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(54) **DRAWER ASSEMBLY FOR REFRIGERATOR**

(57) Provided is a drawer assembly (100) for a refrigerator. The drawer assembly comprises: a drawer body (10), wherein the drawer body (10) comprises a bottom wall (11), a front end wall (12) and a rear end wall (13) which are arranged opposite each other in a drawing-in or drawing-out direction, and a first side wall (14) and a second side wall (15) respectively arranged at two sides of the front end wall (12) and the rear end wall (13), such that an accommodation cavity for placing an article is defined; and a slidable partition plate mechanism (20) configured to slide in the left and the right direction of the drawer body (10). The middle parts of top ends of the first side wall (14) and the second side wall (15) are respectively provided with a recess (101) for providing clearance when the slidable partition plate mechanism (20) is controlled to slide to the first side wall (14) or to the second side wall (15), such that the slidable partition plate mechanism (20) is attached to the first side wall (14) or to the second side wall (15) as much as possible. The drawer assembly (100) can provide a storage space in a maximized manner.

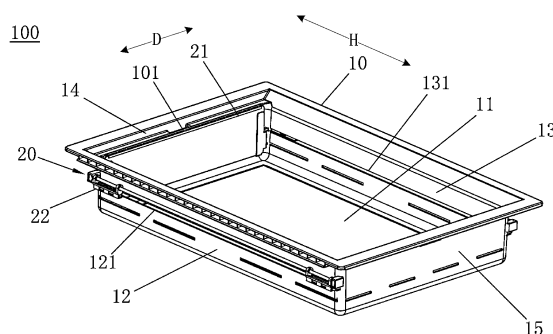


Fig. 1

Description**FIELD OF THE INVENTION**

[0001] The present invention relates to the technical field of refrigerator storage devices, and particularly relates to a drawer assembly for a refrigerator.

BACKGROUND OF THE INVENTION

[0002] Generally, a drawer for storage is disposed inside a refrigerator chamber. In order to improve the utilization efficiency of the drawer, a partition plate is disposed inside the drawer, and the drawer is separated into different spaces by the movement of the partition plate to meet storage requirements.

[0003] When an object with larger volume needs to be stored, it is necessary to move the partition plate to the side wall of the drawer so as to maximize the space of the drawer.

[0004] However, when the partition plate in the prior art is moved to two sides, the partition plate usually cannot be closely attached to the side wall of the drawer, and there is a larger gap between the partition plate and the side wall of the drawer, so that a certain storage space is occupied.

BRIEF DESCRIPTION OF THE INVENTION

[0005] One objective of the present invention is to provide a drawer assembly for a refrigerator, which can provide a storage space to the maximum extent.

[0006] Another objective of the present invention is to attach the partition plate of the drawer assembly to the side walls of the drawer body as much as possible.

[0007] Specifically, the present invention provides a drawer assembly for a refrigerator, including:

a drawer body, including: a bottom wall, a front end wall and a rear end wall which are arranged oppositely along a drawing direction, and a first side wall and a second side wall which are respectively arranged on two sides of the front end wall and the rear end wall, so as to utilize the bottom wall, the front end wall, the rear end wall, the first side wall and the second side wall to jointly define an accommodating cavity for holding objects; and a sliding partition plate mechanism, which is configured to be capable of sliding along the left-and-right direction of the drawer body, wherein the middle part of the top end of each of the first side wall and the second side wall is provided with a recess for providing a space when the sliding partition plate mechanism is operated to slide to the first side wall or the second side wall, so that the sliding partition plate mechanism is attached to the first side wall or the second side wall as much as possible.

[0008] Optionally, the sliding partition plate mechanism includes:

a partition plate, which is parallel to the first side wall and located in the accommodating cavity, and configured to separate the accommodating cavity; and two sliding mechanisms, which are respectively arranged on two sides of the partition plate and form sliding connection with the front end wall and the rear end wall.

[0009] Optionally, the front end wall and the rear end wall are respectively provided with a first sliding groove and a second sliding groove. The first sliding groove and the second sliding groove are aligned in the drawing direction of the drawer body and extend along the left-and-right direction of the drawer body, and the two sliding mechanisms are respectively inserted into the first sliding groove and the second sliding groove and form sliding connection.

[0010] Optionally, one end of the first sliding groove extends to a corner of the front end wall and the first side wall, the other end of the first sliding groove extends to a corner of the front end wall and the second side wall, one end of the second sliding groove extends to a corner of the rear end wall and the first side wall, and the other end of the second sliding groove extends to a corner of the rear end wall and the second side wall, so that the partition plate is attached to the first side wall or the second side wall as much as possible.

[0011] Optionally, each sliding mechanism includes:

a sliding base, which is internally provided with an insertion hole; and an insertion piece, one end of the insertion piece is inserted into the insertion hole, and the other end of the insertion piece passes through the first sliding groove or the second sliding groove to be fixedly connected with the partition plate.

[0012] Optionally, the sliding partition plate mechanism further includes:

a guide rod, which extends along the left-and-right direction of the drawer body; and the sliding base is provided with a connecting hole for penetration of the guide rod, so that the sliding base is constrained by the first sliding groove or the second sliding groove and the guide rod simultaneously when moving.

[0013] Optionally, the drawer assembly includes two sets of sliding partition plate mechanisms arranged in parallel.

[0014] Optionally, the front end wall is provided with two independent third sliding grooves, the rear end wall is provided with two fourth sliding grooves aligned with the two third sliding grooves, the aligned third sliding

groove and fourth sliding groove form a sliding groove group, and each sliding groove group and each set of the sliding partition plate mechanism form sliding connection.

[0015] Optionally, the sliding partition plate mechanism further includes:

a first limiting block and a second limiting block which are respectively located at two ends of the guide rod and a third limiting block which is located in the middle position of the guide rod, and the first limiting block, the second limiting block and the third limiting block are respectively configured to limit the sliding partition plate mechanism to slide to corresponding positions.

[0016] Optionally, one side of each of the first limiting block and the second limiting block close to the sliding partition plate mechanism is provided with a shock absorbing ring, and both sides of the third limiting block are provided with shock absorbing rings.

[0017] In the present invention, the middle part of the top end of each of the first side wall and the second side wall on the left and right sides of the drawer body is provided with a recess. The recess provides a space for the hand of an operator when the sliding partition plate mechanism slides to the first side wall or the second side wall, that is, the recess is configured to accommodate the hand of the operator, and then, the sliding partition plate mechanism is operated to be attached to the first side wall or the second side wall as much as possible to reduce the gap between the side wall and the partition plate, so that the storage space is maximized when the drawer body does not need to be separated so as to improve the user experience.

[0018] Further, since the middle part of the top end of each of the first side wall and the second side wall is provided with the recess, a user can be guided to operate the middle part of the sliding partition plate mechanism. By shifting the middle part of the sliding partition plate mechanism, the force can be more uniform, and the movement can be smoother, and thereby avoiding tilting caused by unsynchronized movement of the front and rear sides of the sliding partition plate mechanism due to the unbalanced force when the sliding partition plate mechanism is shifted from one end, so as to avoid the resulting gap.

[0019] Further, since two ends of the first sliding groove and the second sliding groove extend to the corners of the drawer body, the sliding partition plate mechanism can be attached to the first side wall or the second side wall as much as possible when sliding to two sides of the drawer body, so as to further reduce the gap between the partition plate and the first side wall or the second side wall of the drawer body.

[0020] According to the following detailed descriptions of specific embodiments of the present invention in conjunction with the drawings, those skilled in the art will more clearly understand the above and other objectives, advantages and features of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] Some specific embodiments of the present invention are described in detail below with reference to the drawings by way of example and not limitation. The same reference numerals in the drawings indicate the same or similar components or parts. Those skilled in the art should understand that these drawings are not necessarily drawn in scale. In the drawings:

Figure 1 is a schematic structural diagram of a drawer assembly according to an embodiment of the present invention.

Figure 2 is a schematic structural diagram of a sliding partition plate mechanism of a drawer assembly according to an embodiment of the present invention. Figure 3 is an enlarged view of part A in Figure 2. Figure 4 is an enlarged view of part B in Figure 2.

Figure 5 is a schematic structural diagram of a drawer assembly according to another embodiment of the present invention.

Figure 6 is a schematic structural diagram of a drawer body of a drawer assembly according to an embodiment of the present invention.

Figure 7 is a schematic position diagram of a drawer assembly according to an embodiment of the present invention in a refrigerator.

DETAILED DESCRIPTION

[0022] Figure 1 is a schematic structural diagram of a drawer assembly according to an embodiment of the present invention. As shown in figure 1, the present embodiment provides a drawer assembly 100 for a refrigerator, which includes a drawer body 10 and a sliding partition plate mechanism 20. The drawer body 10 includes a bottom wall 11, a front end wall 12 and a rear end wall 13 which are arranged oppositely along a drawing direction D, and a first side wall 14 and a second side wall 15 which are respectively arranged on two sides of the front end wall 12 and the rear end wall 13, and the bottom wall 11, the front end wall 12, the rear end wall 13, the first side wall 14 and the second side wall 15 jointly define an accommodating cavity for holding objects. The sliding partition plate mechanism 20 is parallel to the first side wall 14 and located in the accommodating cavity, and the sliding partition plate mechanism 20 is configured to be capable of sliding along the left-and-right direction H of the drawer body 10. The middle part of the top end of each of the first side wall 14 and the second side wall 15 is provided with a recess 101 for providing a space when the sliding partition plate mechanism 20 is operated to slide to the first side wall 14 or the second side wall 15, so that the sliding partition plate mechanism 20 is attached to the first side wall 14 or the second side wall 15 as much as possible.

[0023] In the present embodiment, the middle part of the top end of each of the first side wall 14 and the second

side wall 15 on the left and right sides of the drawer body 10 is provided with the recess 101. The recess 101 provides a space for the hand of an operator when the sliding partition plate mechanism 20 slides to the first side wall 14 or the second side wall 15, that is, the recess is configured to accommodate the hand of the operator, and then, the sliding partition plate mechanism 20 is operated to be attached to the first side wall 14 or the second side wall 15 as much as possible to reduce the gap between the side wall and the partition plate 21, so that the storage space is maximized when the drawer body 10 does not need to be separated so as to improve the user experience.

[0024] Further, since the middle part of the top end of each of the first side wall 14 and the second side wall 15 is provided with the recess 101, a user can be guided to operate the middle part of the sliding partition plate mechanism 20. By shifting the middle part of the sliding partition plate mechanism 20, the force can be more uniform, and the movement can be smoother, and thereby avoiding tilting caused by unsynchronized movement of the front and rear sides of the sliding partition plate mechanism 20 due to the unbalanced force when the sliding partition plate mechanism 20 is shifted from one end, so as to avoid the resulting gap.

[0025] Figure 2 is a schematic structural diagram of a sliding partition plate mechanism of a drawer assembly according to an embodiment of the present invention. In an embodiment, as shown in figure 2, a sliding partition plate mechanism 20 includes a partition plate 21 and two sliding mechanisms 22. As shown in figure 1, the partition plate 21 is parallel to the first side wall 14 and located in the accommodating cavity and is configured to separate the accommodating cavity. Therefore, the shape of the partition plate 21 is basically the same as the cross-sectional size of the drawer body 10. The two sliding mechanisms 22 are respectively arranged on two sides of the partition plate 21 and form sliding connection with the front end wall 12 and the rear end wall 13.

[0026] Optionally, as shown in figure 1, the front end wall 12 and the rear end wall 13 are respectively provided with a first sliding groove 121 and a second sliding groove 131. The first sliding groove 121 and the second sliding groove 131 are aligned in the drawing direction D of the drawer body 10 and extend along the left-and-right direction H of the drawer body 10, and the two sliding mechanisms 22 are respectively inserted into the first sliding groove 121 and the second sliding groove 131 and form sliding connection. In other words, in the present embodiment, the sliding of the sliding partition plate mechanism 20 relative to the drawer body 10 is completed by the connection form of insertion of the sliding grooves. In other embodiments, the relative sliding of the two can also be completed by means of sliding rails. The first sliding groove 121 and the second sliding groove 131 of the present embodiment can also be used as air vents to play a role of ventilation.

[0027] In another embodiment, one end of the first slid-

ing groove 121 extends to a corner of the front end wall 12 and the first side wall 14, the other end of the first sliding groove 121 extends to a corner of the front end wall 12 and the second side wall 15, one end of the second sliding groove 131 extends to a corner of the rear end wall 13 and the first side wall 14, and the other end of the second sliding groove 131 extends to a corner of the rear end wall 13 and the second side wall 15, so that the partition plate 21 is attached to the first side wall 14 or the second side wall 15 as much as possible.

[0028] Since two ends of the first sliding groove 121 and the second sliding groove 131 extend to the corners of the drawer body 10, the sliding partition plate mechanism 20 can be attached to the first side wall 14 or the second side wall 15 as much as possible when sliding to two sides of the drawer body 10, so as to further reduce the gap between the partition plate 21 and the first side wall 14 or the second side wall 15 of the drawer body 10.

[0029] Figure 3 is an enlarged view of part A in Figure 2. As shown in figure 3, in an embodiment, each sliding mechanism 22 includes a sliding base 221 and an insertion piece 222. An insertion hole is formed inside the sliding base 221, one end of the insertion piece 222 is inserted into the insertion hole, and the other end passes through the first sliding groove 121 or the second sliding groove 131 to be fixedly connected with the partition plate 21.

[0030] In another embodiment, as shown in figure 2, the sliding partition plate mechanism 20 further includes a guide rod 23 which extends along the left-and-right direction of the drawer body 10. The guide rod 23 can be fixed to the drawer body 10. The sliding base 221 is provided with a connecting hole for penetration of the guide rod 23, so that the sliding base 221 is constrained by the first sliding groove 121 or the second sliding groove 131 and the guide rod 23 simultaneously when moving, and the sliding base 221 slides more smoothly and has better directionality.

[0031] In the above embodiment, the drawer assembly 100 includes a set of sliding partition plate mechanism 20 which can separate a drawer into two cavities. As shown in figure 1, the sliding partition plate mechanism 20 of the drawer assembly 100 shown in figure 1 is located on the side wall of the drawer body 10. When the sliding partition plate mechanism 20 slides to the side wall of the drawer body 10, a larger cavity is formed inside the drawer body 10.

[0032] In an embodiment, as shown in figure 2, the drawer assembly 100 includes two sets of sliding partition plate mechanisms 20 arranged in parallel. In the present embodiment, by the arrangement of the two sets of sliding partition plate mechanisms 20, the drawer body 10 can be separated into three independent cavities at most. Preferably, since the first sliding groove 121 and the second sliding groove 131 extend to the corners of the drawer body 10, when the partition plate 21 is not required to separate the cavity of the drawer body 10, the two sets of sliding partition plate mechanisms 20 can respectively

slide to two sides of the drawer body 10, so as to reduce the gap between the partition plate 21 and the side wall as much as possible to maximize the space.

[0033] Figure 5 is a schematic structural diagram of a drawer assembly according to another embodiment of the present invention. In another embodiment, as shown in figure 5, the front end wall 12 is provided with two independent third sliding grooves 122, the rear end wall 13 is provided with two fourth sliding grooves 132 aligned with the two third sliding grooves 122, the aligned third sliding groove 122 and fourth sliding groove 132 form a sliding groove group, and each sliding groove group and each set of the sliding partition plate mechanism 20 form sliding connection. In other words, in the present embodiment, each set of the sliding partition plate mechanism 20 slides in the corresponding sliding groove and does not share a sliding groove.

[0034] Figure 6 is a schematic structural diagram of a drawer body of a drawer assembly according to an embodiment of the present invention. In an embodiment, as shown in figure 6, the left end of the third sliding groove 122 on the left side of the front end wall 12 extends to the corner 102 of the front end wall 12 and the first side wall 14, and the right end of the third sliding groove 122 on the right side of the front end wall 12 extends to the corner 103 of the front end wall 12 and the second side wall 15. The left end of the fourth sliding groove 132 on the left side of the rear end wall 13 extends to the corner 104 of the rear end wall 13 and the first side wall 14, and the right end of the fourth sliding groove 132 on the right side of the rear end wall 13 extends to the corner 105 of the rear end wall 13 and the second side wall 15. By the arrangement of the sliding grooves, the partition plate 21 on the left side is attached to the first side wall 14 as much as possible when moving to the first side wall 14, and the partition plate 21 on the right side is attached to the second side wall 15 as much as possible when moving to the second side wall 15.

[0035] In an embodiment, the sliding partition plate mechanism 20 further includes a first limiting block 24 and a second limiting block 25 which are respectively located at two ends of the guide rod 23 and a third limiting block 26 which is located in the middle position of the guide rod 23, and the first limiting block, the second limiting block and the third limiting block are respectively configured to limit the sliding partition plate mechanism 20 to slide to corresponding positions.

[0036] Figure 4 is an enlarged view of part B in Figure 2. In another embodiment, as shown in figure 4, one side of each of the first limiting block 24 and the second limiting block 25 close to the sliding partition plate mechanism 20 is provided with a shock absorbing ring 27, and both sides of the third limiting block 26 are provided with shock absorbing rings. The arrangement of the shock absorbing rings 27 can effectively buffer the impact of the sliding base 221 of the sliding partition plate mechanism 20 when sliding to this position. The shock absorbing ring 27 can be made of a silicone material.

[0037] Figure 7 is a schematic position diagram of a drawer assembly according to an embodiment of the present invention in a refrigerator. The drawer assembly 100 in the above embodiment may be a drawer assembly in a general refrigerating chamber, or a temperature-variable drawer of a refrigerator. As shown in figure 7, in an embodiment, the drawer assembly 100 is a temperature-variable drawer in a temperature-variable chamber 200 of a high-end French refrigerator 1000, and the temperature-variable chamber 200 is usually independently arranged between a refrigerating chamber and a freezing chamber of the refrigerator.

[0038] Hereto, those skilled in the art should realize that although multiple exemplary embodiments of the present invention have been shown and described in detail herein, without departing from the spirit and scope of the present invention, many other variations or modifications that conform to the principles of the present invention can still be directly determined or deduced from the contents disclosed in the present invention. Therefore, the scope of the present invention should be understood and deemed to cover all such other variations or modifications.

Claims

1. A drawer assembly for a refrigerator, comprising:

a drawer body, comprising: a bottom wall, a front end wall and a rear end wall arranged oppositely along a drawing direction, and a first side wall and a second side wall respectively arranged on two sides of the front end wall and the rear end wall, so as to utilize the bottom wall, the front end wall, the rear end wall, the first side wall and the second side wall to jointly define an accommodating cavity for holding objects; and a sliding partition plate mechanism, configured to be capable of sliding along the left-and-right direction of the drawer body; wherein the middle part of the top end of each of the first side wall and the second side wall is provided with a recess for providing a space when the sliding partition plate mechanism is operated to slide to the first side wall or the second side wall.

2. The drawer assembly according to claim 1, wherein the sliding partition plate mechanism comprises:

a partition plate, parallel to the first side wall and located in the accommodating cavity, and configured to separate the accommodating cavity; and two sliding mechanisms, respectively arranged on two sides of the partition plate and respectively form sliding connection with the front end wall and the rear end wall.

3. The drawer assembly according to claim 2, wherein the front end wall and the rear end wall are respectively provided with a first sliding groove and a second sliding groove, the first sliding groove and the second sliding groove are aligned in the drawing direction of the drawer body and extend along the left-and-right direction of the drawer body, and the two sliding mechanisms are respectively inserted into the first sliding groove and the second sliding groove and form sliding connection. 5
4. The drawer assembly according to claim 3, wherein one end of the first sliding groove extends to a corner of the front end wall and the first side wall, the other end of the first sliding groove extends to a corner of the front end wall and the second side wall, one end of the second sliding groove extends to a corner of the rear end wall and the first side wall, and the other end of the second sliding groove extends to a corner of the rear end wall and the second side wall. 10 15 20
5. The drawer assembly according to claim 3, wherein each sliding mechanism comprises:
 - a sliding base, internally provided with an insertion hole; and 25
 - an insertion piece, one end of the insertion piece is inserted into the insertion hole, and the other end of the insertion piece passes through the first sliding groove or the second sliding groove to be fixedly connected with the partition plate. 30
6. The drawer assembly according to claim 5, wherein the sliding partition plate mechanism further comprises: 35
 - a guide rod, extending along the left-and-right direction of the drawer body; and
 - the sliding base is provided with a connecting hole for penetration of the guide rod, so that the sliding base is constrained by the first sliding groove and the guide rod simultaneously or is constrained by the second sliding groove and the guide rod simultaneously when moving. 40 45
7. The drawer assembly according to claim 6, comprising two sets of sliding partition plate mechanisms arranged in parallel. 50
8. The drawer assembly according to claim 7, wherein the front end wall is provided with two independent third sliding grooves, the rear end wall is provided with two fourth sliding grooves aligned with the two third sliding grooves, the aligned third sliding groove and fourth sliding groove form a sliding groove group, and each sliding groove group and each set of the sliding partition plate mechanism form sliding connection. 55
9. The drawer assembly according to claim 8, wherein the sliding partition plate mechanism further comprises:
 - a first limiting block and a second limiting block respectively located at two ends of the guide rod and a third limiting block located in a middle position of the guide rod; and
 - the first limiting block, the second limiting block, and the third limiting block are respectively configured to limit the sliding partition plate mechanism to slide to respective corresponding positions of the first limiting block, the second limiting block, and the third limiting block.
10. The drawer assembly according to claim 9, wherein one side of each of the first limiting block and the second limiting block close to the sliding partition plate mechanism is provided with a shock absorbing ring; and both sides of the third limiting block are provided with shock absorbing rings.

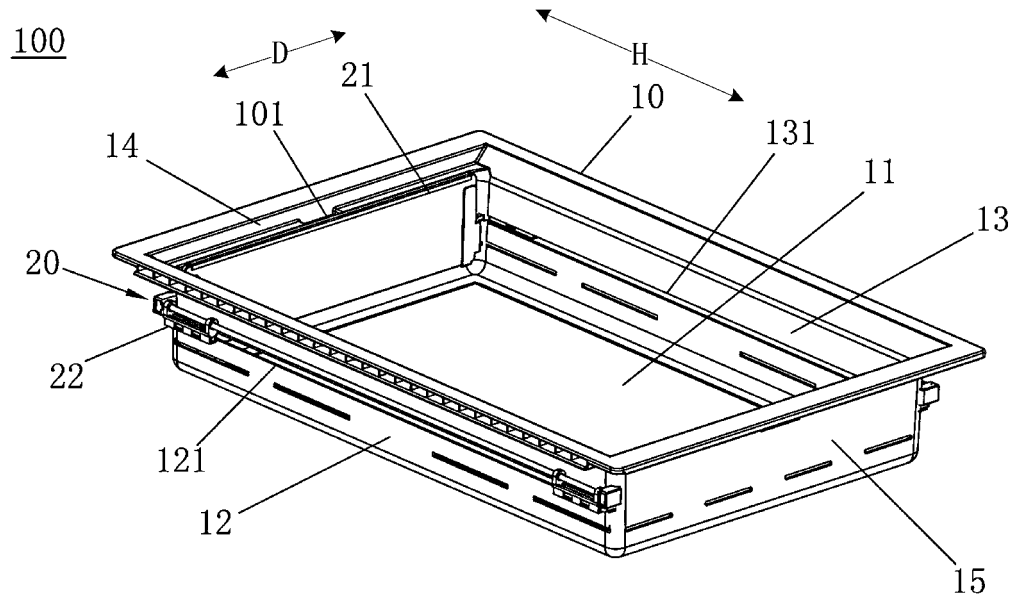


Fig. 1

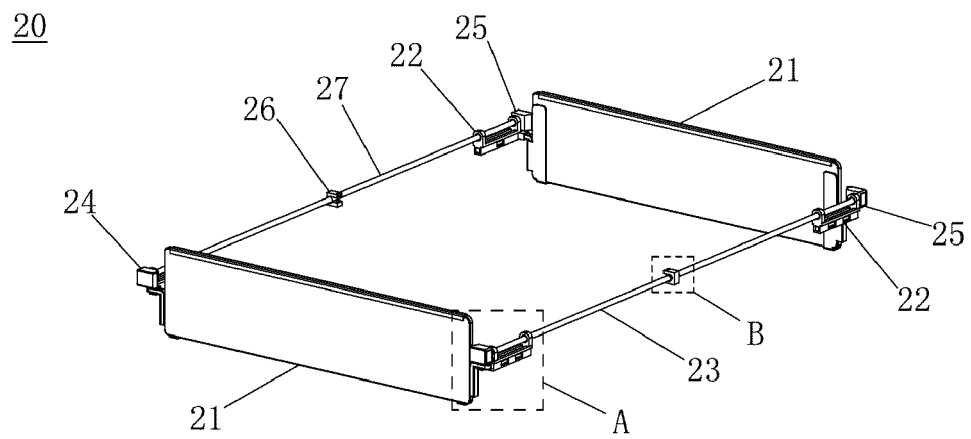


Fig. 2

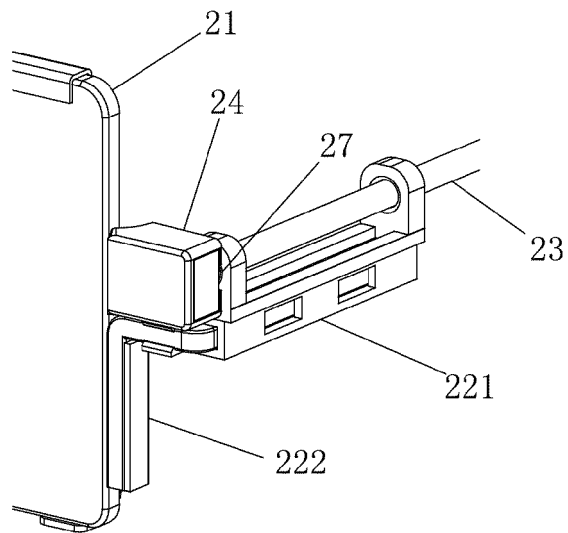


Fig. 3

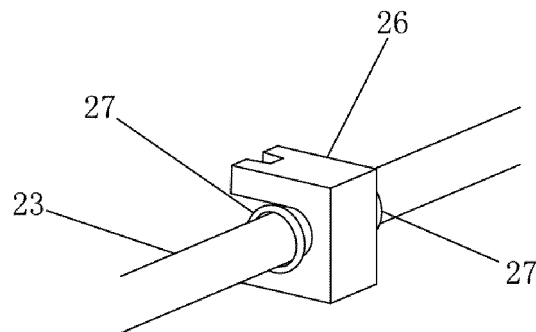


Fig. 4

100

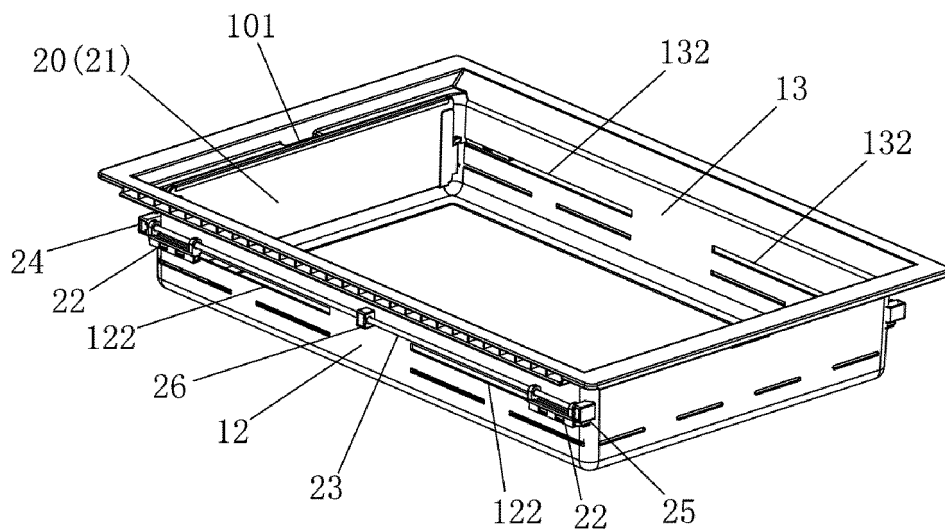


Fig. 5

10

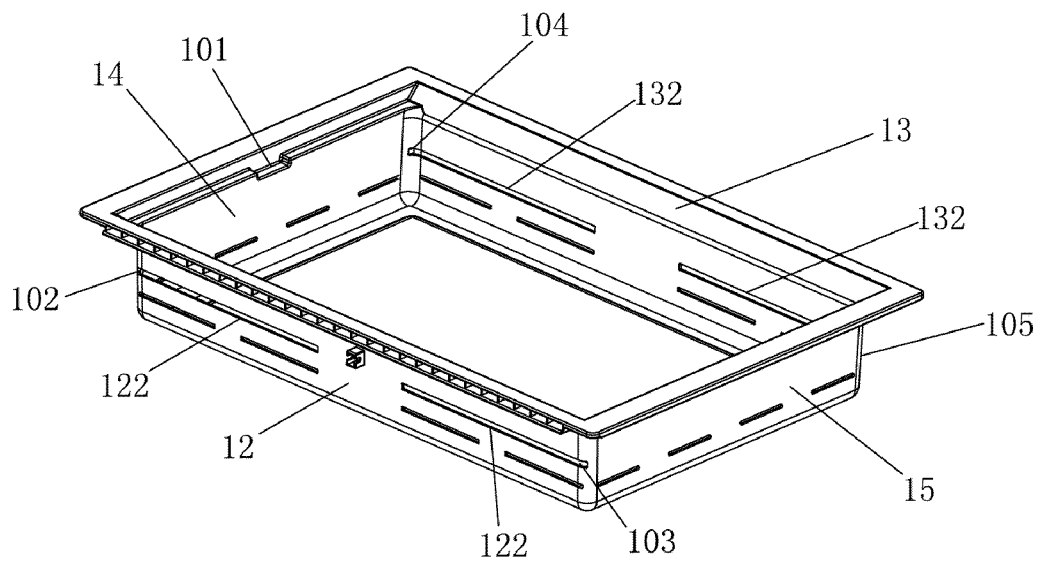


Fig. 6

1000

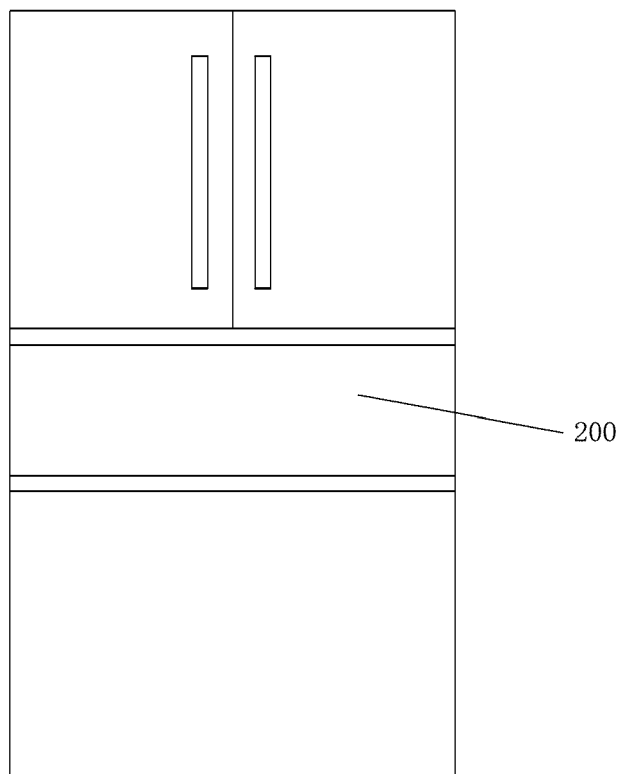


Fig. 7

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2019/099097

5	A. CLASSIFICATION OF SUBJECT MATTER F25D 25/02(2006.01)i According to International Patent Classification (IPC) or to both national classification and IPC		
10	B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) F25D25/02; 25/00; A47B88/20; 88/70; 88/00 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
15	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CNABS, CNTXT, CNKI, SIPOABS, VEN: 抽屉, 滑动, 隔板, 隔架, 分隔, 分割, drawer, slid+, glid+, slip+, separat+, divid+		
20	C. DOCUMENTS CONSIDERED TO BE RELEVANT		
25	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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	Y	CN 107726719 A (QINGDAO HAIER CO., LTD.) 23 February 2018 (2018-02-23) description, paragraphs [0021]-[0028], and figures 1-4	1-4
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40	☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
45	* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
50	Date of the actual completion of the international search 17 October 2019		Date of mailing of the international search report 30 October 2019
55	Name and mailing address of the ISA/CN China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088 China Facsimile No. (86-10)62019451		Authorized officer Telephone No.

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Information on patent family members

International application No.

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