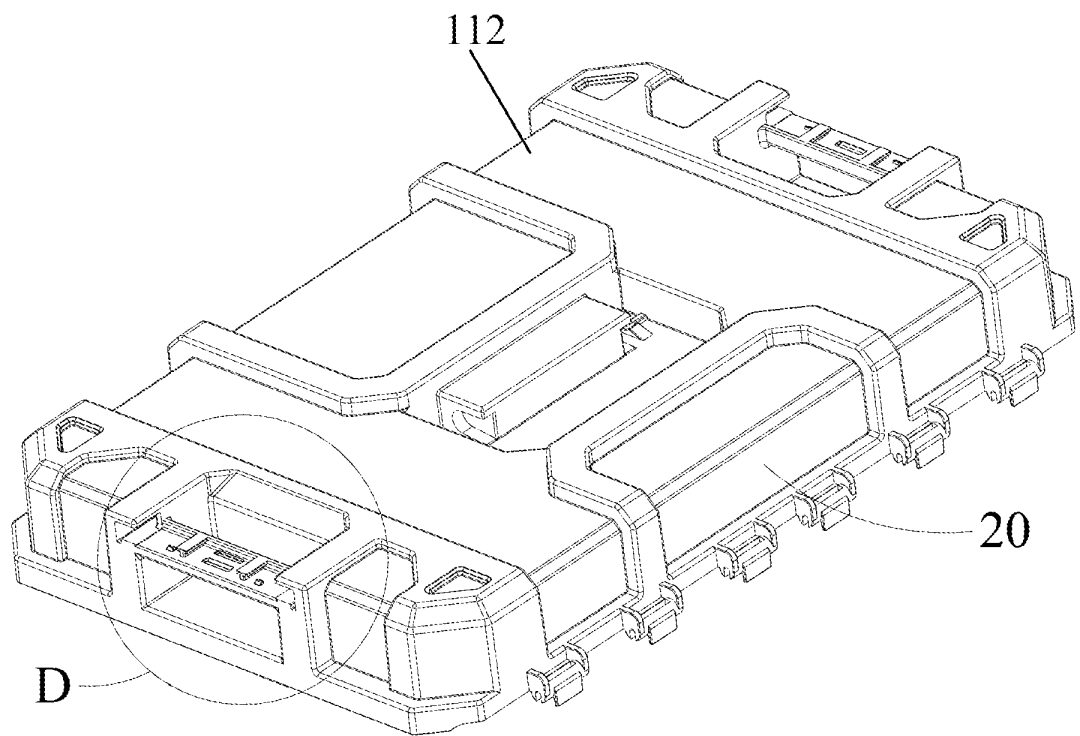


FIG. 8

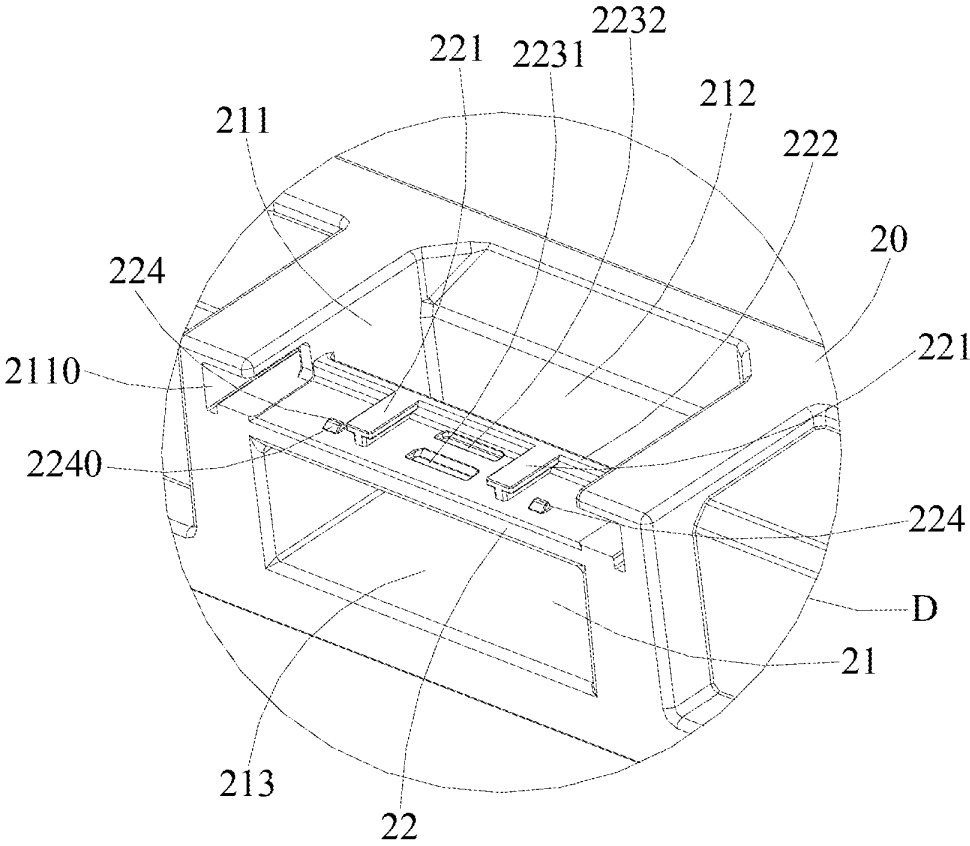
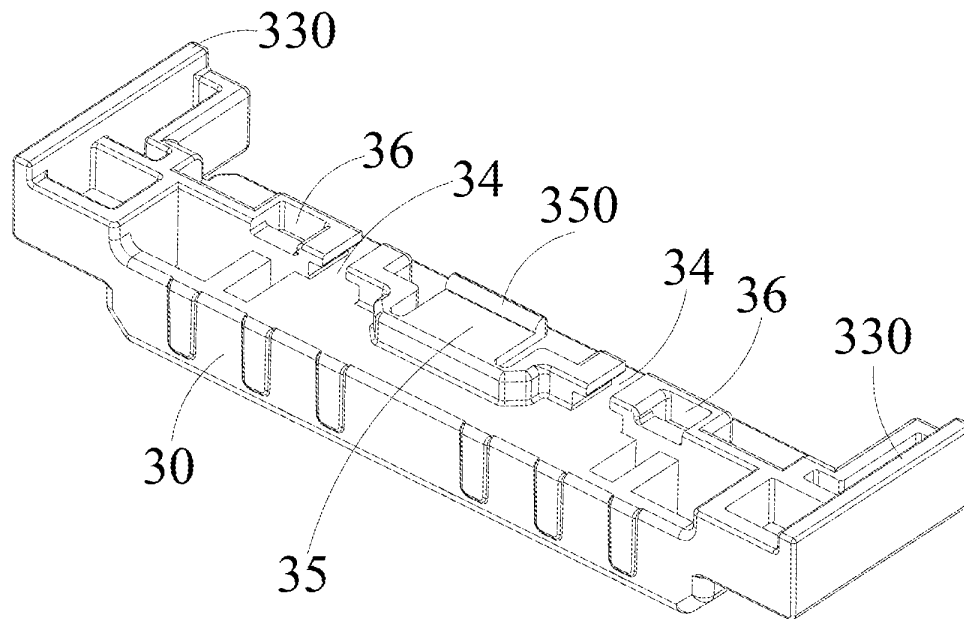
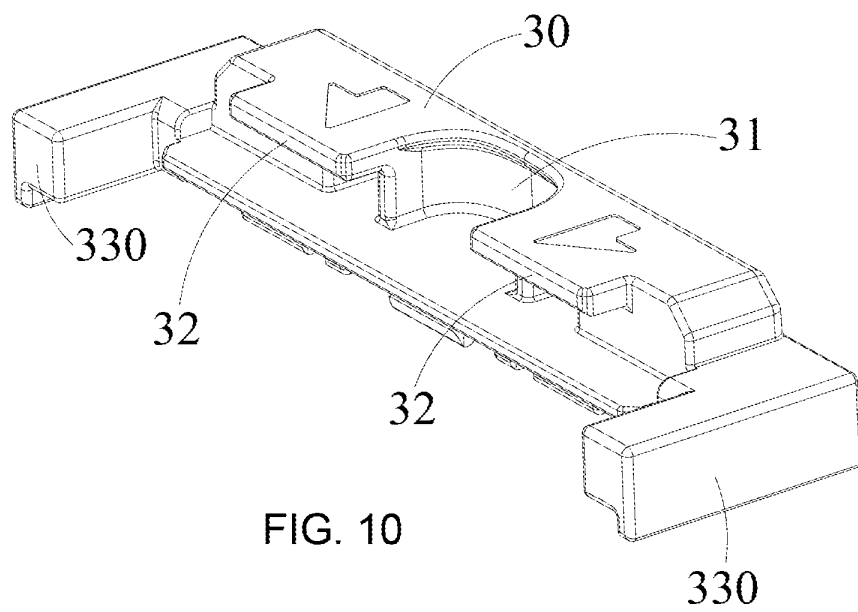


FIG. 9



DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	STACKED STORAGE CONTAINER LATCH
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As the below named inventor, I hereby declare that:

This declaration is directed to: ☒ The attached application, or ☐ United States application or PCT international application number _____ filed on _____

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: Shujun, CAI Date (Optional): 2020. 3. 20

Signature: Shujun, CAI

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/846,878	04/13/2020	3781	1720	17157-0094	20	2

CONFIRMATION NO. 6004

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FILING RECEIPT



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Date Mailed: 04/22/2020

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

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Applicant(s)

Meridian International Co., Ltd., Songjiang, CHINA;

Power of Attorney: The patent practitioners associated with Customer Number 23486

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)
CHINA 201922118361.7 11/27/2019 No Access Code Provided

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/846,878**

Projected Publication Date: 05/27/2021

Non-Publication Request: No

Early Publication Request: No

Title

STACKED STORAGE CONTAINER LATCH

Preliminary Class

220

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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APPLICATION AS FILED - PART I (Column 1) (Column 2)								
FOR	NUMBER FILED	NUMBER EXTRA	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY		
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	300	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	660	
TOTAL CLAIMS (37 CFR 1.16(i))	20	minus 20 = *				x 100 =	0.00	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *				x 460 =	0.00	
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).						0.00	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1720	
APPLICATION AS AMENDED - PART II (Column 1) (Column 2) (Column 3)								
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY		
	Total (37 CFR 1.16(i))	*	Minus	**	=	RATE(\$)	ADDITIONAL FEE(\$)	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	
	Application Size Fee (37 CFR 1.16(s))					OR	x	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	x	=
						OR		
					TOTAL ADD'L FEE		TOTAL ADD'L FEE	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY		
	Total (37 CFR 1.16(i))	*	Minus	**	=	RATE(\$)	ADDITIONAL FEE(\$)	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	
	Application Size Fee (37 CFR 1.16(s))					OR	x	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	x	=
						OR		
					TOTAL ADD'L FEE		TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** 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 found in the appropriate box in column 1.								

国家知识产权局

NATIONAL INTELLECTUAL PROPERTY ADMINISTRATION, PRC



证 明

本证明之附件是向本局提交的下列专利申请文件副本。

申 请 号： 201922118361.7

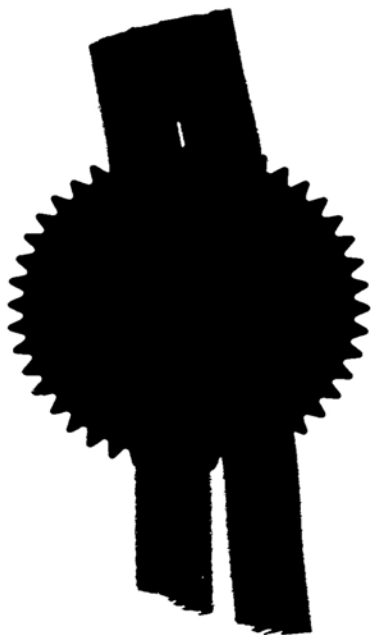
申 请 类 型： 实用新型专利

发 明 创 造 名 称： 箱体互锁结构

申 请 日： 2019年11月27日

申 请 人： 上海美瑞实业有限公司

发明人或设计人： 蔡书军



局长
申长雨

申长雨

2020 年 03 月 26 日

权 利 要 求 书

1. 一种箱体互锁结构,其包括第一箱体及第二箱体,所述第一箱体叠放于所述第二箱体上,其特征在于:还包括水平滑动设置于所述第二箱体上的滑块,所述第一箱体设有锁定槽,所述滑块设有与所述锁定槽对齐的插入部,当所述插入部插入所述锁定槽时,所述滑块将所述第一箱体与所述第二箱体锁定连接在一起;当所述插入部退出所述锁定槽时,所述滑块解除对所述第一箱体的锁定。
2. 根据权利要求1所述的箱体互锁结构,其特征在于:所述锁定槽凹设于所述第一箱体的底端外侧面。
3. 根据权利要求1所述的箱体互锁结构,其特征在于:所述第二箱体设有沿所述滑块移动方向延伸的导向筋,所述滑块下表面设有与所述导向筋滑动连接的导向槽。
4. 根据权利要求3所述的箱体互锁结构,其特征在于:所述导向筋与所述导向槽设置为T形。
5. 根据权利要求1所述的箱体互锁结构,其特征在于:所述第二箱体设有用于阻止所述滑块过度滑动脱离所述第二箱体的挡块。
6. 根据权利要求5所述的箱体互锁结构,其特征在于:所述滑块设有限位槽,当所述滑块过度移动时,所述限位槽内壁抵靠所述挡块以防止所述滑块脱离所述第二箱体。
7. 根据权利要求1所述的箱体互锁结构,其特征在于:所述第二箱体的顶面与侧面的连接处设有开槽及位于所述开槽内的支撑臂,所述开槽包括左右相对的第一侧壁及连接两所述第一侧壁的第二侧壁和底壁,所述支撑臂位于所述底壁上方,所述支撑臂连接两所述第一侧壁,并且与所述第二侧壁隔开,所述滑块滑动设置于所述支撑臂上。



8. 根据权利要求 7 所述的箱体互锁结构, 其特征在于: 两所述第一侧壁分别设有导引槽, 所述滑块左右两端分别设有与所述导引槽滑动连接的导引部。
9. 根据权利要求 7 所述的箱体互锁结构, 其特征在于: 所述支撑臂设有前后隔开的第一扣合槽和第二扣合槽, 所述滑块下表面设有弹性臂, 所述弹性臂末端设有扣合凸部, 当所述插入部插入所述锁定槽时, 所述扣合凸部与所述第二扣合槽扣合, 当所述插入部脱离所述锁定槽时, 所述扣合凸部与所述第一扣合槽扣合。
10. 根据权利要求 1 所述的箱体互锁结构, 其特征在于: 所述滑块上表面设有供手指或工具进入的凹部, 所述凹部位于左右隔开的两所述插入部之间。



说明书

箱体互锁结构

技术领域

本实用新型涉及箱体技术领域，尤其涉及一种多个箱体彼此连接在一起的箱体互锁结构。

背景技术

为了便于在携带多个箱体(比如工具箱)的情况下方便用户使用，各个箱体之间如何能牢固的互锁，从而便于用户移动和使用。市面上已经有了一些不同类型的实现方式：

第一种实现方式为箱体上设置单一的塑料扣，塑料扣可以转动，用来扣住另一箱体上的凸出部达到互锁的目的，该种实现方式结构简单，只需要设置一个部件即可实现两个箱体互锁的功能，但是容差率不高，因为箱体注塑后难免会出现收缩与变形，而此种方式属于翻转后硬卡到凸出部上，即必须过一个干涉的位置才能锁定及防止其容易脱出。这类结构很难避免塑料注塑变形及公差的影响，锁定后要么松，要么紧，使用手感差，大批量注塑制造出来的箱体无可避免的会有锁定后有松有紧的问题，而造成这个问题的原因就是塑料无可避免的注塑收缩及变形。

第二种是箱体常规使用的两段式搭扣的方式，用以实现两箱体之间的锁定。两段式搭扣在原理上能够容许更大的误差，所以同样在塑料件注塑变形的情况下，两段式搭扣的锁定效果好于上述第一种实现方式里的单一的塑料扣，但是两段式搭扣的活动空间较大，锁定及解锁的位置都需要空出较大的结构排布空间，同时因为两段式都需要两个转轴，在部件上面都需要至少三个零部件，而且在解锁后因其是活动部件，单独拎出一个箱体



后此部件多处于自由活动状态，来回晃动，单个箱体放在地面时可能会造成搭扣直接接触地或搭扣歪在两侧凸出于整个箱体的情况。

所以，有必要设计一种新的箱体互锁结构以解决上述技术问题。

实用新型内容

本实用新型的目的在于提供了一种具有改善锁定可靠性的箱体互锁结构。

为实现前述目的，本实用新型采用如下技术方案：一种箱体互锁结构，其包括第一箱体及第二箱体，所述第一箱体叠放于所述第二箱体上，还包括水平滑动设置于所述第二箱体上的滑块，所述第一箱体设有锁定槽，所述滑块设有与所述锁定槽对齐的插入部，当所述插入部插入所述锁定槽时，所述滑块将所述第一箱体与所述第二箱体锁定连接在一起；当所述插入部退出所述锁定槽时，所述滑块解除对所述第一箱体的锁定。

进一步的改进，所述锁定槽凹设于所述第一箱体的底端外侧面。

进一步的改进，所述第二箱体设有沿所述滑块移动方向延伸的导向筋，所述滑块下表面设有与所述导向筋滑动连接的导向槽。

进一步的改进，所述导向筋与所述导向槽设置为 T 形。

进一步的改进，所述第二箱体设有用于阻止所述滑块过度滑动脱离所述第二箱体的挡块。

进一步的改进，所述滑块设有限位槽，当所述滑块过度移动时，所述限位槽内壁抵靠所述挡块以防止所述滑块脱离所述第二箱体。

进一步的改进，所述第二箱体的顶面与侧面的连接处设有开槽及位于所述开槽内的支撑臂，所述开槽包括左右相对的第一侧壁及连接两所述第一侧壁的第二侧壁和底壁，所述支撑臂位于所述底壁上方，所述支撑臂



连接两所述第一侧壁，并且与所述第二侧壁隔开，所述滑块滑动设置于所述支撑臂上。

进一步的改进，两所述第一侧壁分别设有导引槽，所述滑块左右两端分别设有与所述导引槽滑动连接的导引部。

进一步的改进，所述支撑臂设有前后隔开的第一扣合槽和第二扣合槽，所述滑块下表面设有弹性臂，所述弹性臂末端设有扣合凸部，当所述插入部插入所述锁定槽时，所述扣合凸部与所述第二扣合槽扣合，当所述插入部脱离所述锁定槽时，所述扣合凸部与所述第一扣合槽扣合。

进一步的改进，所述滑块上表面设有供手指或工具进入的凹部，所述凹部位于左右隔开的两所述插入部之间。

本实用新型箱体互锁结构还包括水平滑动设置于第二箱体上的滑块，第一箱体设有锁定槽，所述滑块设有与所述锁定槽对齐的插入部，当所述插入部插入所述锁定槽时，所述滑块将所述第一箱体与所述第二箱体锁定连接在一起；当所述插入部退出所述锁定槽时，所述滑块解除对所述第一箱体的锁定，滑块在很短的距离内即可实现锁定与解锁的功能，可靠性方面大幅度提高，在第一箱体与第二箱体的配合间可以给足够的公差间隙来防止因为塑料注塑变形所引起的尺寸变化，本实用新型箱体互锁结构只需在水平方向配合好尺寸即可，可避免产品松松紧紧手感不好的缺陷，结构简单，零件少，减低成本的同时还能减少占用空间。

附图说明

图 1 为本实用新型箱体互锁结构的立体图。

图 2 为图 1 中 A 部分的放大图。

图 3 为本实用新型箱体互锁结构的部分剖视图。



图 4 为本实用新型箱体互锁结构的第一箱体的立体图。

图 5 为图 4 中 B 部分的放大图。

图 6 为本实用新型箱体互锁结构的第二箱体与滑块的立体图。

图 7 为图 6 中 C 部分的放大图。

图 8 为本实用新型箱体互锁结构的第二箱体的立体图。

图 9 为图 8 中 D 部分的放大图。

图 10 为本实用新型箱体互锁结构的滑块的立体图。

图 11 为本实用新型箱体互锁结构的滑块另一角度的立体图。

具体实施方式

请参阅图 1 至图 5 所示，本实用新型提供一种箱体互锁结构，其包括第一箱体 10、第二箱体 20 及滑块 30，第一箱体 10 叠放于第二箱体 20 上，滑块 30 滑动设置于第二箱体 20 上。

考虑到箱体的对称结构，以下仅针对第一箱体 10 和第二箱体 20 一侧的互锁结构进行描述。

第一箱体 10 外侧面凹设有左右水平间隔开的两锁定槽 12，锁定槽 12 靠近于第一箱体 10 的底端。

请参阅图 3 至图 9 所示，第二箱体 20 的顶面与侧面的连接处设有一开槽 21 及位于该开槽 21 内的水平支撑臂 22，滑块 30 位于所述开槽 21 内，并且部分地向上凸出于第二箱体 20。开槽 21 包括左右相对的两第一侧壁 211、垂直连接该两第一侧壁 211 内侧端的第二侧壁 212 及垂直连接该两第一侧壁 211 底端的底壁 213。支撑臂 22 位于底壁 213 上方，并且与两第一侧壁 211 垂直连接；支撑臂 22 位于第二侧壁 212 前方并且与第二



侧壁 212 隔开，两第一侧壁 211 向上延伸的高度超过支撑臂 22 相对于底壁 213 的高度。两第一侧壁 211 分别自与支撑臂 22 相接处沿背向彼此的方向延伸形成相对的倒 L 形的导引槽 2110，两导引槽 2110 进一步沿靠近第二侧壁 212 的方向延伸形成凹孔。

支撑臂 22 的前表面与第二箱体 20 的侧表面共面，支撑臂 22 的上表面设有左右间隔开的两 T 形导向筋 221、与导向筋 221 垂直连接的加强筋 222、位于该两导向筋 221 之间的第一扣合槽 2231 和第二扣合槽 2232 及位于该两导向筋 221 外侧的两挡块 224。加强筋 222 位于支撑臂 22 的后边缘，并自支撑臂 22 的上表面向上延伸一定高度，其两端分别与第一侧壁 211 垂直连接。第一扣合槽 2231 和第二扣合槽 2232 左右延伸设置，并且前后间隔开，用于固定滑块 30 并便于使用者确认滑块 30 是否滑动到位，第一扣合槽 2231 和第二扣合槽 2232 解锁位置与锁定位置，挡块 224 具有朝向前方的斜面 2240。

请参阅图 7 至图 11 所示，滑块 30 上表面设有凹部 31 及位于凹部 31 左右两侧的插入部 32，插入部 32 设置为水平板状，与第一箱体 10 的锁定槽 12 水平对齐。凹部 31 用于提供手指或工具进入，便于拨动滑块 30 滑动。滑块 30 左右两端设有与第二箱体 20 导引槽 2110 配合的导引部 330。

滑块 30 下表面设有左右间隔开的两 T 形导向槽 34、位于该两导向槽 34 之间的弹性臂 35 及位于导向槽 34 外侧的两限位槽 36，两导向槽 34 分别与两导向筋 221 滑动连接，一方面为滑块 30 提供导向作用，另一方面增加滑块 30 与第二箱体 20 之间的受力从而提供支撑作用，防止滑块 30 向上脱离第二箱体 20。弹性臂 35 可以上下弹性摆动，其末端设有扣合凸部 350，用于与第二箱体 20 的第一扣合槽 2231 或第二扣合槽 2232 扣合，便于固定滑块 30 以及使用者确认是否滑动到了解锁位置或锁定位置。两限位槽 36 朝向挡块 224 的一侧敞开并设置有开口，当滑块 30 安装至第二



箱体 20 时,挡块 224 可通过该侧开口进入限位槽 36,挡块 224 的斜面 2240 用于导引挡块 224 进入限位槽 36。与之相对的另一侧封闭设置,当滑块 30 从锁定位置滑动至解锁位置后,该侧侧壁可抵靠挡块 224,从而防止滑块 30 过度滑动脱离第二箱体 20。不难理解的是,可与挡块 224 相抵持的限位结构也可设置为除了限位槽 36 的其他形式,如限位筋、限位挡片等,只要能够实现当滑块 30 解锁时,滑块 30 与挡块 224 之间的相互抵持,防止滑块 30 过度滑动脱离第二箱体 20 即可。

优选的,在本实施例中,第二箱体 20 上的两导向槽 2110 沿靠近第二侧壁 212 延伸形成的凹孔的深度大于支撑臂 22 在该方向上的延伸长度,相对应的,滑块 30 上的两导引部 330 的延伸长度也大于两插入部 32 的延伸长度,如此能够更加稳定地将滑块 30 安装在第二箱体 20 上。可以理解的是,在其他实施例中,导向槽 2110 和导引部 330 的延伸深度和长度也可等于或小于支撑臂 22 的延伸长度,只要能满足滑块 30 的安装及滑动并且不脱离箱体即可。同样的,导向筋 221 的延伸长度只要能满足滑块 30 无论处于解锁位置还是锁定位置导向筋 221 和导向槽 34 都不会彼此脱离即可。

值得注意的是,在本实施例中,如图 9 所示,第二箱体 20 上的两导向槽 2110 呈向下弯折的倒 L 型,相对应的,滑块 30 上的两导引部 330 也为相适配的形状。在其他实施例中,两导引槽 2110 与相对应的导引部 330 也可设计为其他相适配的形状,如向上弯折的倒 L 型等,只要能满足滑块 30 与第二箱体 20 的相互固定及滑动即可。同样的,导向筋 221 和导向槽 34 也可设计为其他相适配的形状,如上大下小的楔形等,只要能满足二者之间的相互滑动以及防止滑块 30 向上脱离即可。



可以理解的是，在本实施例中，导向筋 221 和其对应的导向槽 34、挡块 224 和其对应的限位槽 36，以及插入部 32 和其对应的锁定槽 12 均设置了两对，在其他实施例中，可根据箱体尺寸等实际情况调整各自的数量。

当第一箱体 10 和第二箱体 20 需要彼此连接时，第一箱体 10 堆叠放置于第二箱体 20 上方，使用者拨动滑块 30 向内侧滑动，扣合凸部 350 脱离第一扣合槽 2231，与第二扣合槽 2232 扣合，插入部 32 插入第一箱体 10 的锁定槽 12 内，实现第一箱体 10 与第二箱体 20 之间的彼此锁定，此时，第二箱体 20 的侧表面与滑块 30 的外侧面共面，第一箱体 10 和第二箱体 20 之间实现非常可靠的互锁连接；需要解锁时，只需利用凹部 31 反向即向外拨动滑块 30，插入部 32 退出锁定槽 12，扣合凸部 350 与第二扣合槽 2232 脱离，并与第一扣合槽 2231 相扣合，加之挡块 24 与限位槽 36 之间的相互抵持，即使向外拨动滑块 30，滑块 30 也不会脱离第二箱体 20。当单独使用第二箱体 20 时，滑块 30 上的扣合凸部 350 可与第二扣合槽 2232 扣合，此时，滑块 30 也不会凸出于第二箱体 20 的侧表面影响使用，同时，支撑臂 22 和滑块 30 与底壁 213、第二侧壁 212 之间的空隙，还可供使用者的手指插入，充作把手以便于使用者移动箱体。

值得注意的是，在本实施例中，第一箱体 10 和第二箱体 20 皆为带箱盖的工具箱，为便于二箱体之间的堆叠锁定，第一箱体 10 上的锁定槽 12 设置在第一箱体 10 的侧面底端，第二箱体 20 上对应的支撑臂 22、滑块 30 以及导向槽 2110 皆设置在箱盖的侧面顶端，从而实现第一箱体 10 和第二箱体 20 之间的堆叠互锁。而在其他实施例中，第一箱体 10 和/或第二箱体 20 也可以是没有箱盖的储存工具如收纳篮，当位于下方的第二箱体是没有箱盖的储存工具时，支撑臂、滑块以及导引槽可以设置在箱体侧面顶端，只要能够实现与位于上方的第一箱体侧面底端的锁定槽的互相锁定和解锁即可。可以理解的是，本实施例中仅描述了上下两个箱体堆叠的情况，为便于理解，仅针对两个箱体之间的互锁连接的结构也就是下方箱体即第



二箱体 20 上的支撑臂 22、滑块 30 以及导向槽 2110 和上方箱体即第一箱体 10 上的锁定槽 12 进行了描述，但在其他堆叠系统中，还可包括三个甚至多个设有同样相适配的互锁结构的储存工具，此处的储存工具包括但不限于工具箱、工具盒、收纳篮等。

本实用新型箱体互锁结构利用滑块 30 在很短的距离内即可实现锁定与解锁的功能，可靠性方面大幅度提高，在第一箱体 10 与第二箱体 20 的配合间可以给足够的公差间隙来防止因为塑料注塑变形所引起的尺寸变化，本实用新型箱体互锁结构只需在水平方向配合好尺寸即可，可避免产品松松紧紧手感不好的缺陷，结构简单，零件少，减低成本的同时还能减少占用空间。

尽管为示例目的，已经公开了本实用新型的优选实施方式，但是本领域的普通技术人员将意识到，在不脱离由所附的权利要求书公开的本实用新型的范围和精神的情况下，各种改进、增加以及取代是可能的。



说明书附图

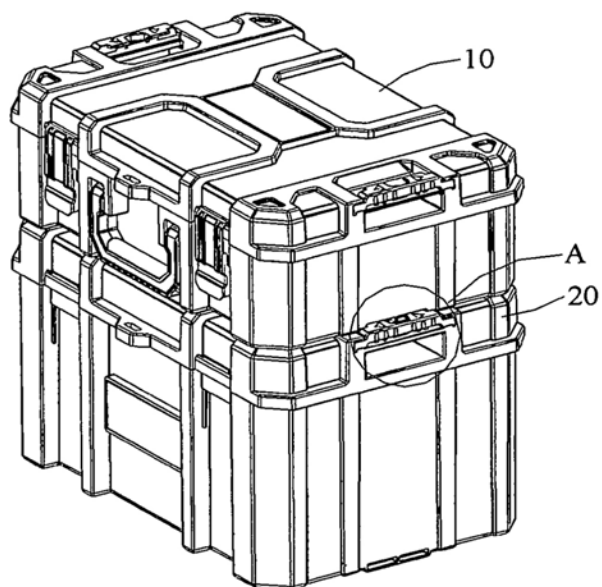


图 1

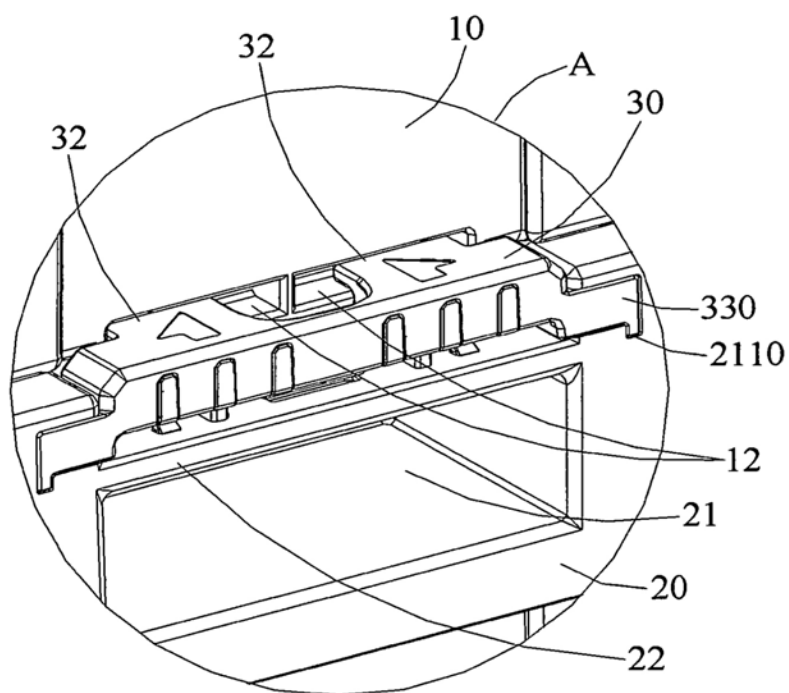


图 2



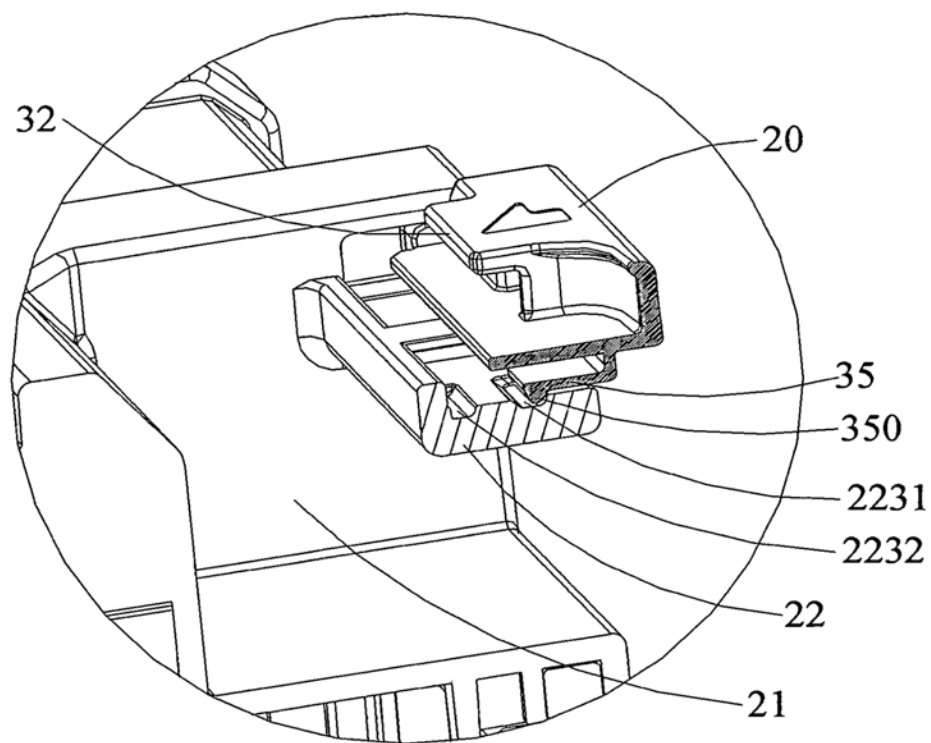


图 3

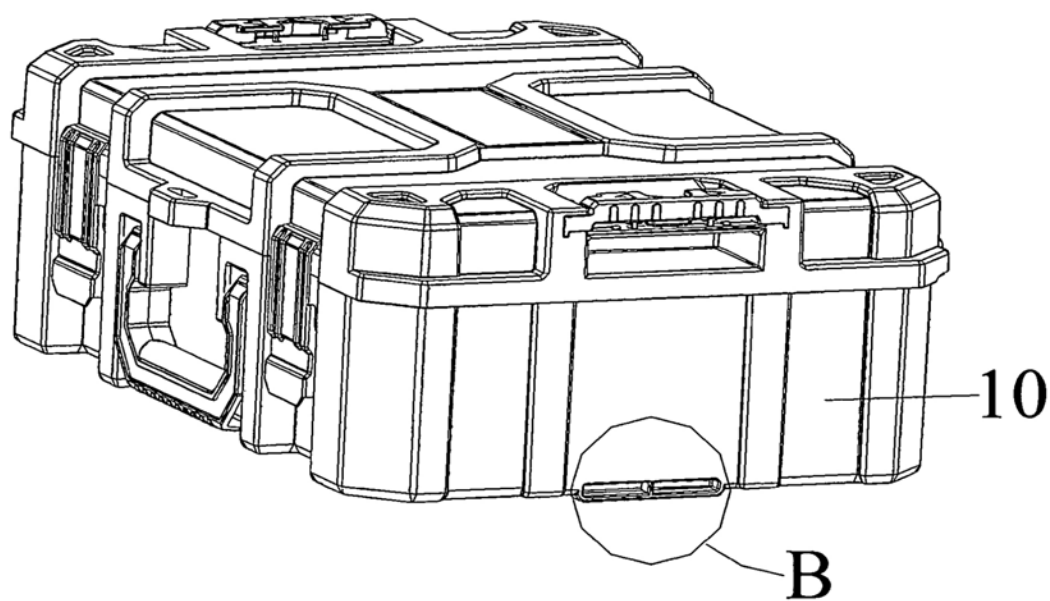


图 4



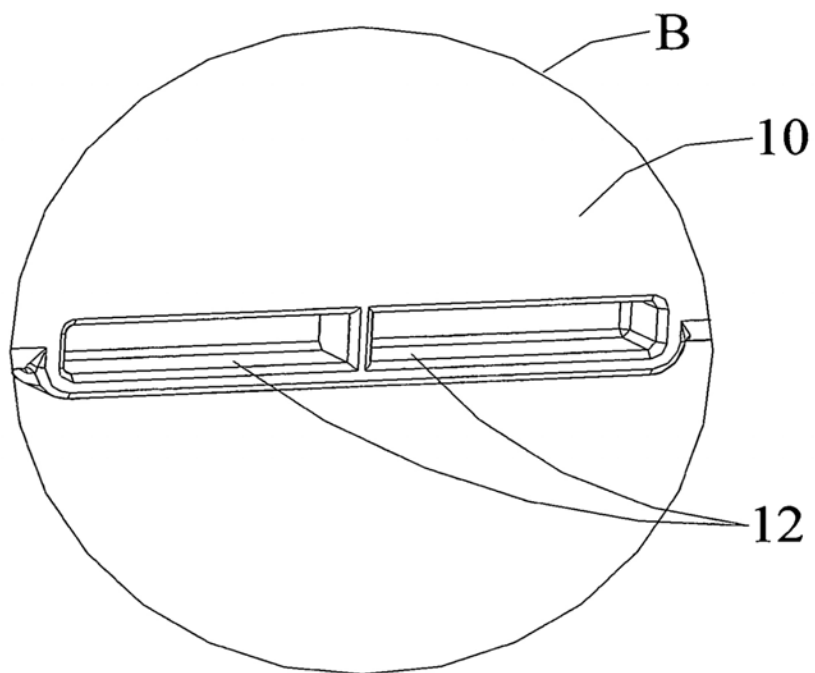


图 5

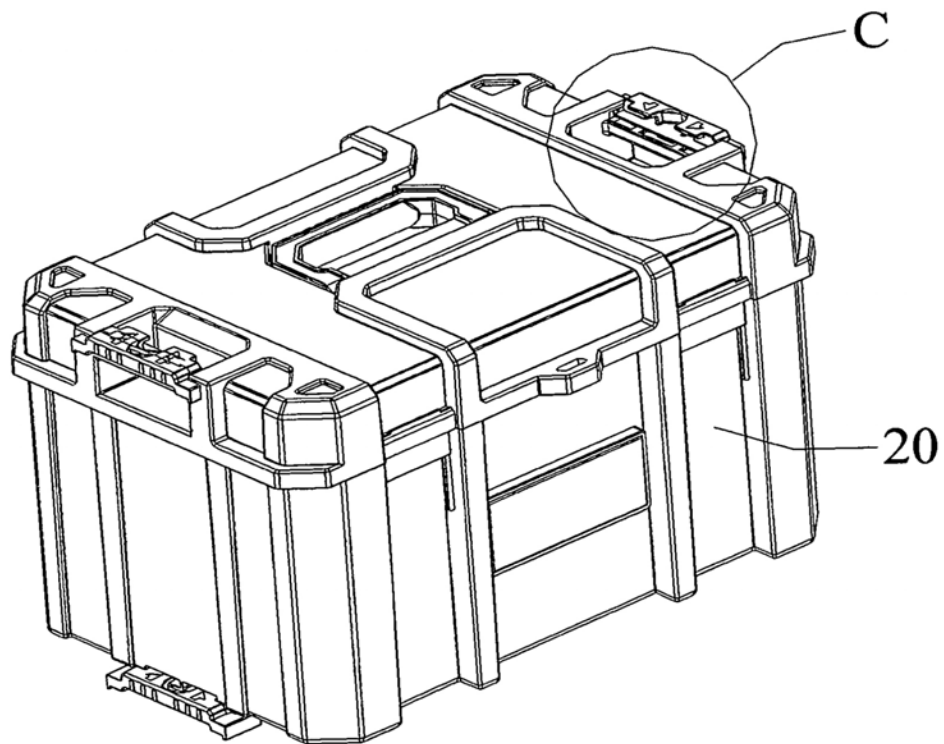


图 6



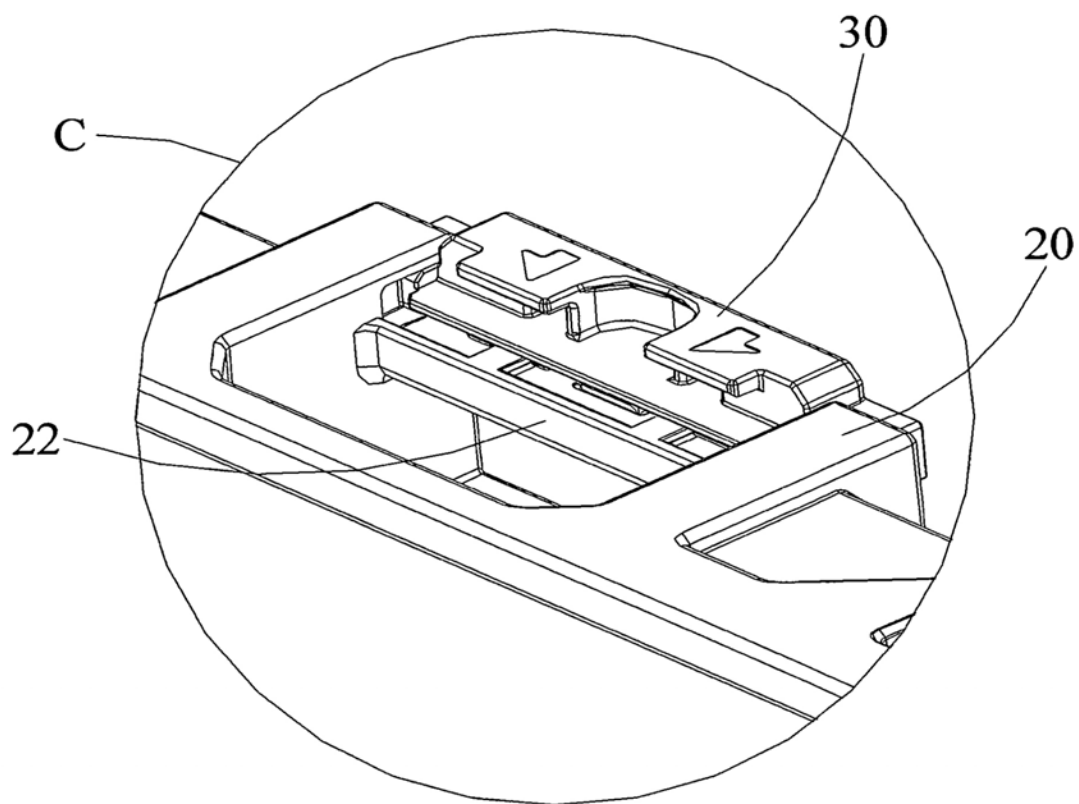


图 7



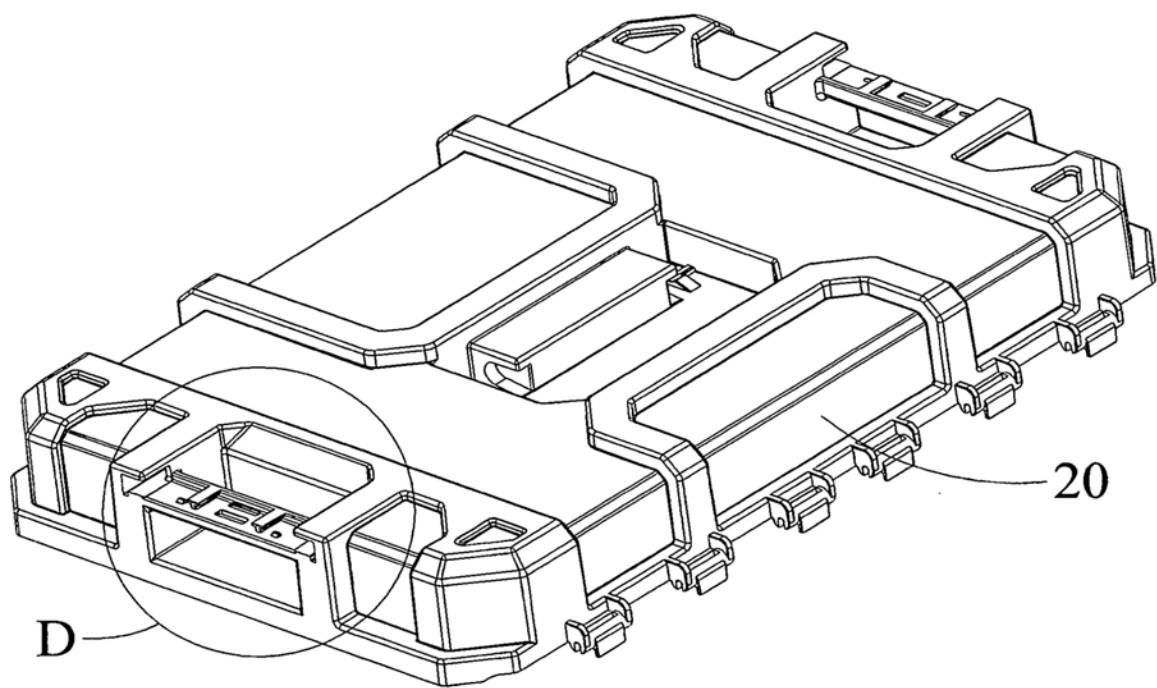


图 8



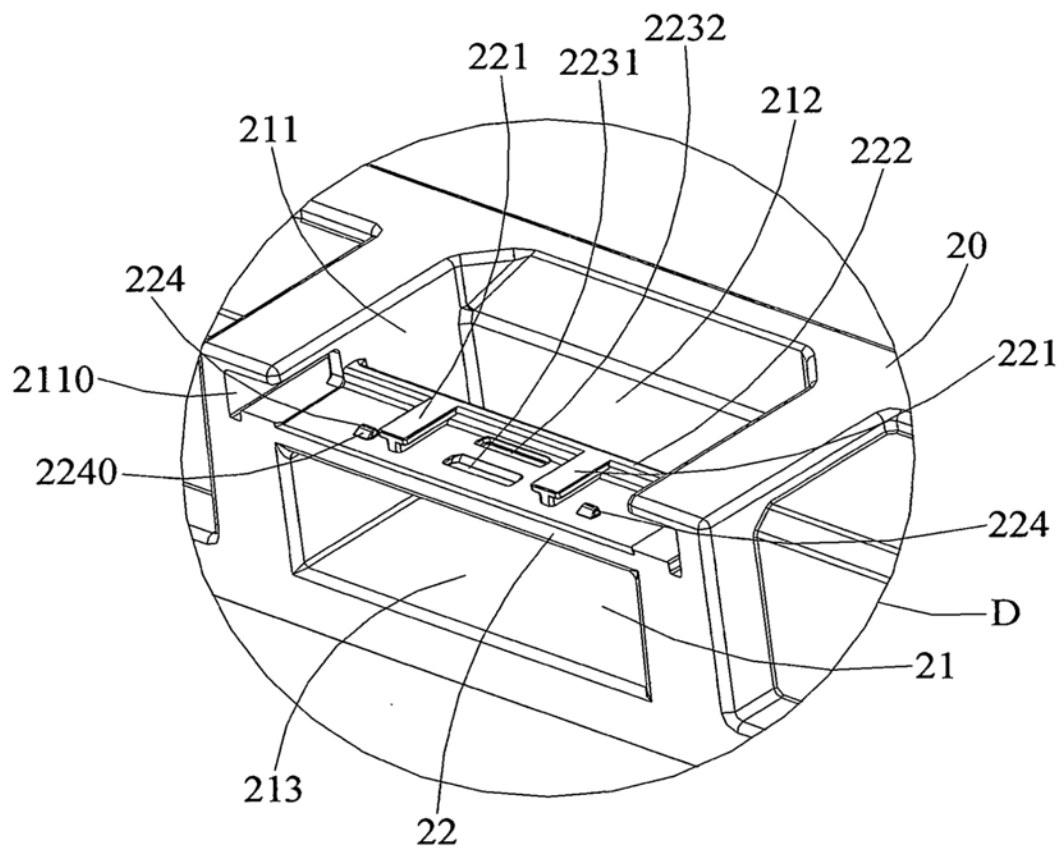


图 9



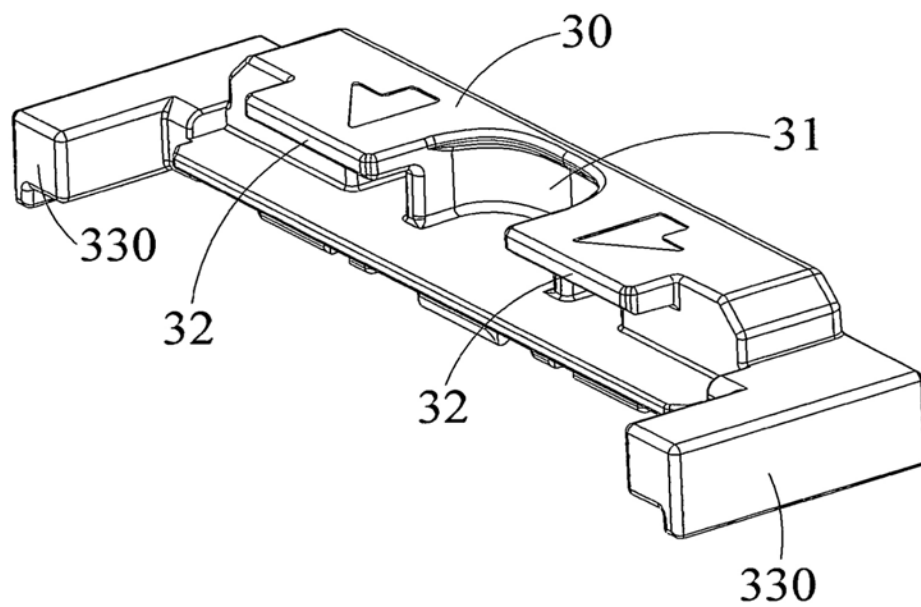


图 10

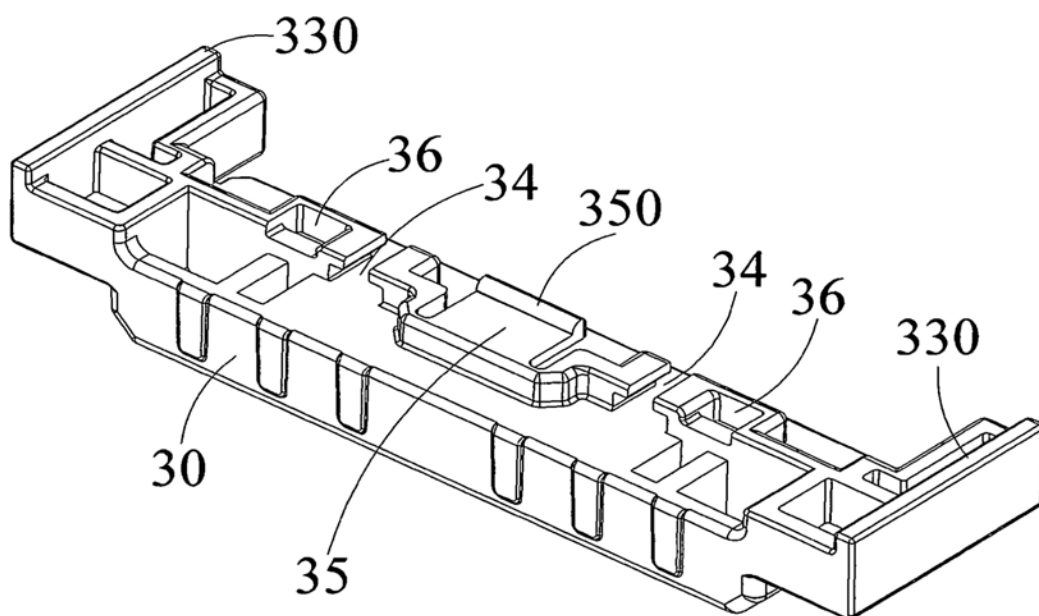


图 11





STW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application # : 16/846,878
Inventor : Shujun CAI
Filed : April 13, 2020
Invention : STACKED STORAGE CONTAINER LATCH
TC/AU : 3781
Examiner :
Confirm # : 6004
Docket # : 17157-0094
Customer # : 23486
Date : April 28, 2020

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

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<u>Application No.</u>	<u>Country of Origin</u>	<u>Filed</u>
201922118361.7	CHINA	November 27, 2019

Respectfully submitted,

/Jason R. Sytsma/

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Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16846878
	Filing Date	2020-04-13
	First Named Inventor	Shujun CAI
	Art Unit	3781
	Examiner Name	
	Attorney Docket Number	17157-0094

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	1	20120312812	A1	2012-12-13	Sosnovsky et al.	
	2	20190002004	No	2018-06-05	Brunner, Yaron	

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	Art Unit	3781
	Examiner Name	
	Attorney Docket Number	17157-0094

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	1	Australian Examination Report dated February 19, 2022 from counterpart Australian Patent Application No. 2020202609	×

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	Filing Date	2020-04-13
	First Named Inventor	Shujun CAI
	Art Unit	3781
	Examiner Name	
	Attorney Docket Number	17157-0094

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

A certification statement is not submitted herewith.

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Signature	/Jason R. Sytsma/	Date (YYYY-MM-DD)	2021-02-22
Name/Print	Jason R. Sytsma	Registration Number	62262

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Patents

CN 206841966 U



Containing box

Abstract

The utility model provides a kind of containing box, belongs to chest technical field. It solves the problems, such as that existing containing box stacks stability deficiency. This containing box includes casing, case lid and the Button Handle being hinged on casing. It is characterised in that has recessed neck in the bottom side of the casing, neck is located at the underface of Button Handle ; The limiting plate that can be embedded in neck is connected with the Button Handle. When two containing box stacked on top, groove position in containing box above is relative with the spacing Board position in the containing box of lower section, limiting plate is promoted to be slid relative to Button Handle, i.e. limiting plate moves to the side surface direction close to containing box middle case above, until in limiting plate insertion neck, the lower face of limiting plate mutually relies on or only left tiny gap with the downside of neck, and then can significantly increase containing box and stack stability.

CN206841966U

Claim

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Other languages: Chinese

Inventor: 江晓峰

Worldwide applications

2017 CN

Application CN201720696350.3U events ⓘ

2017-06-15 Application filed by 江晓峰

2017-06-15 Priority to CN201720696350.3U

2018-01-05 Application granted

2018-01-05 Publication of CN206841966U

Info: Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Claims (8)

Hide Dependent ^

1. a kind of containing box, including casing (1), case lid (2) and the Button Handle (3) being hinged on casing (1), it is characterised in that institute Casing has recessed neck (1a) in the bottom sides of casing (1), neck (1a) is located at the underface of Button Handle (3) ; The Button Handle (3) limiting plate (4) that can be embedded in neck (1a) is connected with,

2. containing box according to claim 1, it is characterised in that the limiting plate (4) can be slid along Button Handle (3), limit Position plate (4) can be embedded in neck (1a) after being slid laterally relative to Button Handle (3) or be spun off from embedded neck (1a).

3. containing box according to claim 2, it is characterised in that the limiting plate (4) is arranged on the top surface of Button Handle (3) On, there is two guide pressing plates (5) above limiting plate (4) both ends respectively, guide pressing plate on the top surface of Button Handle (3) (5) guide chute (6), the shape of the end of limiting plate (4) and the shape kissing of guide chute (6) are formed between Button Handle (3) Close.

4. containing box according to claim 2, it is characterised in that be provided with the bottom surface of the limiting plate (4) in U-shaped Journey groove (4a) is limited, has the limit Journey in embedded limit Journey groove (4a) raised (3a) on the top surface of Button Handle (3).

5. containing box according to claim 2, it is characterised in that put forth effort on the top surface of the limiting plate (4) with finger Portion (4b).

6. containing box according to claim 1, it is characterised in that the company of rotation between the limiting plate (4) and Button Handle (3) Connect, limiting plate (4) can be embedded in neck (1a) after be hinged spot wobble or be spun off from embedded neck (1a).

7. containing box as claimed in any of claims 1 to 6, it is characterised in that turn on the bottom surface of the casing (1) Move and be connected with multiple rollers (7), rope through (1b) is provided with the downside of neck (1a) in casing (1).

8. containing box as claimed in any of claims 1 to 6, it is characterised in that heap above and below described two containing boxes When folded, neck (1a) position in containing box above is relative with limiting plate (4) position in the containing box of lower section ; Work as limit The lower face of limiting plate (4) and the downside of neck (1a) mutually rely on or only left tiny when the embedded neck (1a) of position plate (4) is inferior Gap.

Description

Containing box

Technical field

The utility model belongs to chest technical field, more particularly to a kind of containing box.

Background technology

Containing box is exactly the multifunctional storage container of a simple light. Containing box use is quite extensive, not only in family in terms of daily life, clothing to store season and other items, it is also possible to store food ; It is industrially also a large amount of to use

Containing box mainly includes a casing, a case lid and multiple Button Handles being hinged on casing. Button Handle can be turned over and is buckled on case lid, case lid is set to be in the lock state with casing. A kind of containing box (the Authorization Notice No. recorded such as Chinese patent literature CN204548837U) Multiple containing box stacked on top can be saved floor occupying area, it is existing in order to improve the stability of stacking. The locating slot being adapted with bottom half shape is provided with case lid. Those skilled in the art, which wish to further improve, stacks stabilization Property.

The content of the invention

The utility model proposes a kind of containing box, the technical problems to be solved in the utility model is how to improve containing box Stack stability.

Technical problems to be solved of the present utility model can be realized by following technical proposal . This containing box includes case Body, case lid and the Button Handle being hinged on casing, it is characterised in that there is recessed neck in the bottom sides of the casing, block Groove is located at the underface of Button Handle ; The limiting plate that can be embedded in neck is connected with the Button Handle.

When two containing box stacked on top, the groove position in containing box above is with being located in the containing box of lower section Spacing Board position is relative, promotes limiting plate to be slid relative to Button Handle, i.e., limiting plate is to close to containing box middle case above Side surface direction is moved, until in limiting plate insertion neck, the lower face of limiting plate is mutually relied on the downside of neck or only left Tiny gap, and then containing box can be significantly increased and stack stability.

Compared with prior art, this containing box by setting neck on casing and sets limiting plate on Button Handle, effectively Ground improves containing box and stacks stability.

When limiting plate is in retracted state, the lateral surface gentle transition of its lateral surface and Button Handle, and then this receipts is effectively ensured Receive case good appearance.

This containing box, which only needs limiting plate being pushed into neck, just can realize that improving containing box stacks stability, while reversely draw Dynamic limiting plate, which makes limiting plate depart from neck, can release the function of improving containing box stacking stability, thus with easy to operate Advantage.

By controlling the size of neck, finger can be embedded in neck when the people is embraced this containing box, and it is steady to improve force it is qualitative, realize the security for clasping containing box ; And can, which directly pulls limiting plate, makes limiting plate depart from neck.

Brief description of the drawings

Fig. 1 is the dimensional structure diagram of this containing box.

Fig. 2 is the overlooking the structure diagram of Button Handle and limiting plate in this containing box.

Fig. 3 is the cross section structure diagram of A-A in Fig. 2.

Fig. 4 and Fig. 5 is the decomposition texture of Button Handle and limiting plate and to show in this containing box in the stereochemical structures of different visual angles it is intended to

Fig. 6 is the dimensional structure diagram that upper and lower two containing boxes are in stacked state.

Fig. 7 is schematic enlarged-scale view at B in Fig. 6.

In figure, 1, casing ; 1a, neck ; 1b, rope through ; 2nd, case lid ; 3rd, Button Handle ; 3a, limit journey are raised ; 4th, limiting plate ; 4a, Limit journey groove ; 4b, finger put forth effort portion ; 5th, guide pressing plate ; 6th, guide chute ; 7th, roller.

Embodiment

It is specific embodiment of the utility model and with reference to accompanying drawing below, the technical solution of the utility model is made further Description, but the utility model is not limited to these embodiments.

Embodiment one

As shown in Figures 1 to 7, this containing box includes casing 1, case lid 2 and the Button Handle 3 being hinged on casing 1 ; Specification is attached The quantity that figure provides Button Handle 3 is two.

In the bottom sides of casing 1 there is recessed neck 1a, neck 1a to be located at the underface of Button Handle 3 ; That is Button Handle 3 and position Neck 1a immediately below the Button Handle 3 is respectively positioned on the same side of casing 1 ; Two containing box heap poststacks up and down are so can guarantee that, Neck 1a in containing box above corresponds with the position of Button Handle 3 in containing box above.

The limiting plate 4 that can be embedded in neck 1a is connected with Button Handle 3 Figure of description provides limiting plate 4 can be along Button Handle 3 Slide laterally, i.e., limiting plate 4 can be embedded in neck 1a after being slid laterally relative to Button Handle 3 or be spun off from embedded neck 1a.

Specifically, limiting plate 4 is arranged on the top surface of Button Handle 3, has two on the top surface of Button Handle 3 respectively positioned at spacing Guide pressing plate 5 above the both sides of plate 4, the i.e. sidepiece of limiting plate 4 are located between guide pressing plate 5 and the top surface of Button Handle 3. Guide pressing plate Guide chute 6 is formed between 5 and Button Handle 3, the shape of the end of limiting plate 4 matches with the shape of guide chute 6, thus spacing Plate 4 can be moved stably along the vertical line direction of guide pressing plate 5. Figure of description provides guide pressing plate 5 and is linked as one with Button Handle 3 Body.

The limit journey groove 4a in bar shaped is provided with the bottom surface of limiting plate 4, is had on the top surface of Button Handle 3 in embedded limit journey groove 4a Journey projection 3a is limited, and then is effectively prevented from limiting plate 4 and is come off because sliding stroke is excessive. There is finger on the top surface of limiting plate 4 Put forth effort portion 4b, and then facilitate push-and-pull limiting plate 4.

By controlling neck 1a downside position to ensure that the lower face of limiting plate 4 mutually relies on neck 1a downside Or only leave tiny gap. When two containing box stacked on top, the neck 1a positions in containing box above are with being located at The position of limiting plate 4 in the containing box of lower section is relative, and promotion limiting plate 4 makes the insertion neck of limiting plate 4 1a interior and the lower plate of limiting plate 4 Face and neck 1a downside mutually rely on or only leave tiny gap, and then significantly increase containing box and stack stability.

it is rotatably connected to multiple rollers 7 on the bottom surface of casing 1, rope through 1b is provided with neck 1a downside in casing 1, Drawstring is equipped with rope through 1b, by pulling easy to remove containing box of drawstring.

Embodiment two

The present embodiment is essentially identical with the structure and principle of embodiment one, the no longer burden description of essentially identical part, only touches Different place is stated, different place is : It is not to use slide construction between limiting plate 4 and Button Handle 3, but limiting plate 4 can be embedded in neck 1a after being swung relative to Button Handle 3 or be detached from embedded neck 1a around be hinged spot wobble, i.e. limiting plate 4 Corner.

Similar Documents

Publication	Publication Date	Title
US7237666B2	2007-07-03	Transporting wheel structure of storage or luggage container
CN205988123U	2017-03-01	Bed bottom locker
CN204273493U	2015-04-22	A kind of Multifunctional travel draw-bar box
CN107259982A	2017-10-20	A kind of novel water glass
CN206534323U	2017-10-03	One kind is opened flat the flexible wardrobe of gate-type
CN105534934B	2018-04-13	A kind of Tool Cabinet
CN104860813B	2018-05-01	Container
CN201896517U	2011-07-13	Sliding plate zipper lock for suitcase
CN106073185A	2016-11-09	A kind of Art Design multifunctional drawing equipment
CN102165688B	2013-09-04	Bag with drawing structure
CN206109805U	2017-04-19	Washing machine's base and washing machine who has it
CN206109770U	2017-04-19	Washing machine's base and washing machine who has it
CN202543657U	2012-11-21	Cover assembly of full-automatic pulicator washing machine
CN105640963B	2018-01-12	A kind of multifunction wardrobe
CN101773328A	2010-07-14	Luggage with pulling structure
CN206403710U	2017-08-15	The vessel mounted configuration and clean robot of a kind of clean robot
CN204409872U	2015-06-24	A kind of new suitcase
CN205483259U	2016-08-24	Cabinet type folding bed
CN206286065U	2017-06-30	The vessel mounted configuration and clean robot of a kind of clean robot
CN207075745U	2018-03-09	A kind of dresser
CN104215025B	2016-12-28	A kind of refrigerator door body movable storage box
CN205574932U	2015-09-14	Take wooden wine box of picture arrangement
CN102711401A	2012-10-03	Draw-pull rotary drawer combined body for household appliance
CN203432204U	2014-02-12	Refrigerator storage box
CN206079900U	2017-04-12	Yarn storage box

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title
CN201706695350.3U	2017-06-15	2017-06-15	Containing box

Applications Claiming Priority (1)

Application	Filing date	Title
CN201720695350.3U	2017-06-15	Containing box

Legal Events

Date	Code	Title	Description
2018-01-05	GR01	Patent grant	
2018-01-05	GR01	Patent grant	

Concepts

machine-extracted

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Name	Image	Sections	Count	Query match
 ropes		claims,description	4	0.000
 insertion		abstract,description	3	0.000
 chest		abstract,description	2	0.000
Show all concepts from the description section				

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(12)实用新型专利



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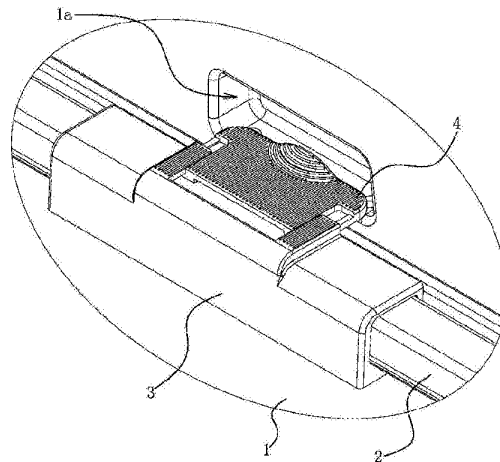
权利要求书1页 说明书2页 附图7页

(54)实用新型名称

收纳箱

(57)摘要

本实用新型提供了一种收纳箱,属于箱子技术领域。它解决了现有的收纳箱堆叠稳定性不足的问题。本收纳箱包括箱体、箱盖和铰接在箱体上的扣柄,其特征在于,所述箱体的底部侧面上具有凹入的卡槽,卡槽位于扣柄的正下方;所述扣柄上连接有能嵌入卡槽内的限位板。当两个收纳箱上下堆叠时,位于上方收纳箱中的卡槽位置与位于下方收纳箱中的限位板位置相对,推动限位板相对于扣柄滑动,即限位板向靠近位于上方收纳箱中箱体的侧面方向移动,直至限位板嵌入卡槽内,限位板的下板面与卡槽的下侧面相依靠或仅留有细小的间隙,进而能显著地提高收纳箱堆叠稳定性。



CN 206841966 U

1.一种收纳箱,包括箱体(1)、箱盖(2)和铰接在箱体(1)上的扣柄(3),其特征在于,所述箱体(1)的底部侧面上具有凹入的卡槽(1a),卡槽(1a)位于扣柄(3)的正下方;所述扣柄(3)上连接有能嵌入卡槽(1a)内的限位板(4)。

2.根据权利要求1所述的收纳箱,其特征在于,所述限位板(4)能沿着扣柄(3)滑动,限位板(4)相对于扣柄(3)横向滑动后能嵌入卡槽(1a)内或从嵌入卡槽(1a)脱离出来。

3.根据权利要求2所述的收纳箱,其特征在于,所述限位板(4)设置在扣柄(3)的顶面上,扣柄(3)的顶面上具有两条分别位于限位板(4)两端部上方的导向压板(5),导向压板(5)和扣柄(3)之间形成导向滑槽(6),限位板(4)的端部的形状与导向滑槽(6)的形状相吻合。

4.根据权利要求3所述的收纳箱,其特征在于,所述限位板(4)的底面上开有呈条形的限程槽(4a),扣柄(3)的顶面上具有嵌入限程槽(4a)内的限程凸起(3a)。

5.根据权利要求2所述的收纳箱,其特征在于,所述限位板(4)的顶面上具有手指着力部(4b)。

6.根据权利要求1所述的收纳箱,其特征在于,所述限位板(4)与扣柄(3)之间转动连接,限位板(4)绕着铰接点摆动后能嵌入卡槽(1a)内或从嵌入卡槽(1a)脱离出来。

7.根据权利要求1至6中任意一项所述的收纳箱,其特征在于,所述箱体(1)的底面上转动连接有多个滚轮(7),箱体(1)中卡槽(1a)的下侧面上开有过绳孔(1b)。

8.根据权利要求1至6中任意一项所述的收纳箱,其特征在于,所述两个收纳箱上下堆叠时,位于上方收纳箱中的卡槽(1a)位置与位于下方收纳箱中的限位板(4)位置相对;当限位板(4)嵌入卡槽(1a)内时限位板(4)的下板面与卡槽(1a)的下侧面相依靠或仅留有细小的间隙。

收纳箱

技术领域

[0001] 本实用新型属于箱子技术领域,特别是涉及一种收纳箱。

背景技术

[0002] 收纳箱就是一个简易轻便的多功能储物容器。收纳箱使用相当广泛,不但在家庭起居方面,用以收纳换季的衣被等物品,也可用来储藏食物;在工业上也大量使用。

[0003] 收纳箱主要包括一个箱体、一个箱盖和多个铰接在箱体上的扣柄。扣柄可翻扣在箱盖上,使箱盖与箱体处于锁定状态。如中国专利文献记载的一种收纳箱(授权公告号CN204548837U)。将多个收纳箱上下堆叠可节约占地面积,为了提高堆叠的稳定性,现有的箱盖上开有与箱体底部形状相适应的定位槽。本领域技术人员希望能进一步提高堆叠稳定性。

发明内容

[0004] 本实用新型提出了一种收纳箱,本实用新型要解决的技术问题是如何提高收纳箱堆叠稳定性。

[0005] 本实用新型的要解决的技术问题可通过下列技术方案来实现:本收纳箱包括箱体、箱盖和铰接在箱体上的扣柄,其特征在于,所述箱体的底部侧面上具有凹入的卡槽,卡槽位于扣柄的正下方;所述扣柄上连接有能嵌入卡槽内的限位板。

[0006] 当两个收纳箱上下堆叠时,位于上方收纳箱中的卡槽位置与位于下方收纳箱中的限位板位置相对,推动限位板相对于扣柄滑动,即限位板向靠近位于上方收纳箱中箱体的侧面方向移动,直至限位板嵌入卡槽内,限位板的下板面与卡槽的下侧面相依靠或仅留有细小的间隙,进而能显著地提高收纳箱堆叠稳定性。

[0007] 与现有技术相比,本收纳箱通过在箱体上设置卡槽和在扣柄上设置限位板,有效地提高了收纳箱堆叠稳定性。

[0008] 限位板处于回缩状态时,其外侧面与扣柄的外侧面平缓过渡,进而有效保证本收纳箱外形美观性。

[0009] 本收纳箱仅需将限位板推入卡槽内便能实现提高收纳箱堆叠稳定性,同时反向拉动限位板使限位板脱离卡槽便可解除提高收纳箱堆叠稳定性的功能,因而具有操纵方便的优点。

[0010] 通过控制卡槽的大小,即能使人们抱住本收纳箱时手指可嵌入卡槽,提高施力稳定性,实现抱持收纳箱的安全性;又能直接扳动限位板使限位板脱离卡槽。

附图说明

[0011] 图1是本收纳箱的立体结构示意图。

[0012] 图2是本收纳箱中扣柄和限位板的俯视结构示意图。

[0013] 图3是图2中A-A的剖视结构示意图。

[0014] 图4和图5是本收纳箱中扣柄和限位板的分解结构且处于不同视角的立体结构示意图。

[0015] 图6是上下两个收纳箱处于堆叠状态的立体结构示意图。

[0016] 图7是图6中B处结构放大图。

[0017] 图中,1、箱体;1a、卡槽;1b、过绳孔;2、箱盖;3、扣柄;3a、限程凸起;4、限位板;4a、限程槽;4b、手指着力部;5、导向压板;6、导向滑槽;7、滚轮。

具体实施方式

[0018] 以下是本实用新型的具体实施例并结合附图,对本实用新型的技术方案作进一步的描述,但本实用新型并不限于这些实施例。

[0019] 实施例一

[0020] 如图1至图7所示,本收纳箱包括箱体1、箱盖2和铰接在箱体1上的扣柄3;说明书附图给出扣柄3的数量为两个。

[0021] 箱体1的底部侧面上具有凹入的卡槽1a,卡槽1a位于扣柄3的正下方;即扣柄3和位于该扣柄3正下方的卡槽1a均位于箱体1同一侧面上;这样能保证上下两个收纳箱堆叠后,位于上方收纳箱中的卡槽1a与位于上方收纳箱中的扣柄3位置一一对应。

[0022] 扣柄3上连接有能嵌入卡槽1a内的限位板4。说明书附图给出限位板4能沿着扣柄3横向滑动,即限位板4相对于扣柄3横向滑动后能嵌入卡槽1a内或从嵌入卡槽1a脱离出来。

[0023] 具体来说,限位板4设置在扣柄3的顶面上,扣柄3的顶面上具有两条分别位于限位板4两侧上方的导向压板5,即限位板4的侧部位于导向压板5与扣柄3的顶面之间。导向压板5和扣柄3之间形成导向滑槽6,限位板4的端部的形状与导向滑槽6的形状相吻合,由此限位板4能稳定地沿着导向压板5的纵向线方向移动。说明书附图给出导向压板5与扣柄3连为一体。

[0024] 限位板4的底面上开有呈条形的限程槽4a,扣柄3的顶面上具有嵌入限程槽4a内的限程凸起3a,进而有效地避免限位板4因滑动行程过大而脱落。限位板4的顶面上具有手指着力部4b,进而方便推拉限位板4。

[0025] 通过控制卡槽1a的下侧面位置可保证限位板4的下板面与卡槽1a的下侧面相依靠或仅留有细小的间隙。当两个收纳箱上下堆叠时,位于上方收纳箱中的卡槽1a位置与位于下方收纳箱中的限位板4位置相对,推动限位板4使限位板4嵌入卡槽1a内且限位板4的下板面与卡槽1a的下侧面相依靠或仅留有细小的间隙,进而显著地提高收纳箱堆叠稳定性。

[0026] 箱体1的底面上转动连接有多个滚轮7,箱体1中卡槽1a的下侧面上开有过绳孔1b,过绳孔1b处穿设有拉绳,通过拉拽拉绳便于移动本收纳箱。

[0027] 实施例二

[0028] 本实施例同实施例一的结构及原理基本相同,基本相同之处不再累赘描述,仅描述不一样的地方,不一样的地方在于:限位板4与扣柄3之间并非采用滑动结构,而是限位板4绕着铰接点摆动,即限位板4相对于扣柄3摆动后能嵌入卡槽1a内或从嵌入卡槽1a脱离出来。

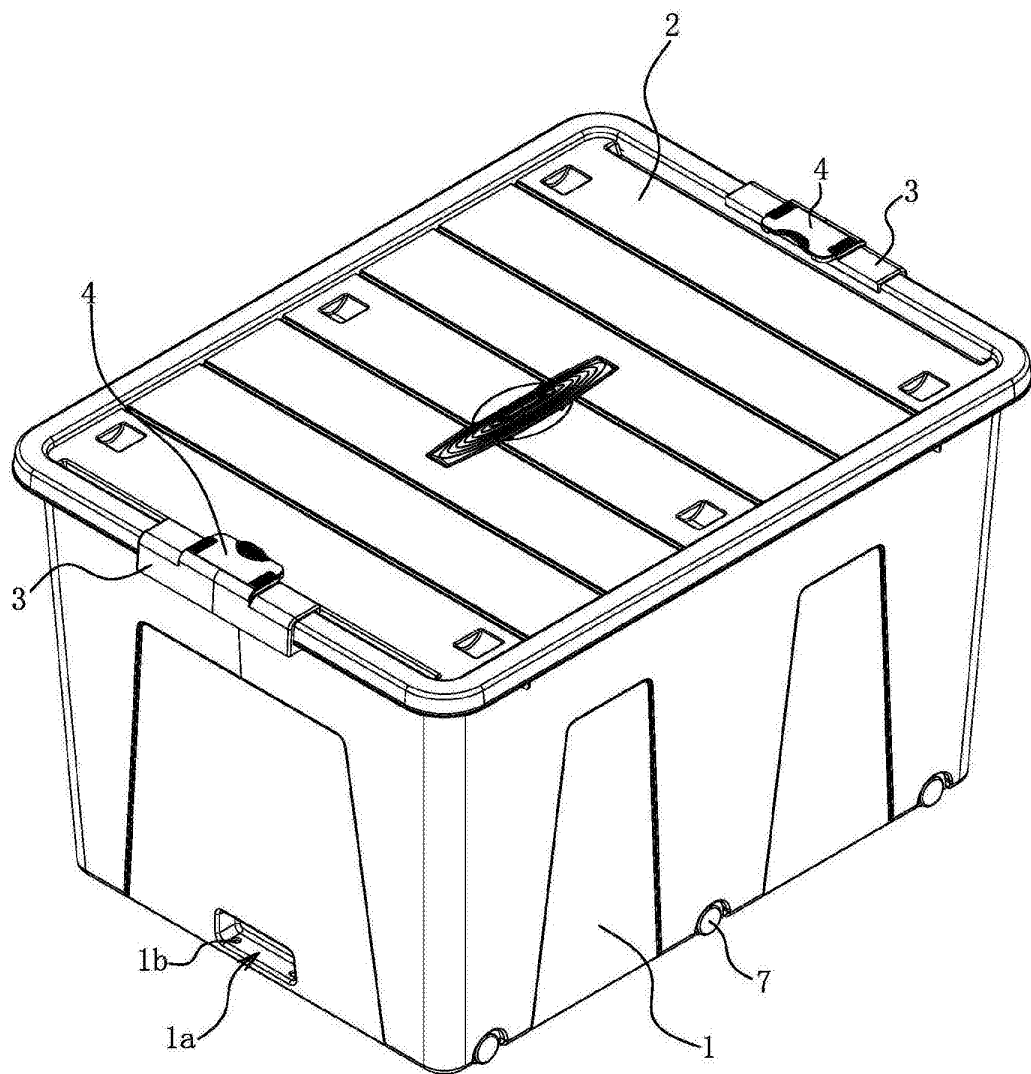


图1

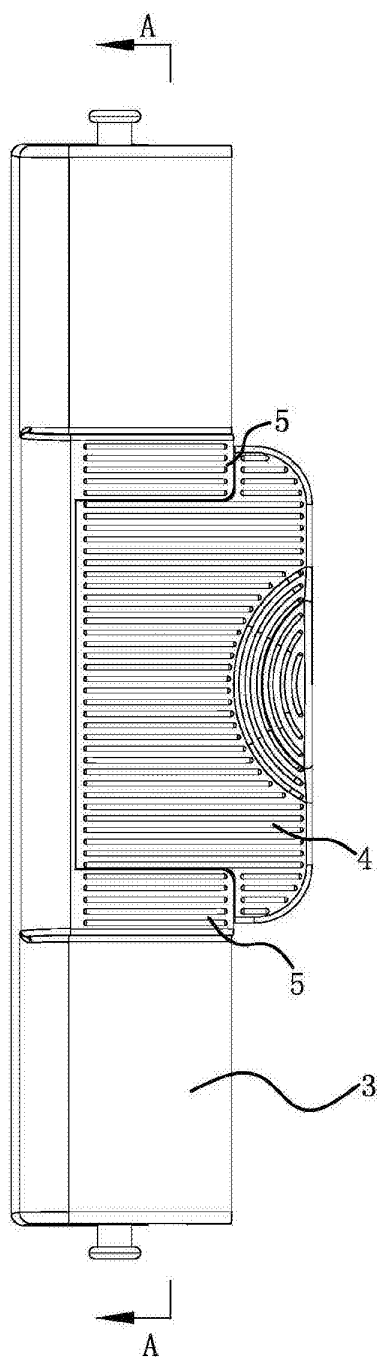


图2

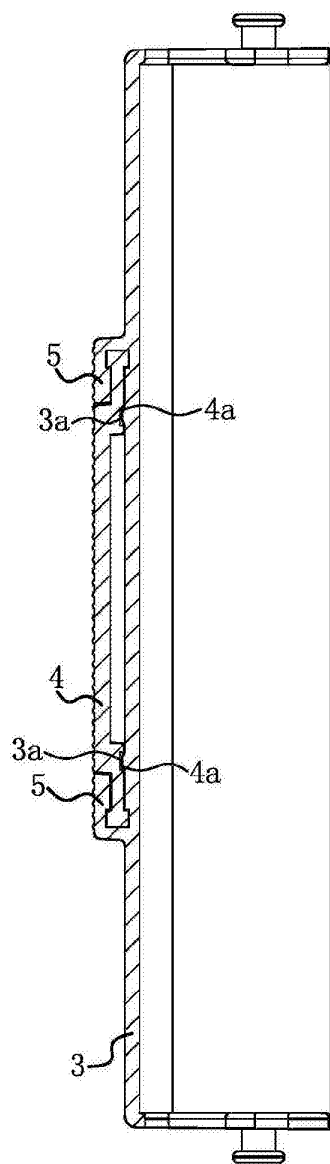


图3

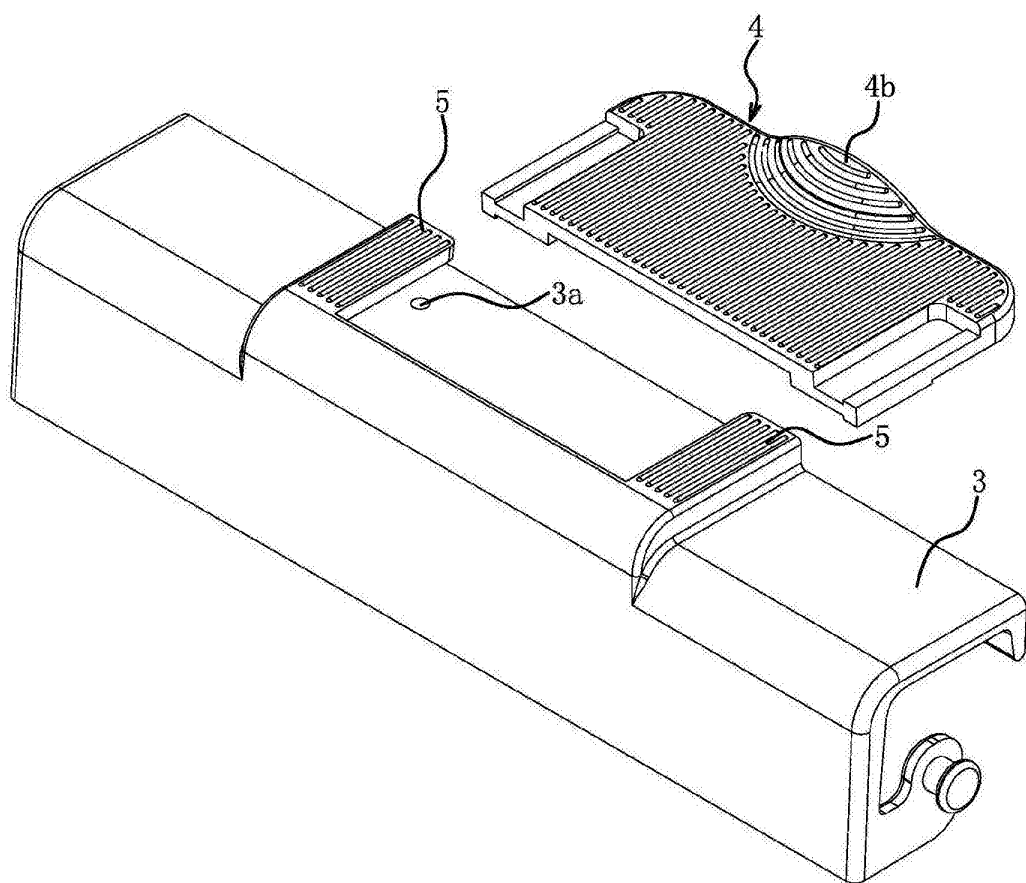


图4

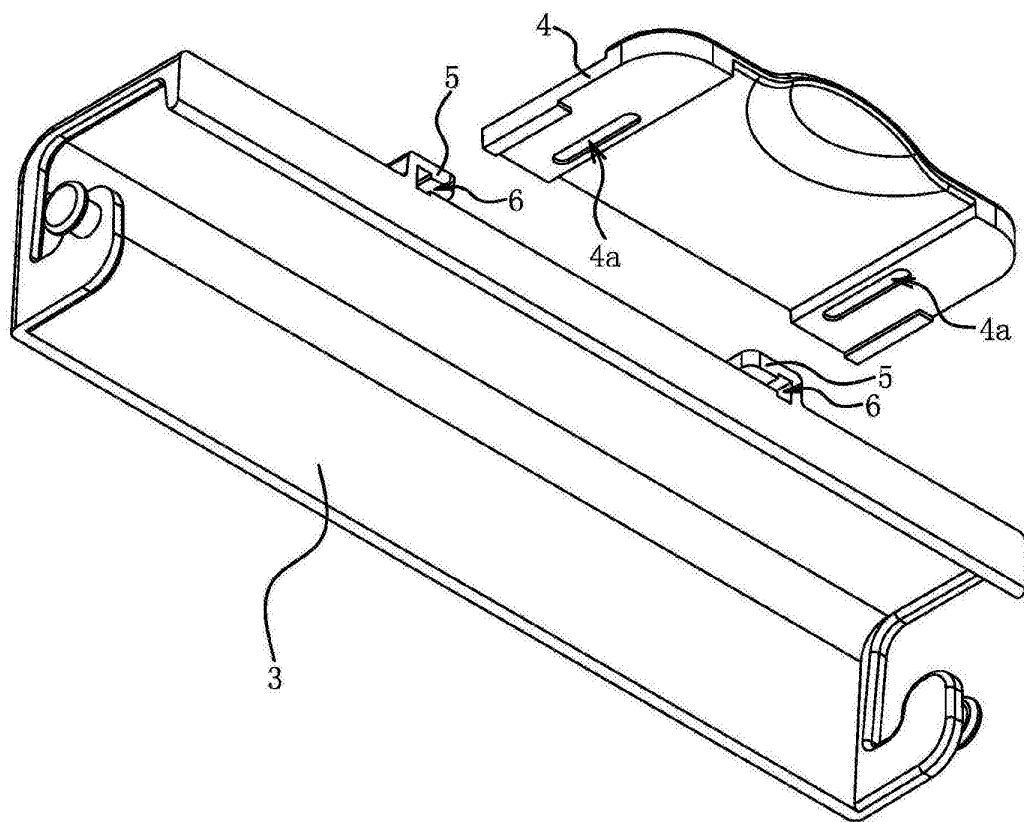


图5

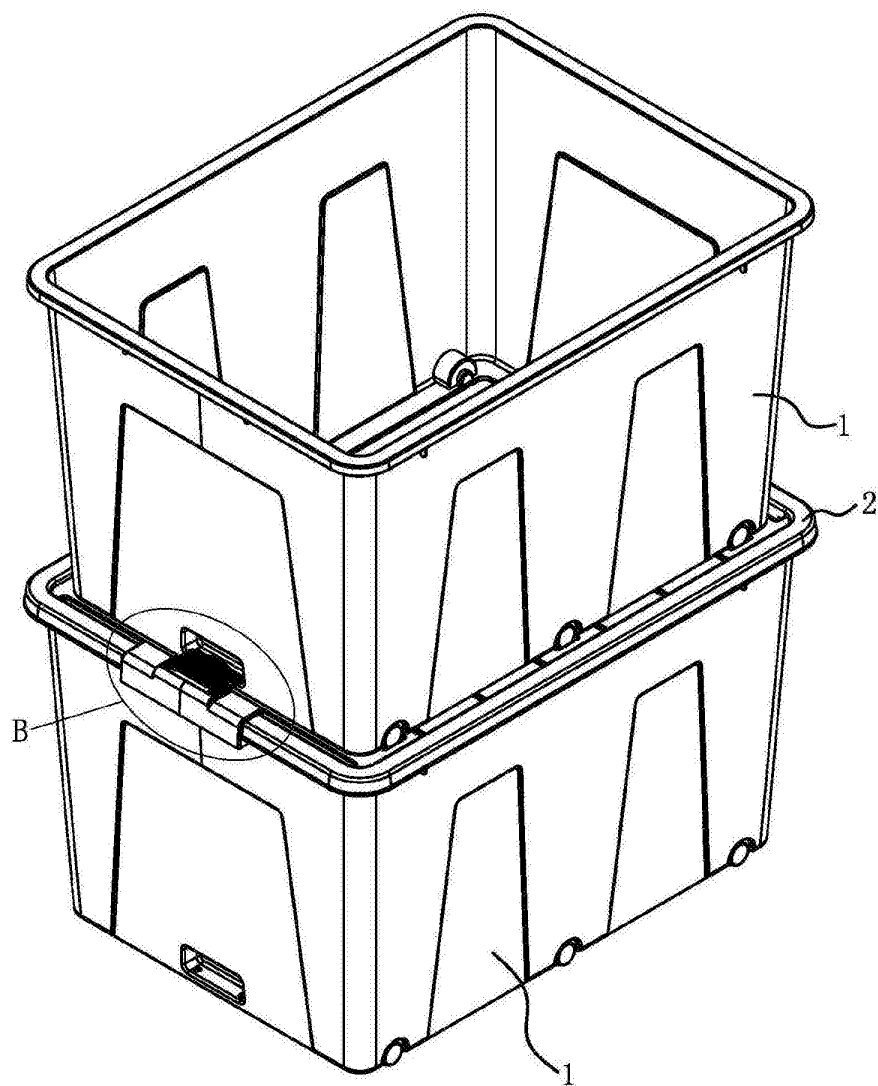


图6

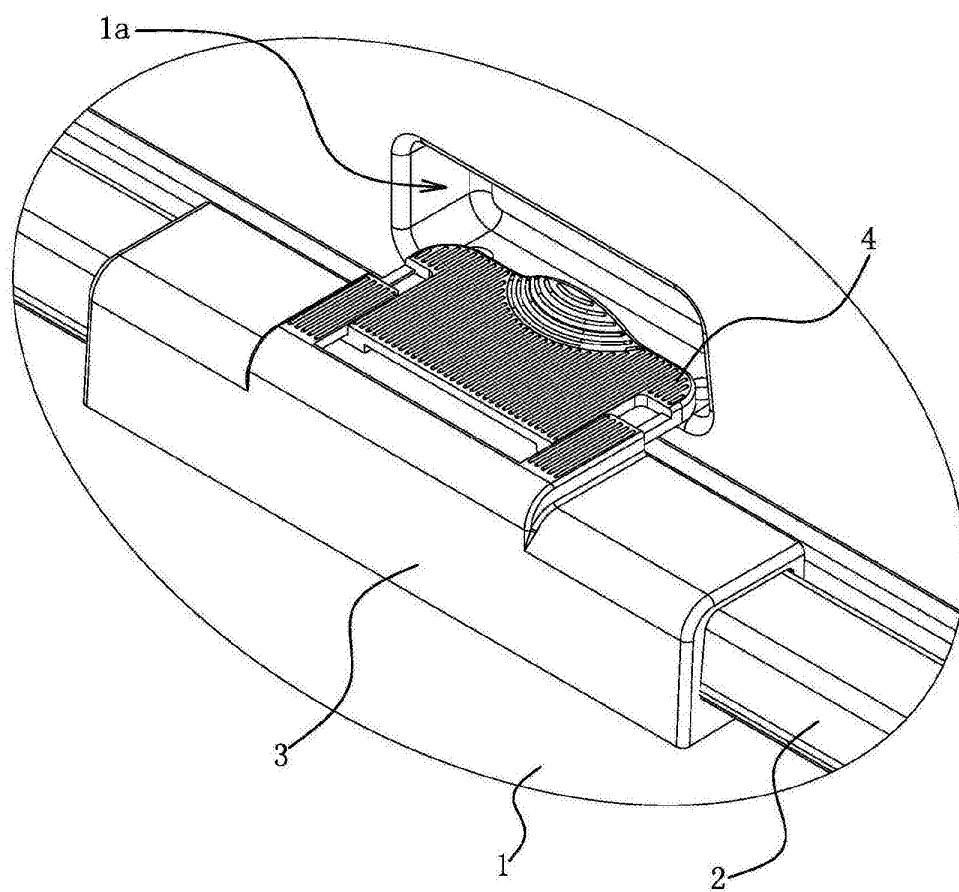


图7

Electronic Acknowledgement Receipt

EFS ID:	41979251
Application Number:	16846878
International Application Number:	
Confirmation Number:	6004
Title of Invention:	STACKED STORAGE CONTAINER LATCH
First Named Inventor/Applicant Name:	Shujun CAI
Customer Number:	23486
Filer:	Jason R. Sytsma/Kathy Ibsen
Filer Authorized By:	Jason R. Sytsma
Attorney Docket Number:	17157-0094
Receipt Date:	22-FEB-2021
Filing Date:	13-APR-2020
Time Stamp:	10:50:55
Application Type:	Utility under 35 USC 111(a)

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2	Foreign Reference	01600464.PDF	3195707	no	15
			7b7d2a839c1323a35a01cbee6916b9c2aac04774		
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16/846,878	04/13/2020	Shujun CAI	17157-0094

CONFIRMATION NO. 6004

23486

SHUTTLEWORTH & INGERSOLL, P.L.C.
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PUBLICATION NOTICE



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Title:STACKED STORAGE CONTAINER LATCH

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Publication Date:05/27/2021

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/846,878	04/13/2020	Shujun CAI	17157-0094	6004
23486 7590 10/01/2021 SHUTTLEWORTH & INGERSOLL, P.L.C. 115 3RD STREET SE, SUITE 500 P.O. BOX 2107 CEDAR RAPIDS, IA 52406			EXAMINER CASTRIOTTA, JENNIFER	
			ART UNIT 3733	PAPER NUMBER
			NOTIFICATION DATE 10/01/2021	DELIVERY MODE ELECTRONIC

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stephanie@shuttleworthlaw.com
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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.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “114” has been used to designate both a handle and a lid. 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. 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.

3. The drawings are objected to because Fig. 3 appears to have a reference number 20 where there should be a reference number 30. 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

4. 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.

5. Claims 1-20 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.
6. Claims 1 and 14 are both drawn to a stackable storage container having a first storage container and a second storage container. The claim later states “a portion of the sliding mechanism extends laterally away from the side surface of the container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the container when the sliding mechanism is engaged with the locking groove”. First, “the side surface” lacks antecedent basis. Second, which

container is the claim referencing? Are these side surfaces the same or is the claim referencing a side surface of each of the first and second storage containers? Further clarification is required.

The claims have been examined below as best the Examiner can understand.

7. Claims 3, 6, 15, and 16 all similarly reference "the side surface of the container" without any further clarity.

8. Claim 13 recites the limitation "the lid" in the first line. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 19 recites the limitation "the slot" in the first line. There is insufficient antecedent basis for this limitation in the claim. Claim 19 also recites the limitation "the support arm" in the third line. There is insufficient antecedent basis for these limitations in the claim. For purposes of further consideration, claim 19 is being interpreted as depending from claim 15 which is where the slot and support arm are first mentioned.

10. Claim 20 recites the limitation "the lid" in the first line. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

11. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

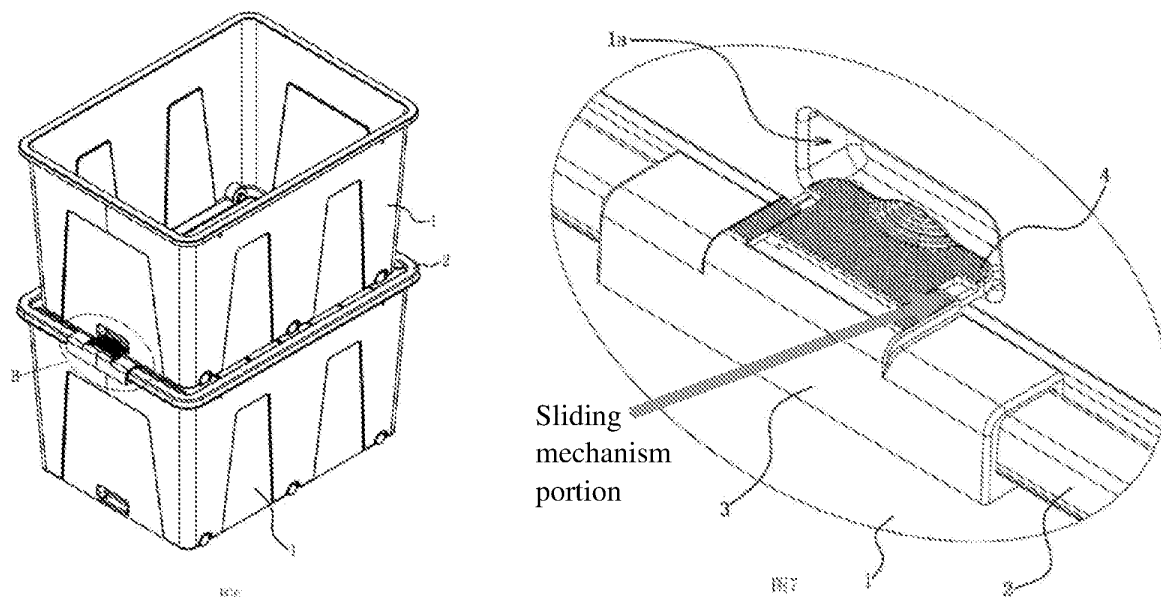
A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

13. Claim(s) 1-4, 9-11, 14, 15, and 20 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Wang (CN 206841966).

Regarding Claim 1

Wang teaches a stackable storage system comprising: a first storage container (below – Fig. 6 and 7) configured and arranged to be selectively connected to a second storage container (1), wherein the first storage container comprises of at least one locking groove (1a) and the second container comprises a sliding mechanism (4) for selectively engaging the locking groove to connect and hold the first storage container to the second storage container, and wherein a portion of the sliding mechanism (shown below) extends laterally away from the side surface of the container (i.e. the inner surface of the side of the second storage container) when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the container when the sliding mechanism is engaged with the locking groove, as can be seen in Fig. 7 below (Pg. 2 – Applicant’s supplied Google Patent translation).



Regarding Claim 2

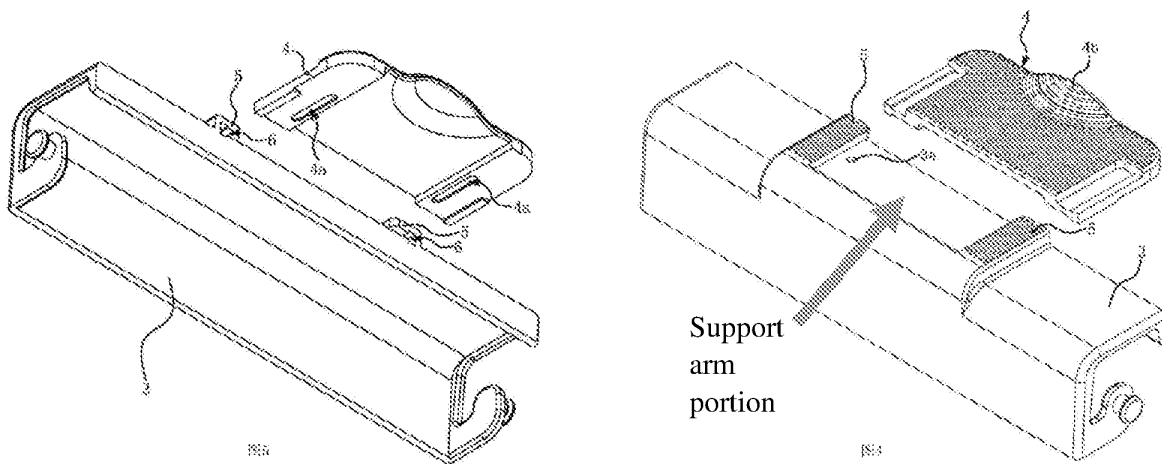
Wang teaches the sliding mechanism further comprises of a slider (4) that moves between the engaged and disengaged position with respect to the locking groove (1a).

Regarding Claim 3

Wang teaches the slider (3) has a side surface (i.e. the portion of the sliding mechanism shown above) that is perpendicular to the direction of travel of the slider between the engaged and disengaged position with respect to the locking groove and the side surface is coplanar with the side surface of the container when the slider is engaged with the locking groove, as can be seen in Fig. 7 above.

Regarding Claim 4

Wang teaches the second storage container further comprises of a slot (extending from (6) to (6)) in the side surface of the container with a support arm (including (5) and the area shown below in Fig. 4) extending across the slot, wherein the slider is engaged with the support arm to move between a locked position that corresponds to the engaged position of the locking groove and an unlocked position that corresponds to the disengaged position of the locking groove, as can be seen in the figures above and Fig. 4 and 5 below.



Regarding Claim 9

Wang teaches the support arm (above) and the slider (4) further comprise a cooperating guide (3a/4a) to constrain lateral movement of the slider with respect to the support arm.

Regarding Claim 10

Wang teaches the cooperating guide is a guiding rib (3a) on the support arm that cooperates with a guiding slot (4a) on the slider which to constrain lateral movement of the slider with respect to the support arm.

Regarding Claim 11

Wang teaches the second storage container further comprises of a guiding groove (6) on each side of the support arm for receiving the slider and constraining lateral movement of the slider with respect to the support arm, as can be seen in the figures above.

Regarding Claim 14

Wang teaches a stackable storage container comprising: a second storage container (1) configured and arranged to be selectively connected to a locking groove (1a) of a first storage container (1), wherein the second container comprises a sliding mechanism (4) for selectively engaging the locking groove of the first storage container to connect and hold the first storage container to the second storage container, and wherein a portion of the sliding mechanism (shown above) extends laterally away from the side surface of the container (the first container) when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the container when the sliding mechanism is engaged with the locking groove, as can be seen in the figures above (Pg. 2 – Applicant's supplied Google Patent translation).

Regarding Claim 15

Wang teaches the sliding mechanism further comprises of a slider (4) that moves between the engaged and disengaged position with respect to the locking groove (1a), wherein the slider has a side surface (i.e. the portion of the sliding mechanism shown above) that is perpendicular to the direction of travel of the slider between the engaged and disengaged position with respect to the locking groove and the side surface is coplanar with the side surface (i.e. the inner surface of the side) of the second storage container when the slider is engaged with the locking groove,

and wherein the second storage container further comprises of a slot (extending from (6) to (6)) in the side surface of the container with a support arm (shown above) extending across the slot, wherein the slider is engaged with the support arm to move between a locked position that corresponds to the engaged position of the locking groove and an unlocked position that corresponds to the disengaged position of the locking groove.

Regarding Claim 20

Wang teaches the slot (extending from (6) to (6)) is in the lid (2) of the second storage container, as can be seen in the figures above.

Allowable Subject Matter

14. Claims 5, 12, 16, and 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

- Regarding claims 5 and 16: Closest prior art – Wang (above) – teaches a significant portion of the Applicant's claimed invention. However, Wang does not teach the support arm further comprises of a first engaging groove for holding the slider in the unlocked position and a second engaging groove for holding the slider in the locked position.
- Regarding claims 12 and 19: Closest prior art – Wang (above) – teaches a significant portion of the Applicant's claimed invention. However, Wang does not teach the slot in the side surface of the container is described by two laterally spaced apart side

surfaces, a second side surface perpendicular thereto, and a bottom surface perpendicular thereto, wherein the support arm is located across the slot between the two laterally spaced apart side surfaces and above the bottom surface and spaced apart from the second side surface for gripping and carrying the second storage container.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Further pertinent prior art includes but is not limited to that which is listed in the attached Notice of References Cited.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER CASTRIOTTA whose telephone number is (571)270-5279. The examiner can normally be reached on Monday - Friday 9am-5pm.

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, John Fristoe can be reached on (571) 272-4926. 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.

/JENNIFER CASTRIOTTA/
Examiner, Art Unit 3733

/JOHN K FRISTOE JR/
Supervisory Patent Examiner, Art Unit 3733

<i>Notice of References Cited</i>	Application/Control No. 16/846,878		Applicant(s)/Patent Under Reexamination CAI, Shujun	
	Examiner JENNIFER CASTRIOTTA		Art Unit 3733	Page 1 of 1

U.S. PATENT DOCUMENTS

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*	B	US-6371320-B1	04-2002	Sagol; Sami	B25H3/00	206/501
*	C	US-6889838-B2	05-2005	Meier; Sven	B25H3/021	206/508
*	D	US-20080121547-A1	05-2008	Dur; Hansjorg	B65D21/0209	206/511
*	E	US-20160144500-A1	05-2016	CHEN; KUN-CHEN	B65D21/023	206/349
*	F	US-10434638-B1	10-2019	Tsai; Chung-Yu	B65D21/0228	1/1
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	H					
	I					
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	L					
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*		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.

<i>Search Notes</i> 	Application/Control No. 16/846,878	Applicant(s)/Patent Under Reexamination CAI, Shujun
	Examiner JENNIFER CASTRIOTTA	Art Unit 3733

CPC - Searched*		
Symbol	Date	Examiner
B65D 21/0224, 21/0212, 21/0228, 21/0219, 67/02, 71/502, 21/02, 21/0209, 21/17, 21/0223	September 2021	JCastriotta

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
Conducted inventor search	September 2021	JCastriotta
Conducted applicant search	September 2021	JCastriotta
Consulted IDS	September 2021	JCastriotta
Conducted text search	September 2021	JCastriotta

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

/JENNIFER CASTRIOTTA/ Examiner, Art Unit 3733	
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Bibliographic Data

Application No: 16/846,878

Foreign Priority claimed: ☒ Yes ☐ No

35 USC 119 (a-d) conditions met: ☒ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged: /JENNIFER CASTRIOTTA/

Examiner's Signature

Initials

Title: STACKED STORAGE CONTAINER LATCH

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
04/13/2020	206	3733	17157-0094
RULE			

APPLICANTS

Meridian International Co., Ltd., Songjiang, CHINA

INVENTORS

Shujun CAI, Songjiang, Shanghai, CHINA

CONTINUING DATA

FOREIGN APPLICATIONS

CHINA CN201922118361.7 11/27/2019

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04/20/2020

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	56	((("MERIDIAN") near3 ("INTERNATIONAL") near3 ("CO") near3 ("LTD"))).AS,AANM.	USPAT	OR	OFF	2021/09/23 12:05
S2	3	((("CAI") near3 ("Shujun"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 12:05
S3	9	("9566990" "20170151972" "20120312812" "8567796" "8936258" "9643629" "20190002004" "10106180" "9132543").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/23 12:05
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S12	121	B65D71/502.cpc.	US-PGPUB; USPAT	OR	OFF	2021/09/23 14:04
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S14	102	S12 not (S7 S11)	US-PGPUB; USPAT	OR	OFF	2021/09/23 15:44
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S16	26	("20120312812" "20120326406" "6874634" "6951118" "7503569" "4619363" "9193060" "6371320" "8979100" "9469024" "D702044" "RE47022" "7156249" "20100052276" "4974740" "8567631" "7753222" "20130320006" "6889838" "9132543" "8206058" "20110139665" "6176559" "9145230" "9393684" "9393685").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/23 15:49
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S29	206	S9 not (S20 S21 S22 S23 S7 S11 S12 S16 S17 S18 S8)	US-PGPUB; USPAT	OR	OFF	2021/09/23 16:19
S30	513	S10 not (S20 S21 S22 S23 S7 S11 S12 S16 S17 S18 S8 S9)	US-PGPUB; USPAT	OR	OFF	2021/09/23 16:40
S34	588	B65D21/0219.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:49
S35	255	B65D21/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:49
S36	590	B65D21/0209.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:49
S37	242	B65D21/0217.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:50
S38	434	B65D21/0223.cpc.	US-PGPUB;	OR	OFF	2021/09/23 16:50

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S39	1,566	S34 S35 S36 S37	US- PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:50
S40	203	S39 and ((slide slidi\$4) with (lock\$4 retain\$5 prevent\$5 interlock\$4))	US- PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:52
S41	158	S40 not (S20 S21 S22 S23 S7 S11 S12 S16 S17 S18 S8 S9)	US- PGPUB; USPAT	OR	OFF	2021/09/23 16:52
S42	168	S40 not (S20 S21 S22 S23 S7 S11 S12 S16 S17 S18 S8 S9)	US- PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:53

EAST Search History (Interference)

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Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Shujun, CAI	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	17157-0094	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	8567796		2013-10-29	Bar-Erez et al.	
	2	8936258		2015-01-20	Bar-Erez et al.	
	3	9132543		2015-09-15	Bar-Erez et al.	
	4	9566990		2017-02-14	Bar-Erez et al.	
	5	9643629		2017-05-09	Bar-Erez et al.	
	6	10106180		2018-10-23	Bar-Erez et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear

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

Application Number	
Filing Date	
First Named Inventor	Shujun, CAI
Art Unit	
Examiner Name	
Attorney Docket Number	17157-0094

	1	20170151972	A1	2017-06-01	Bar-Erez et al.	
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FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
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NON-PATENT LITERATURE DOCUMENTS

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

Examiner Signature	/JENNIFER CASTRIOTTA/	Date Considered	09/23/2021
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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

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

Application Number		
Filing Date		
First Named Inventor	Shujun, CAI	
Art Unit		
Examiner Name		
Attorney Docket Number	17157-0094	

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Jason R. Sytsma/	Date (YYYY-MM-DD)	2020-04-13
Name/Print	Jason R. Sytsma	Registration Number	62262

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

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

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16846878
	Filing Date	2020-04-13
	First Named Inventor	Shujun CAI
	Art Unit	3781
	Examiner Name	
	Attorney Docket Number	17157-0094

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	1	20120312812	A1	2012-12-13	Sosnovsky et al.	
	2	20190002004	No	2018-06-05	Brunner, Yaron	

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	1	206841966	CN	U	2018-01-05	Wang, Shuaifeng		X

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16846878
	Filing Date	2020-04-13
	First Named Inventor	Shujun CAI
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	Attorney Docket Number	17157-0094

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Australian Examination Report dated February 19, 2022 from counterpart Australian Patent Application No. 2020202609	×

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EXAMINER SIGNATURE

Examiner Signature	/JENNIFER CASTRIOTTA/	Date Considered	09/23/2021
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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

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

Application Number	16846878
Filing Date	2020-04-13
First Named Inventor	Shujun CAI
Art Unit	3781
Examiner Name	
Attorney Docket Number	17157-0094

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- ☒ See attached certification statement.

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Signature	/Jason R. Sytsma/	Date (YYYY-MM-DD)	2021-02-22
Name/Print	Jason R. Sytsma	Registration Number	62262

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

Electronic Acknowledgement Receipt

EFS ID:	43951698
Application Number:	16846878
International Application Number:	
Confirmation Number:	6004
Title of Invention:	STACKED STORAGE CONTAINER LATCH
First Named Inventor/Applicant Name:	Shujun CAI
Customer Number:	23486
Filer:	Jason R. Sytsma/Stephanie Frantz
Filer Authorized By:	Jason R. Sytsma
Attorney Docket Number:	17157-0094
Receipt Date:	05-OCT-2021
Filing Date:	13-APR-2020
Time Stamp:	14:54:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	01793849.PDF	664465	no	17
			38b7e6f7f2aea28a6e029a3a8989b0430252 107d		

Warnings:

Information:	
Total Files Size (in bytes):	664465
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application # : 16/846,878
Applicants : SHUJUN CAI
Filed : APRIL 13, 2020
TC/AU : 3733
Invention : **STACKED STORAGE CONTAINER LATCH**
Examiner : CASTROPTTA. JENNIFER
Docket No. : 17157-94
Customer # : 23486

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

AMENDMENT AND/OR RESPONSE TO OFFICE ACTION

In response to the action of October 01, 2021, please enter the following:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Drawings begin on page 3 and include an attached replacement sheet.

A listing of Claims begins on page 4 of this paper, including any amendments.

Remarks/Arguments begin on page 11 of this paper.

An **Appendix** including an amended drawing figure is attached following the signature page of this paper.

CHARGE STATEMENT: *The Commissioner is hereby authorized to charge any fees under 37 CFR 1.17 only which may be required by this paper, or credit any overpayment, to Deposit Account No. 50-4904.*

This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal form is filed.

AMENDMENTS TO THE SPECIFICATION

Please amend ¶ [0024], as follows:

Second storage container 20, for example and referring to FIG. 6, similarly may comprise a container portion 110 that contains opposing sides walls and a bottom portion defining an interior space. A pivotally attached lid 112 is provided for ease of selective access to the interior of container portion 110. On the top side of lid 112, a carrying handle 114 is provided for ease of carrying. Noticeably, lid ~~114-112~~ pivots downward into a recess 116 in the top side of lid 112 when not in use. This allows for another storage container to be stacked on top without interference from handle 114. One or more lid latches can be provided to secure lid 112 to at least one of the sidewalls of container portion 110.

Appln. of: SHUJUN CAI
Serial No.: 16/846,878
Filed: APRIL 13, 2020

AMENDMENTS TO THE DRAWINGS

The drawings stand object for referencing the carrying handle and the lid as element 112. In response, Applicant has amended the specification, thus rendering the objection moot.

FIG. 3 stands object for referencing number 20 where there should be element 30. In response, Applicant has amended FIG. 3 accordingly, and has provided herewith a Replacement Sheet, thus rendering the objection moot.

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A stackable storage system comprising:

a first storage container configured and arranged to be selectively connected to a second storage container,

wherein the first storage container comprises of at least one locking groove and the second container comprises a sliding mechanism for selectively engaging the locking groove to connect and hold the first storage container to the second storage container, and

wherein a portion of the sliding mechanism extends laterally away from ~~the a~~ side surface of the second container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the second container when the sliding mechanism is engaged with the locking groove.

2. (Original) The stackable storage system of claim 1, wherein the sliding mechanism further comprises of a slider that moves between the engaged and disengaged position with respect to the locking groove.

3. (Currently Amended) The stackable storage system of claim 2, wherein the slider has a side surface that is perpendicular to the direction of travel of the slider between the engaged and disengaged position with respect to the locking groove and the side surface

of the slider is coplanar with the side surface of the second container when the slider is engaged with the locking groove.

4. (Original) The stackable storage system of claim 3, wherein the second storage container further comprises of a slot in the side surface of the container with a support arm extending across the slot, wherein the slider is engaged with the support arm to move between a locked position that corresponds to the engaged position of the locking groove and an unlocked position that corresponds to the disengaged position of the locking groove.

5. (Original) The stackable storage system of claim 4, wherein the support arm further comprises of a first engaging groove for holding the slider in the unlocked position and a second engaging groove for holding the slider in the locked position.

6. (Currently Amended) The stackable storage system of claim 5, wherein the first engaging groove is closer to the side surface of the second container than the second engaging groove.

7. (Original) The stackable storage system of claim 6, wherein the slider further comprises of an elastic arm with an engaging protrusion that selectively engages the first engaging groove and the second engaging groove.

8. (Original) The stackable storage system of claim 7, wherein the support arm further comprises at least one block comprising a bevel, and the slider further comprises of a recess with a sloped entry surface and a stopping surface for receiving the bevel and arresting outward movement of the slider wherein the stopping surface of the recess is parallel with the engaging protrusion of the elastic arm of the slider.

9. (Original) The stackable storage system of claim 4, wherein the support arm and the slider further comprise a cooperating guide to constrain lateral movement of the slider with respect to the support arm.

10. (Original) The stackable storage system of claim 9, wherein the cooperating guide is a guiding rib on the support arm that cooperates with a guiding slot on the slider which to constrain lateral movement of the slider with respect to the support arm.

11. (Original) The stackable storage system of claim 4, wherein the second storage container further comprises of a guiding groove on each side of the support arm for receiving the slider and constraining lateral movement of the slider with respect to the support arm.

12. (Original) The stackable storage system of claim 4, wherein the slot in the side surface of the container is described by two laterally spaced apart side surfaces, a second side surface perpendicular thereto, and a bottom surface perpendicular thereto, wherein the support arm is located across the slot between the two laterally spaced apart side surfaces and above the bottom surface and spaced apart from the second side surface for gripping and carrying the second storage container.

13. (Currently Amended) The stackable storage system of claim 12, wherein the slot is in ~~the a~~ lid of the second storage container.

14. (Currently Amended) A stackable storage container comprising:

a second storage container configured and arranged to be selectively connected to a locking groove of a first storage container,

wherein the second container comprises a sliding mechanism for selectively engaging the locking groove of the first storage container to connect and hold the first storage container to the second storage container, and

wherein a portion of the sliding mechanism extends laterally away from ~~the a~~ side surface of the second container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the second container when the sliding mechanism is engaged with the locking groove.

15. (Currently Amended) The storage container of claim 14, wherein the sliding mechanism further comprises of a slider that moves between the engaged and disengaged position with respect to the locking groove, wherein the slider has a side surface that is perpendicular to the direction of travel of the slider between the engaged and disengaged position with respect to the locking groove and the side surface of the slider is coplanar with the side surface of the second storage container when the slider is engaged with the locking groove, and wherein the second storage container further comprises of a slot in the side surface of the container with a support arm extending across the slot, wherein the slider is engaged with the support arm to move between a locked position that corresponds to the engaged position of the locking groove and an unlocked position that corresponds to the disengaged position of the locking groove.

16. (Currently Amended) The storage system of claim 15, wherein the support arm further comprises of a first engaging groove for holding the slider in the unlocked position and a second engaging groove for holding the slider in the locked position, wherein the first engaging groove is closer to the side surface of the second container than the second engaging groove, and wherein the slider further comprises of an elastic arm with an engaging protrusion that selectively engages the first engaging groove and the second engaging groove.

17. (Original) The storage system of claim 16, wherein the support arm further comprises at least one block comprising a bevel, and the slider further comprises of a recess with a sloped entry surface and a stopping surface for receiving the bevel and arresting outward movement of the slider wherein the stopping surface of the recess is parallel with the engaging protrusion of the elastic arm of the slider.

18. (Original) The storage system of claim 17, wherein the support arm and the slider further comprise a cooperating guide to constrain lateral movement of the slider with respect to the support arm, wherein the cooperating guide is a guiding rib on the support arm that cooperates with a guiding slot on the slider which to constrain lateral movement of the slider with respect to the support arm.

19. (Currently Amended) The storage system of claim ~~14~~15, wherein the slot in the side surface of the container is described by two laterally spaced apart side surfaces, a second side surface perpendicular thereto, and a bottom surface perpendicular thereto, wherein the support arm is located across the slot between the two laterally spaced apart side surfaces and above the bottom surface and spaced apart from the second side surface for gripping and carrying the second storage container.

20. (Currently Amended) The storage system of claim 15, wherein the slot is in ~~the~~a lid of the second storage container.

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Serial No.: 16/846,878
Filed: APRIL 13, 2020

REMARKS

Reconsideration and allowance are respectfully requested.

STATUS OF THE CLAIMS

Claims 1-20 are pending, with claims 1 and 14 being independent. Claims 1, 3, 6, 13-16, 19, and 20 have been amended. No new subject matter has been added.

ALLOWABLE SUBJECT MATTER

Applicant thanks the Examiner for indicating that claims 5, 12, 16, and 19 contain allowable subject matter.

REJECTIONS UNDER 35 USC §112

Claims 1 and 14 stand rejected under 35 USC §112, second paragraph for being indefinite. Applicant has amended these claims to clarify the second container and correct the missing antecedent for the side surface. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Claims 3, 6, 15, and 16 stand rejected for failing to clarify the side surface and the second container. Applicant has amended these claims accordingly, and respectfully requests that this rejection be withdrawn.

Claim 13 stands rejected for lack of antecedent for the lid. Applicant has amended this claim accordingly, and respectfully requests that this rejection be withdrawn.

Claim 19 stands rejected for lack of antecedent basis. Applicant has amended this claim to depend from claim 15, and respectfully requests that this rejection be withdrawn.

Claim 20 stands rejected for lack of antecedent for the lid. Applicant has amended this claim accordingly, and respectfully requests that this rejection be withdrawn.

REJECTIONS UNDER 35 USC §§102, 103

Claim 1 stand rejected under 35 USC §102(a)(1) as being anticipated by Wang.

Applicant respectfully traverses this rejection.

Claim 1 requires:

wherein a portion of the sliding mechanism extends laterally away from a side surface of the second container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the second container when the sliding mechanism is engaged with the locking groove.

When the first storage container and the second storage container need to be connected to each other, the first storage container is stacked on top of the second storage container, the user engages the sliding mechanism that is extending away from the side surface of the second container by pushing it inward. This locks the containers together and also provides an aesthetically pleasing design by having the portion of the sliding mechanism that was extending laterally away from the side surface of the second container, coplanar with the side surface of the second container. This is also done by way of a single 1-step process of simply sliding towards and away the sliding mechanism

with respect to the side wall of the second container. This is not taught or suggested by Wang.

Wang teaches a 2-step process that comprises of a *buckle handle 3* that pivots towards and away to lock the containers together. Once the buckle handle 3 is pivoted to the locked position, a *limiting plate 4* is slid into the slot 1a to lock the two containers together. (Espacenet Translation; FIGs. 4-5). This arrangement does not teach or suggest that aesthetically pleasing and simple to operate design of claim 1.

With respect to Wang, there is no side surface of the second container that a *portion* of the sliding mechanism is both extending laterally away from when disengaged and coplanar with when engaged in the locking groove. The locking mechanism of Wang has its movement constrained by a protrusion 3a and a corresponding groove 4a. (See *Id.*) This constraint of movement prohibits the full range of motion offered by claim 1.

Accordingly, Applicant respectfully requests that the rejection of claim 1 be withdrawn.

Claims 2-13 depend from claim 1 and are allowable for the same reasons as claim 1, as well as for the further limitations contained therein.

Claim 14 stand rejected under 35 USC §102(a)(1) as being anticipated by Wang. Applicant respectfully traverses this rejection.

Claim 14 requires:

wherein a portion of the sliding mechanism extends laterally away from a side surface of the second container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding

mechanism is coplanar with the side surface of the second container when the sliding mechanism is engaged with the locking groove.

For reasons similar to those given with respect to claim 1, claim 14 is similarly believed to be allowable. Accordingly, Applicant respectfully requests that the rejection of claim 14 be withdrawn, as well.

Claims 15-20 depend from claim 14 and are allowable for the same reasons as claim 14, as well as for the further limitations contained therein.

NO DISCLAIMERS OR DISAVOWALS

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application.

Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution.

Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

Appln. of: SHUJUN CAI
Serial No.: 16/846,878
Filed: APRIL 13, 2020

CONCLUSION

In view of the above, it is believed that the application is in condition for allowance and such a Notice is respectfully requested. If anything else is needed to place the application in condition for allowance, it is kindly requested that the undersigned be contacted.

Respectfully submitted,



Jason R. Sytsma
Reg. No.: 62,262

Customer Number: 23486
Shuttleworth & Ingersoll, PLC
115 Third Street SE, Suite 500
Cedar Rapids, Iowa 52401
Telephone: (319) 365-9461
Facsimile: (319) 365-8443
E-mail: jrs@shuttleworthlaw.com
Web Site: www.Shuttleworthlaw.com
October 5, 2021

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being transmitted to the United States Patent and Trademark Office by EFS-Web on October 5, 2021.

_____/Stephanie L. Frantz/_____
Stephanie L. Frantz

APPENDIX

REPLACEMENT SHEET

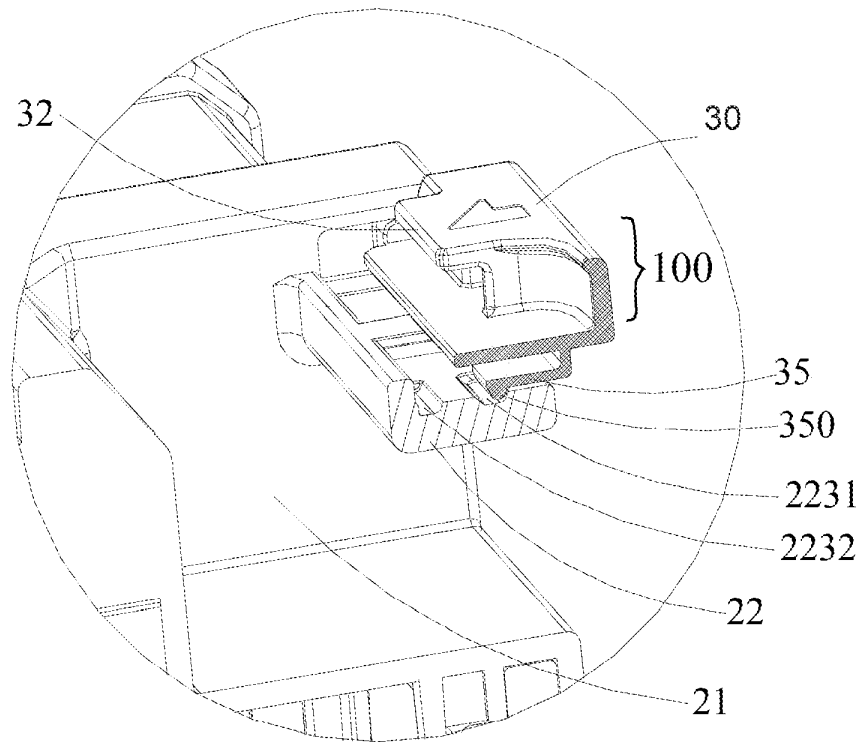


FIG. 3

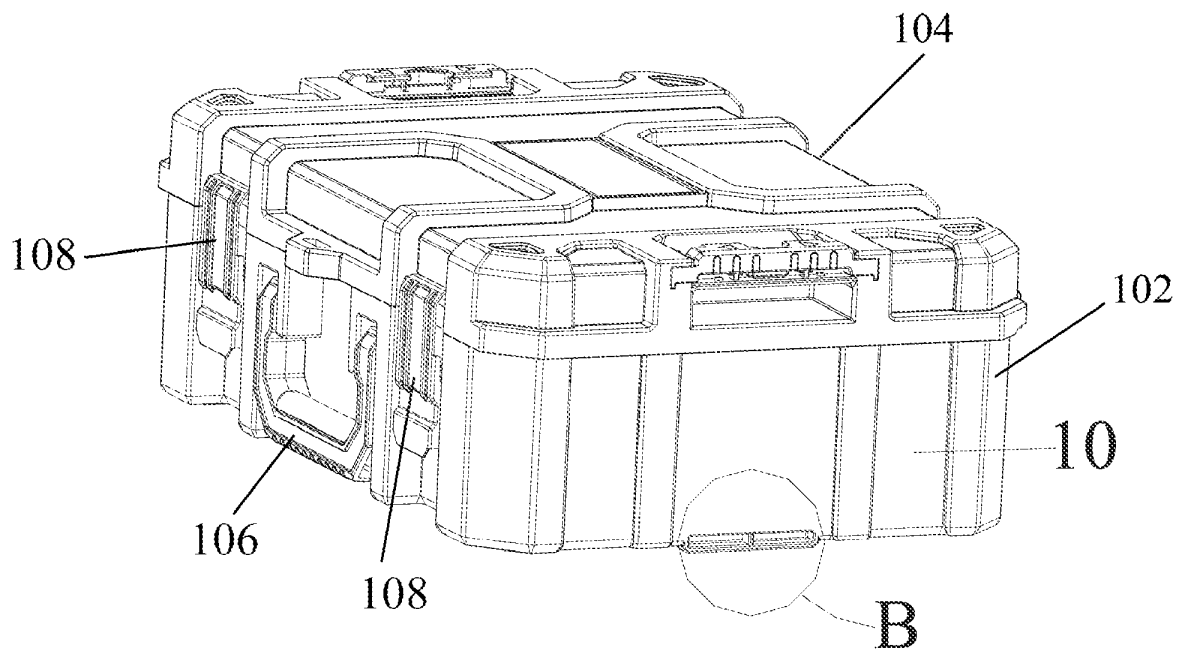


FIG. 4

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/846,878		Filing Date 04/13/2020		☐ 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), (l), 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(j))		minus 20 =		*		x \$100 =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		x \$460 =					
☐ 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	10/05/2021		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 =		
	Independent (37 CFR 1.16(h))		* 2		Minus *** 3		= 0		x \$480 =		
	☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))											
								TOTAL ADD'L FEE		0	
		(Column 1)		(Column 2)		(Column 3)					
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		SLIE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.											
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".										/KIMBERLY R WHITE/	
*** 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.**
 If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

23486 7590 10/27/2021
SHUTTLEWORTH & INGERSOLL, P.L.C.
115 3RD STREET SE, SUITE 500
P.O. BOX 2107
CEDAR RAPIDS, IA 52406

EXAMINER

CASTRIOTTA, JENNIFER

ART UNIT PAPER NUMBER

3733

DATE MAILED: 10/27/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/846,878	04/13/2020	Shujun CAI	17157-0094	6004

TITLE OF INVENTION: STACKED STORAGE CONTAINER LATCH

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	01/27/2022

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

23486 7590 10/27/2021
SHUTTLEWORTH & INGERSOLL, P.L.C.
115 3RD STREET SE, SUITE 500
P.O. BOX 2107
CEDAR RAPIDS, IA 52406

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/846,878	04/13/2020	Shujun CAI	17157-0094	6004

TITLE OF INVENTION: STACKED STORAGE CONTAINER LATCH

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	01/27/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
CASTRIOTTA, JENNIFER	3733	206-509000

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

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

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

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

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

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

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

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

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

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

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

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/846,878	04/13/2020	Shujun CAI	17157-0094	6004
23486	7590	10/27/2021	EXAMINER	
SHUTTLEWORTH & INGERSOLL, P.L.C. 115 3RD STREET SE, SUITE 500 P.O. BOX 2107 CEDAR RAPIDS, IA 52406			CASTRIOTTA, JENNIFER	
			ART UNIT	PAPER NUMBER
			3733	

DATE MAILED: 10/27/2021

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

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

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

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

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 16/846,878	Applicant(s) CAI, Shujun	
	Examiner JENNIFER CASTRIOTTA	Art Unit 3733	AIA (FITF) Status Yes

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

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

1. ☒ This communication is responsive to the amendments filed 10/5/2021.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

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

3. ☒ The allowed claim(s) is/are 1-20. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

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

Certified copies:

a) ☒ All b) ☐ Some* c) ☐ None of the:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

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

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

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

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

Attachment(s)

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

/JENNIFER CASTRIOTTA/ Examiner, Art Unit 3733	/DON M ANDERSON/ Primary Examiner, Art Unit 3733
--	---

Allowable Subject Matter

1. Claims 1-20 are allowed
2. The following is an examiner's statement of reasons for allowance: Closest prior art – Wang (CN 206841966) – teaches a majority of the Applicant's claimed invention, as previously shown.

However, Wang does not teach a portion of the sliding mechanism extends laterally away from a side surface of the second container when the sliding mechanism is disengaged from the locking groove and wherein the portion of the sliding mechanism is coplanar with the side surface of the second container when the sliding mechanism is engaged with the locking groove.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER CASTRIOTTA whose telephone number is (571)270-5279. The examiner can normally be reached Monday - Friday 9am-5pm.

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, John Fristoe can be reached on (571) 272-4926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JENNIFER CASTRIOTTA/
Examiner, Art Unit 3733

/DON M ANDERSON/
Primary Examiner, Art Unit 3733

Issue Classification 	Application/Control No. 16/846,878	Applicant(s)/Patent Under Reexamination CAI, Shujun
	Examiner JENNIFER CASTRIOTTA	Art Unit 3733

CPC						
Symbol					Type	Version
B65D	/	21	/	0223	F	2013-01-01
B65D	/	21	/	0212	I	2013-01-01
B65D	/	43	/	22	I	2013-01-01
B65D	/	67	/	02	I	2013-01-01
B65D	/	21	/	0228	I	2013-01-01
B65D	/	25	/	2835	A	2013-01-01
B65D	/	2525	/	283	A	2013-01-01
B65D	/	71	/	502	A	2013-01-01

CPC Combination Sets					
Symbol				Type	Version
	/		/		

/JENNIFER CASTRIOTTA/ Examiner, Art Unit 3733 (Assistant Examiner)	12 October 2021 (Date)	Total Claims Allowed: 1	
/DON M ANDERSON/ Primary Examiner, Art Unit 3733 (Primary Examiner)	14 October 2021 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1 and 2

Issue Classification 	Application/Control No. 16/846,878	Applicant(s)/Patent Under Reexamination CAI, Shujun
	Examiner JENNIFER CASTRIOTTA	Art Unit 3733

INTERNATIONAL CLASSIFICATION			
CLAIMED			
B65D21/02	/	21	/ 02
B65D67/02	/	67	/ 02
B65D25/28	/	25	/ 28
B65D71/50	/	71	/ 50
NON-CLAIMED			
B65D43/22	/	43	/ 22

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

/JENNIFER CASTRIOTTA/ Examiner, Art Unit 3733 (Assistant Examiner)	12 October 2021 (Date)	Total Claims Allowed: 1	
/DON M ANDERSON/ Primary Examiner, Art Unit 3733 (Primary Examiner)	14 October 2021 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1 and 2

<i>Issue Classification</i> 	Application/Control No. 16/846,878	Applicant(s)/Patent Under Reexamination CAI, Shujun
	Examiner JENNIFER CASTRIOTTA	Art Unit 3733

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

/JENNIFER CASTRIOTTA/ Examiner, Art Unit 3733 (Assistant Examiner)	12 October 2021 (Date)	Total Claims Allowed: 1	
/DON M ANDERSON/ Primary Examiner, Art Unit 3733 (Primary Examiner)	14 October 2021 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1 and 2

<i>Search Notes</i> 	Application/Control No. 16/846,878	Applicant(s)/Patent Under Reexamination CAI, Shujun
	Examiner JENNIFER CASTRIOTTA	Art Unit 3733

CPC - Searched*		
Symbol	Date	Examiner
B65D 21/0224, 21/0212, 21/0228, 21/0219, 67/02, 71/502, 21/02, 21/0209, 21/17, 21/0223	September 2021	JCastriotta

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
Conducted inventor search	September 2021	JCastriotta
Conducted applicant search	September 2021	JCastriotta
Consulted IDS	September 2021	JCastriotta
Conducted text search	September 2021	JCastriotta
Updated search	October 2021	JCastriotta

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
See above	See above	October 2021	JCastriotta

/JENNIFER CASTRIOTTA/ Examiner, Art Unit 3733	
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	56	((("MERIDIAN") near3 ("INTERNATIONAL") near3 ("CO") near3 ("LTD"))).AS,AANM.	USPAT	OR	OFF	2021/09/23 12:05
S2	3	((("CAI") near3 ("Shujun"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 12:05
S3	9	("9566990" "20170151972" "20120312812" "8567796" "8936258" "9643629" "20190002004" "10106180" "9132543").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/23 12:05
S4	1	("20150190919").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/23 12:11
S5	1	("10434638").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/23 12:11
S6	4	(US-20120312812-\$ or US-20190002004-\$ or US-20150190919-\$).did. or (US-10434638-\$).did.	US-PGPUB; USPAT	OR	OFF	2021/09/23 13:14
S7	268	B65D21/0224.cpc.	US-PGPUB; USPAT	OR	OFF	2021/09/23 13:31
S8	458	B65D21/0212.cpc.	US-PGPUB; USPAT	OR	OFF	2021/09/23 13:31
S9	230	B65D21/0228.cpc.	US-PGPUB; USPAT	OR	OFF	2021/09/23 13:31
S10	533	B65D21/0219.cpc.	US-PGPUB; USPAT	OR	OFF	2021/09/23 13:31
S11	276	B65D67/02.cpc.	US-PGPUB; USPAT	OR	OFF	2021/09/23 14:04
S12	121	B65D71/502.cpc.	US-PGPUB; USPAT	OR	OFF	2021/09/23 14:04
S13	262	S11 not (S7)	US-PGPUB; USPAT	OR	OFF	2021/09/23 14:04

S14	102	S12 not (S7 S11)	US-PGPUB; USPAT	OR	OFF	2021/09/23 15:44
S15	447	S8 not (S7 S11 S12)	US-PGPUB; USPAT	OR	OFF	2021/09/23 15:48
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S17	9	("2798371" "8602256" "7837053" "7370891" "3698753" "20060042897" "8297464" "4635454" "20080196216").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/23 15:50
S18	2	("2015/0190919").URPN.	USPAT	OR	OFF	2021/09/23 15:50
S19	51	("20060037964" "20090236255" "20050092650" "20090178946" "5022546" "5882097" "6082539" "6889838" "20110139666" "3310905" "5887715" "7523827" "1933894" "20070194024" "20120091024" "5915554" "7472730" "6105767" "6626295" "20040069668" "20110139777" "20110155613" "20120024739" "4619363" "4823955" "6994214" "20050161357" "20070103039" "20110073516" "20110168599" "20110168729" "5934466" "6971517" "7334680" "7357268" "5699925" "6015064" "3327841" "5803254" "6874634" "7246704" "6523687" "20050224384" "4836374" "4927021" "5325966" "6371320" "7219969" "7255229" "8100281" "6648166").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/23 15:52
S20	10	("2012/0312812").URPN.	USPAT	OR	OFF	2021/09/23 15:52
S21	28	("20030062365" "20030094392" "20110049824" "20110139777" "20110155613" "20110168599" "20120312812" "20120326406" "4619363" "5011013" "6193062" "6371320" "8602217").PN. OR ("9393684").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 15:55
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		"6082539" "7523827").PN. OR ("9725209").URPN.	USPAT; USOCR			
S23	17	("20080000899" "20120312812" "20130127129" "3379482" "3811559" "4118048" "4619363" "5125697" "5904269" "6082539" "6371320" "6874634" "6889838" "7387350" "7516842").PN. OR ("9393685").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 15:55
S24	11	(S17 S18) not (S7 S11 S12 S16)	US-PGPUB; USPAT	OR	OFF	2021/09/23 15:58
S25	56	(S20 S21 S22 S23) not (S7 S11 S12 S16 S17 S18)	US-PGPUB; USPAT	OR	OFF	2021/09/23 15:59
S26	1	("20190168376").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/23 16:03
S27	445	S8 not (S20 S21 S22 S23 S7 S11 S12 S16 S17 S18)	US-PGPUB; USPAT	OR	OFF	2021/09/23 16:05
S28	3	("RE47022" "20190308772" "20190315515").PN.	US-PGPUB; USPAT	OR	OFF	2021/09/23 16:16
S29	206	S9 not (S20 S21 S22 S23 S7 S11 S12 S16 S17 S18 S8)	US-PGPUB; USPAT	OR	OFF	2021/09/23 16:19
S30	513	S10 not (S20 S21 S22 S23 S7 S11 S12 S16 S17 S18 S8 S9)	US-PGPUB; USPAT	OR	OFF	2021/09/23 16:40
S34	588	B65D21/0219.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:49
S35	255	B65D21/02.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:49
S36	590	B65D21/0209.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:49
S37	242	B65D21/0217.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:50
S38	434	B65D21/0223.cpc.	US-PGPUB;	OR	OFF	2021/09/23 16:50

			USPAT; USOCR			
S39	1,566	S34 S35 S36 S37	US- PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:50
S40	203	S39 and ((slide slidi\$4) with (lock\$4 retain\$5 prevent\$5 interlock\$4))	US- PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:52
S41	158	S40 not (S20 S21 S22 S23 S7 S11 S12 S16 S17 S18 S8 S9)	US- PGPUB; USPAT	OR	OFF	2021/09/23 16:52
S42	168	S40 not (S20 S21 S22 S23 S7 S11 S12 S16 S17 S18 S8 S9)	US- PGPUB; USPAT; USOCR	OR	OFF	2021/09/23 16:53

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	139	B65D21/0224.cpc.	USPAT	OR	OFF	2021/10/12 16:40
L3	232	B65D21/0212.cpc.	USPAT	OR	OFF	2021/10/12 16:40
L4	90	B65D21/0228.cpc.	USPAT	OR	OFF	2021/10/12 16:40
L5	302	B65D21/0219.cpc.	USPAT	OR	OFF	2021/10/12 16:40
L6	188	B65D67/02.cpc.	USPAT	OR	OFF	2021/10/12 16:40
L7	79	B65D71/502.cpc.	USPAT	OR	OFF	2021/10/12 16:41
L8	266	B65D21/0209.cpc.	USPAT	OR	OFF	2021/10/12 16:41
L9	110	B65D21/0217.cpc.	USPAT	OR	OFF	2021/10/12 16:41
L10	196	B65D21/0223.cpc.	USPAT	OR	OFF	2021/10/12 16:41
L12	34	(2 6 4 5 6 7 8 9 10) and ((slide slidi\$4) with (lock\$4 retain\$5 prevent\$5 interlock\$4)).clm.	USPAT	OR	OFF	2021/10/12 16:42

10/12/2021 4:42:33 PM

C:\Users\jcastriotta\Documents\EAST\Workspaces\16846878.wsp

Bibliographic Data

Application No: 16/846,878

Foreign Priority claimed: ☒ Yes ☐ No

35 USC 119 (a-d) conditions met: ☒ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged: /JENNIFER CASTRIOTTA/

Examiner's Signature

Initials

Title: STACKED STORAGE CONTAINER LATCH

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
04/13/2020	206	3733	17157-0094
RULE			

APPLICANTS

Meridian International Co., Ltd., Songjiang, CHINA

INVENTORS

Shujun CAI, Songjiang, Shanghai, CHINA

CONTINUING DATA

FOREIGN APPLICATIONS

CHINA CN201922118361.7 11/27/2019

IF REQUIRED, FOREIGN LICENSE GRANTED**

04/20/2020

STATE OR COUNTRY

CHINA

ADDRESS

SHUTTLEWORTH & INGERSOLL, P.L.C.

115 3RD STREET SE, SUITE 500

P.O. BOX 2107

CEDAR RAPIDS, IA 52406

UNITED STATES

FILING FEE RECEIVED

\$1,720

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
16846878	13-Apr-2020	Shujun CAI	17157-0094	6004

TITLE OF INVENTION :

STACKED STORAGE CONTAINER LATCH

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Regular Undiscounted	Utility under 35 USC 111(a)	3733	509000	
Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
\$1200	\$0	\$1200	27-Jan-2022	\$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
23486 SHUTTLEWORTH & INGERSOLL, P.L.C. 115 3RD STREET SE, SUITE 500 P.O. BOX 2107 CEDAR RAPIDS IA 52406 UNITED STATES 3193659461 ~~deanna@shuttleworthlaw.com~~	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☐ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status**Change in Entity Status**

- Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.
Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.
- ☐ Applicant asserting small entity status. See 37 CFR 1.27.
Note: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ☒ Applicant changing to regular undiscounted fee status.
Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:☒ Issue Fee☐ I authorize USPTO to apply my previously paid issue fee to the current fees due☐ Publication Fee☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____☐ Advance Order - # of copies _____

If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency, or credit any overpayment, to Deposit Account Number _____.

☐ The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

4.Firm and/or Attorney Names To Be Printed**NOTE: If no name is listed, no name will be printed**

For printing on the patent front page, list to be displayed as entered

1. SHUTTLEWORTH & INGERSOLL, PLC

2. JASON R. SYTSMA

3.

5.Assignee Name(s) and Residence Data To Be Printed

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

Name	City	State	Country	Category
MERIDIAN INTERNATIONAL CO. LTD.	SHANGHAI		CHINA	other

6.Signature

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Jason R. Sytsma/	Date	10-29-2021
Name	Jason R. Sytsma	Registration Number	62262

Electronic Patent Application Fee Transmittal				
Application Number:		16846878		
Filing Date:		13-Apr-2020		
Title of Invention:		STACKED STORAGE CONTAINER LATCH		
First Named Inventor/Applicant Name:		Shujun CAI		
Filer:		Jason R. Sytsma/Stephanie Frantz		
Attorney Docket Number:		17157-0094		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1200

Electronic Acknowledgement Receipt	
EFS ID:	44157495
Application Number:	16846878
International Application Number:	
Confirmation Number:	6004
Title of Invention:	STACKED STORAGE CONTAINER LATCH
First Named Inventor/Applicant Name:	Shujun CAI
Customer Number:	23486
Filer:	Jason R. Sytsma/Stephanie Frantz
Filer Authorized By:	Jason R. Sytsma
Attorney Docket Number:	17157-0094
Receipt Date:	29-OCT-2021
Filing Date:	13-APR-2020
Time Stamp:	12:14:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$1200
RAM confirmation Number	E20210SC14542513
Deposit Account	504904
Authorized User	Stephanie Frantz
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 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	Issue Fee Payment (PTO-85B)	Web85b.pdf	62698	no	2
			50cfe9fdb09220ca09f22d2fa33952ef1ed40d20		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	40487	no	2
			4bcd412b1a66d42c75b8396fe54634395ee905a7		
Warnings:					
Information:					
Total Files Size (in bytes):			103185		
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.					



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/846,878	12/07/2021	11192689	17157-0094	6004

23486 7590 11/17/2021

SHUTTLEWORTH & INGERSOLL, P.L.C.
115 3RD STREET SE, SUITE 500
P.O. BOX 2107
CEDAR RAPIDS, IA 52406

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 110 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Meridian International Co., Ltd., Songjiang, CHINA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	16/846,878
Filing Date	April 13, 2020
First Named Inventor	Shujun CAI
Title	STACKED STORAGE CONTAINER LATCH
Art Unit	3733
Examiner Name	Jennifer CASTRIOTTA
Attorney Docket Number	95821-0062 (20-004-US-1)

SIGNATURE of Applicant or Patent Practitioner

Signature	/Lindsay M. Kriz/	Date (Optional)	07/08/2024
Name	Lindsay M. Kriz	Registration Number	79,726
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of 1 forms are submitted.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0035. Public burden for this form is estimated to average 3 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.** If filing this completed form by mail, send to: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Document Description: Power of Attorney

PTO/AIA/82B (07-13)

Approved for use through 03/31/2021. OMB 0651-0035

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number

Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)



I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

29052

OR



I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:



The address associated with the above-mentioned Customer Number

OR



The address associated with Customer Number:

OR



Firm or
Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Meridian International Co., Ltd.

Inventor or Joint Inventor (title not required below)



Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)



Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)



Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

Signed by:

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature

Anthony Kriz

Date (Optional)

6/11/2024

Name

Anthony Kriz

Title

President

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.



Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 1.11 and 1.14. This collection is estimated to take 3 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.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

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Routine uses of the information in this record may include disclosure to: 1) law enforcement, in the event that the system of records indicates a violation or potential violation of law; 2) a Federal, state, local, or international agency, in response to its request; 3) a contractor of the USPTO having need for the information in order to perform a contract; 4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record; 5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record; 6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations; 7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals; 8) another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)); 9) the Office of Personnel Management (OPM) for personnel research purposes; and 9) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

Additional Uses

Additional USPTO uses of the information in this record may include disclosure to: 1) the International Bureau of the World Intellectual Property Organization, if the record is related to an international application filed under the Patent Cooperation Treaty; 2) the public i) after publication of the application pursuant to 35 U.S.C. 122(b), ii) after issuance of a patent pursuant to 35 U.S.C. 151, iii) if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections, or an issued patent, or iv) without publication of the application or patent under the specific circumstances provided for by 37 CFR 1.14(a)(1)(v)-(vii); and/or 3) the National Archives and Records Administration, for inspection of records.



UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
16/846,878

RECEIPT DATE / TIME
07/08/2024 02:14:54 PM Z ET

ATTORNEY DOCKET #
17157-0094

Title of Invention

STACKED STORAGE CONTAINER LATCH

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # 11192689

CONFIRMATION # 6004

FILED BY Rachel Robinson

PATENT CENTER # 66269963

FILING DATE 04/13/2020

CUSTOMER # 23486

FIRST NAMED
INVENTOR Shujun CAI

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Lindsay Kriz

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
95821-0062__POA.pdf	3	Power of Attorney	406 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
95821-0062__POA.pdf	D718280F6D73D19296B548EC82A1617F8B0DDCE9697AF73E0 9834CDB7D1B39CD83B81A34B972E6070D8A81A24E233A39AB 1057584A30EC90A8EEFEDB514F0D3B

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 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.



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/846,878	04/13/2020	Shujun CAI	95821-0062 (20-004-US-1)

CONFIRMATION NO. 6004

29052

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ATLANTA, GA 30309

POA ACCEPTANCE LETTER



OC00000075387114

Date Mailed: 07/18/2024

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/08/2024.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/tlulu/



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/846,878	04/13/2020	Shujun CAI	17157-0094

CONFIRMATION NO. 6004

POWER OF ATTORNEY NOTICE



OC00000075387093

23486

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115 3RD STREET SE, SUITE 500

P.O. BOX 2107

CEDAR RAPIDS, IA 52406

Date Mailed: 07/18/2024

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/08/2024.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/tlulu/