



(11) **EP 2 594 878 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
02.05.2018 Bulletin 2018/18

(51) Int Cl.:
F25D 25/02 ^(2006.01)

(21) Application number: **12007425.7**

(22) Date of filing: **30.10.2012**

(54) **Refrigerator**

Kühlschrank

Réfrigérateur

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **18.11.2011 KR 20110120778**

(43) Date of publication of application:
22.05.2013 Bulletin 2013/21

(73) Proprietor: **LG Electronics Inc.
Seoul 07336 (KR)**

(72) Inventors:
• **Seo, Woonkyu**
642-711 Changwon-si, Gyeongnam (KR)

- **Kim, Seonkyu**
642-711 Changwon-si, Gyeongnam (KR)
- **Yoon, Seungjin**
642-711 Changwon-si, Gyeongnam (KR)
- **Hwang, Jungyeon**
642-711 Changwon-si, Gyeongnam (KR)
- **Lee, Daesung**
642-711 Changwon-si, Gyeongnam (KR)

(74) Representative: **Ter Meer Steinmeister & Partner
Patentanwälte mbB
Nymphenburger Straße 4
80335 München (DE)**

(56) References cited:
DE-U1-202004 017 126 JP-A- H09 280 727
JP-A- 2000 046 465

EP 2 594 878 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

BACKGROUND

1. Field

[0001] This relates to a refrigerator, and more particularly, to a refrigerator efficiently using the space of a refrigerating compartment and/or freezing compartment.

2. Background

[0002] Generally, a refrigerator stores items in a frozen or refrigerated state by lowering an internal temperature of a compartment thereof through discharge of cold air generated by a refrigeration cycle including a compressor, a condenser, an expansion valve, and an evaporator. Such a refrigerator may include a freezing compartment for storing items in a frozen state, and a refrigerating compartment for storing items at low temperature. A Kimchi refrigerator may store items such as Kimchi or vegetables in a fresh state. A refrigerator may include a plurality of doors, at least one of the plurality of doors being connected to a refrigerator body by hinges to open or close a front side of the refrigerator body. In addition to the hinged door, the refrigerator may include a drawer type door mounted to a front wall of a drawer slidably installed in the refrigerator. Items of various sizes and shapes may be stored in the freezing and refrigerating compartments, which may include a plurality of shelves or racks to vertically partition the storage compartment to receive such items.

[0003] The drawer described above may include mounting structures at opposite lateral sides thereof which may reduce storage space of the drawer.

[0004] JP 2000 046465 A discloses a refrigerator according to the preamble of claim 1. A pulley is provided at almost the center of an inner base part of an ice storage room, and a drawer type storage container comes near to a central part to ride on the pulley for putting in and putting out by rotating the pulley.

[0005] DE 20 2004 017126 U1 describes a cooling or freezing device with at least one drawer which can be inserted into its inner container. A guide of the drawer is formed in the bottom region by means of rolling elements.

[0006] JP H09 280727 A describes a storing container in a refrigerator.

[0007] The invention is indicated in the independent claim 1. Further embodiments are indicated in the dependent claims 2-11.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The embodiments will be described in detail with reference to the following drawings in which like reference numerals refer to like elements wherein:

FIG. 1 is a front view of an exemplary refrigerator

according to an embodiment as broadly described herein;

FIG. 2 is a front view of the refrigerator shown in FIG. 1 with its doors open;

FIG. 3 is a perspective view of a drawer of the refrigerator, according to an embodiment as broadly described herein;

FIG. 4 is a side view of the drawer shown in FIG. 3; FIG. 5 is an exploded perspective view of the drawer shown in FIG. 3;

FIG. 6 is a detail view of a coupled state of first and second rails of the drawer shown in FIGs. 3-5; and FIGs. 7 and 8 illustrate moved states of the drawer shown in FIGs. 3-6.

DETAILED DESCRIPTION

[0009] Reference will now be made in detail to the various embodiments, examples of which are illustrated in the accompanying drawings.

[0010] In accordance with the refrigerator illustrated in the embodiment shown in FIGs. 1 and 2, the refrigerator, which is designated by reference numeral "10", is applicable not only to a top mount type refrigerator in which the inner space of the refrigerator is vertically partitioned to define a freezing compartment and a refrigerating compartment such that the freezing compartment is arranged above the refrigerating compartment, but also to a side-by-side type refrigerator in which the inner space of the refrigerator is laterally partitioned to define a freezing compartment and a refrigerating compartment such that the freezing compartment and refrigerating compartment are laterally arranged. Simply for ease of discussion and illustration, exemplary embodiments will be described in conjunction with a bottom freezer type refrigerator. That is, the inner space of the exemplary refrigerator 10 is vertically partitioned to define a freezing compartment 32 positioned below a refrigerating compartment 22.

[0011] Generally, the freezing compartment 32 may be maintained at a sub-zero temperature, and the refrigerating compartment 22 may be maintained at a temperature relatively higher than that of the freezing compartment 32.

[0012] The refrigerator 10 may include a body which defines an outer appearance of the refrigerator 10 while also protecting mechanical devices received therein. The body of the refrigerator 10 may include an outer case 12 which defines an outer appearance of the refrigerator 10, and an inner case 14 which defines storage compartments therein, namely, the freezing compartment 32 and the refrigerating compartment 22. A certain space may be defined between the outer case 12 and the inner case 14. A passage for circulation of cold air may be formed in the space.

[0013] A machinery chamber may be formed in the space between the outer case 12 and the inner case 14 to accommodate a refrigerant cycle device for generating cold air through circulation of a refrigerant. Using the re-

frigerant cycle device, the interior of the refrigerator 10 may be maintained at low temperature to maintain a desired freshness level of items stored in the refrigerator 10. The refrigerant cycle device may include, for example, a compressor for compressing a refrigerant, and an evaporator for changing the phase of the refrigerant from liquid to gas, to cause the refrigerant to exchange heat with the outside of the refrigerant cycle device.

[0014] The refrigerator 10 may include a freezing compartment door 30 for opening or closing the freezing compartment 32, and a refrigerating compartment door 20 for opening or closing the refrigerating compartment 22. Each of the freezing compartment door 30 and refrigerating compartment door 20 may be pivotally mounted to the body of the refrigerator 10 at one end thereof by hinges. Each of the freezing compartment door 30 and refrigerating compartment door 20 may include a plurality of doors. That is, as shown in FIG. 2, each of the freezing compartment door 30 and refrigerating compartment door 20 may be configured such that it opens forward while being pivotally moved about opposite lateral edges of the refrigerator 10.

[0015] A barrier 16 may be positioned between the freezing compartment 32 and the refrigerating compartment 22, to partition the freezing compartment 32 and refrigerating compartment 22. The barrier 16 may be formed at the inner case 14 such that it has a certain thickness. The barrier 16 may extend horizontally to vertically partition the freezing compartment 32 and refrigerating compartment 22 such that the freezing compartment 32 and refrigerating compartment 22 are disposed below and above the barrier 16, respectively.

[0016] A partition wall 18 may be positioned in the freezing compartment 32, for example, at a central portion thereof, to partition the freezing compartment 32 into two separate spaces. The partition wall 18 may be vertically installed at the inner case 14 such that the freezing compartment 32 is divided into two laterally arranged compartments. In this case, the freezing compartment door 30 may include two doors for opening or closing respective freezing compartments 32.

[0017] In the embodiment shown in FIGs. 1 and 2, there is no partition wall installed in the refrigerating compartment 22 to laterally partition the refrigerating compartment 22. However, a partition wall may be installed in the refrigerating compartment 22, as in the freezing compartment 32.

[0018] Racks, drawers, baskets, and the like may be disposed in each of the freezing compartment 32 and refrigerating compartment 22, to store various items.

[0019] A drawer 40 may be mounted in the freezing compartment and slidably extracted or retracted. Food and other such items may be stored in the drawer 40. A vertically-extending cover may be mounted to a front wall of the drawer 40 to preserve cold air in the freezing compartment 32 even when the freezing compartment door 30 is opened.

[0020] A plurality of drawers 40 may be provided in the

freezing compartment 32. In this case, the drawers 40 may be arranged at opposite sides of the partition wall 18, and stacked vertically.

[0021] A light source 150 to emit light may be installed in the freezing compartment 32 and/or refrigerating compartment 22. The light source 150 may operate when the user opens the freezing compartment door 30 or refrigerating compartment door 20. The light source 150 may emit light toward the interior of the freezing compartment 32 and/or refrigerating compartment 22.

[0022] FIG. 3 is a perspective view of a coupled state of various elements of a drawer of a refrigerator, in accordance with an embodiment as broadly described herein, and FIG. 4 is a side view of the drawer shown in FIG. 3.

[0023] In the following description, the term "storage compartment" apply to both the freezing compartment 32 and the refrigerating compartment 22. That is, the drawer as embodied and broadly described herein may apply not only to the freezing compartment 32, but also to the refrigerating compartment 22.

[0024] The refrigerator as embodied and broadly described herein may include a drawer 100 slidably installed on a bottom surface 14a of the compartment in which it is received. In accordance with features of this embodiment, mounting of the drawer 100 is not achieved using lateral side mounting structures, but is achieved using a mounting structure installed on the bottom, or installation, surface 14a of the compartment. Accordingly, downward sagging of the drawer 100 may be avoided even when relatively heavy items are stored in the drawer 100.

[0025] The bottom, or installation surface 14a may be, for example, the barrier 16 which partitions the freezing compartment 32 and refrigerating compartment 22. The barrier 16 may be a horizontal partition wall which partitions the freezing compartment 32 and refrigerating compartment 22 such that the refrigerating compartment 22 is disposed above the freezing compartment 32. Alternatively, the barrier 16 may be a horizontal partition wall, which partitions the freezing compartment 32 and refrigerating compartment 22 such that the freezing compartment 32 is disposed above the refrigerating compartment 22. In this embodiment, space efficiency may be enhanced by installation of the mounting structure of the drawer 100 at the barrier 16, which otherwise forms a dead space.

[0026] In alternative embodiments, the bottom/installation surface 14a may instead be a lowermost wall of the freezing compartment 32 or refrigerating compartment 22. In other words, when the refrigerating compartment 22 is disposed above the freezing compartment 32, the barrier 16 disposed between the refrigerating compartment 22 and the freezing compartment 32 does not serve as the bottom/installation surface 14a. In this case, the bottom/installation surface 14a may be a wall defining the bottom of the freezing compartment 32.

[0027] That is, in accordance with this embodiment,

there is no drawer mounting structure at side walls of the drawer 100 and corresponding side walls of the compartment. Instead, for components movably supporting the drawer 100 are received at the bottom/installation surface 14a to increase storage space.

[0028] FIG. 5 is an exploded perspective view of the drawer and its movement structure according to an embodiment as broadly described herein. Although the bottom/installation surface is not shown in FIG. 5, simply for ease of illustration, it may be well understood, referring to FIGs. 3 and 4, that the bottom/installation surface is disposed below the first rails.

[0029] As shown in FIG. 5 a pair of first rails 120 are installed on the bottom 14a, or installation surface 14a, and a pair of second rails 110 are installed on the drawer 100. The first rails 120 and second rails 110 are slidably coupled to each other to allow the drawer 100 to be slidably extracted from or retracted into the storage compartment.

[0030] Each first rail 120 includes a first vertical member 122 extending vertically from the bottom 14a, and a first horizontal member 124 extending horizontally from an end of the first vertical member 122. The first horizontal member 124 extends horizontally from the first vertical member 122 such that the first horizontal member 124 faces the bottom 14a while defining a certain space between the bottom 14a and the first horizontal member 124.

[0031] Each first rail 120 includes a first roller 126 for slidably supporting a corresponding second rail 110. The first roller 126 may be mounted on the first vertical member 122 and rotatable as it contacts the corresponding second rail 110.

[0032] The first roller 126 may be mounted at a horizontal end of the first vertical member 122. The first roller 126 may be mounted at a horizontal end of the first vertical member 122 that is near the front side of the storage compartment so that the drawer 100 may be continuously supported by the first roller 126 during extraction thereof from the storage compartment. This may eliminate the need to install a plurality of rollers, which function as the first roller 126, for stable support of the drawer 100.

[0033] Each second rail 110 includes a second vertical member 112 extending vertically from a bottom 101 of the drawer 100, and a second horizontal member 114 extending horizontally from an end of the second vertical member 112. The second horizontal member 114 extends horizontally from the second vertical member 112 such that the second horizontal member 114 faces the bottom 101 of the drawer 100 while defining a certain space between the bottom 101 of the drawer 100 and the second horizontal member 114.

[0034] Each second rail 110 may also include a second roller 116 that is rotatable while contacting the corresponding first rail 120. The second roller 116 may be mounted at an end of the second horizontal member 112.

[0035] The second roller 116 be mounted at a portion of the second horizontal member 112 opposite the

mounting position of the first roller 126, namely, at a horizontal end of the second horizontal member 112, which is disposed far from the front end of the storage compartment in a retracted state of the drawer 100. Thus, the drawer 100 may be supported at two points, namely, the first and second rollers 126 and 116, at front and rear ends of the drawer 100 and, as such, the drawer 100 may be more stably supported, without being inclined, when the support points provided by the first and second rollers 126 and 116 are spaced away from each other in this manner.

[0036] A stopper 118 may be provided at each second rail 110 to limit the movement range of the corresponding first roller 126. When the first roller 126 reaches the stopper 118, the drawer 100 may be stopped and restricted from being further forwardly extracted.

[0037] The stopper 118 may have the form of, for example, a protrusion vertically extending from the corresponding second horizontal member 114. The stopper 118 may have a gently curved structure extending toward a highest central portion thereof without forming a sharp step. In this case, the drawer 100 may be slowly stopped without being abruptly stopped when the first roller 126 comes into contact with the stopper 118.

[0038] The drawer 100 may also include a handle 102 mounted on a front wall of the drawer 100. The handle 102 may be formed with a groove to allow the user to grasp the handle 102, or other arrangement as appropriate.

[0039] The pairs of first and second rails 120 and 110 may be respectively symmetrically arranged at opposite sides of the bottom 101 of the drawer 100. This symmetrical arrangement may stably support the drawer 100 at opposite sides of the bottom 101 of the drawer 100.

[0040] FIG. 6 illustrates a coupled state of the first and second rails 120 and 110 a region where the first roller 126 is disposed. For ease of description, the following description will be provided for the rails arranged at one side of the drawer 100.

[0041] The first vertical member 122 and first horizontal member 124 form a substantially right angle having, for example, an "I" shape, and the second vertical member 112 and second horizontal member 114 may form a substantially right angle having, for example, an "L" shape. This allows for engagement and overlap between the first horizontal member 124 and second horizontal member 114 so that, the drawer 100 may be prevented from being upwardly raised.

[0042] The first roller 126 may contact a lower end of the second horizontal member 114, to reduce friction generated when the second horizontal member 114 slides. The first roller 126 may also sustain the weight of items stored in the drawer 100 while supporting the drawer 100.

[0043] The installation of the second roller 116 may be similar to that of the first roller 126, except that the second roller 116 is installed at the second horizontal member 114. Thus, the second roller 116 may be arranged be-

tween the first horizontal member 124 and the first vertical member 122. The second roller 116 may move along a space defined between the first horizontal member 124 and the first vertical member 122.

[0044] Since the second roller 116 is disposed beneath the first horizontal member 124, the drawer 100 may be slidably extracted from the storage compartment without being raised at a rear portion thereof. Also, the second vertical member 112 may be disposed beneath the first roller 126 and, as such, the rear portion of the drawer 110 may be supported by the second vertical member 112.

[0045] In certain embodiments, the first roller 126 may partially received in the bottom 14a, or installation surface 14a. In this regard, a part of the structure for moving the drawer 100 may also be received in the bottom 14a. Thus, the storage space of the drawer 100 may be increased and, as such, the utility of the storage space may be enhanced.

[0046] FIGs. 7 and 8 illustrate moved states of the drawer. In FIG. 7, the drawer 100 has been completely retracted into the storage compartment, and the first roller 126 and second roller 116 are spaced apart from each other by a maximum distance such that they support front and rear portions of the drawer 100, respectively. In this state, the user may pull the drawer forward to extract the drawer 100 from the storage compartment after grasping the handle 102.

[0047] During extraction of the drawer 100, the second horizontal member 114 may move forward while contacting the first roller 126 at the front end of the storage compartment. Since the first roller 126 rotates, friction generated between the first roller 126 and the second horizontal member 114 may be reduced during movement of the second horizontal member 114. At the rear end of the drawer 100, friction generated between the second roller 116 and the first horizontal member 124 may be reduced while rotating during extraction of the drawer 100.

[0048] That is, the first roller 126, which is installed at the front end of the storage compartment corresponding to the front end of the drawer 100 in a retracted state of the drawer 100, and the second roller 116, which is installed at the rear end of the drawer 100, may achieve a reduction in the friction generated at the front and rear ends of the drawer 100. Thus, the drawer 100 may be smoothly extracted. At the left and right sides of the drawer 100, movements of the first and second rollers 126 and 116 may be carried out in the same manner.

[0049] As shown in FIG. 8, as the drawer 100 is extracted from the storage compartment, the distance between the first roller 126 and the second roller 116 may be gradually reduced, because the first roller 126 is fixed to the bottom 14a, or installation surface 14a, whereas the second roller 116 moves along with the drawer 100.

[0050] When the first roller 126 comes into contact with the stopper 118 during forward movement of the second horizontal member 114, the drawer 100 may be stopped,

as the second horizontal member 114 cannot pass beyond the first roller 126 due to the stopper 118. The stopper 118 may be arranged at a position allowing the user to extract the drawer 100 by a sufficient distance.

[0051] In accordance with embodiments as broadly described herein, the drawer, which is installed in the interior of the refrigerator, is not mounted at opposite lateral sides thereof, but is mounted at a bottom side thereof. Accordingly, it is possible to use the dead space typically occupied by installation of mounting structures at opposite sides of the drawer as storage space. In this regard, space efficiency may be enhanced.

[0052] Also, since the drawer is supported by a structure installed at the bottom of the drawer, it may be possible to stably support the drawer without downward sinking or sagging thereof even when heavy items are stored in the drawer.

[0053] A refrigerator is provided that is capable of more efficiently using the inner space thereof.

[0054] A refrigerator is provided that is capable of stably supporting a drawer even when heavy articles are stored in the drawer.

[0055] A refrigerator as embodied and broadly described herein, includes a first rail installed at a bottom of the storage compartment such that a portion of the first rail is received in the bottom of the storage compartment, and a drawer extractable from and retractable into the storage compartment, wherein the drawer includes a second rail provided at a bottom of the drawer such that the second rail is slidably coupled to the first rail, wherein the first rail includes a first roller for slidably supporting the second rail, and wherein the first roller is partially received in the bottom of the storage compartment.

[0056] The first rail includes a first vertical member extending vertically from the bottom of the storage compartment, and a first horizontal member extending horizontally from a vertical end of the first vertical member.

[0057] The first roller may be provided at a horizontal end of the first vertical member.

[0058] The second rail may include a stopper for limiting a movement range of the second rail.

[0059] The second rail includes a second vertical member extending vertically from the bottom of the drawer, and a second horizontal member extending horizontally from a vertical end of the second vertical member.

[0060] The second rail may also include a second roller rotatable while contacting the first rail.

[0061] The second roller may be provided at a horizontal end of the second horizontal member.

[0062] The drawer may also include a handle.

[0063] The bottom of the storage compartment may be a barrier for partitioning an interior of the refrigerator into a freezing compartment and a refrigerating compartment.

[0064] Although embodiments have been described with reference to a number of illustrative embodiments thereof, it should be understood that numerous other modifications and embodiments can be made, provided

they are

Claims

1. A refrigerator, comprising:

a cabinet having a storage compartment (32; 22) formed therein;
 a drawer (100) slidably received in the storage compartment (32; 22);
 at least one recess formed in a bottom surface (14a) of the storage compartment;
 at least one first rail (120) at least partially received in the at least one recess;
 at least one second rail (110) provided on a bottom (101) of the drawer (100) such that the at least one second rail (110) is slidably coupled to the at least one first rail (120); and
 a first roller (126) provided in the at least one first rail (120) and slidably supporting the at least one second rail (110), wherein the first roller (126) is at least partially received in the at least one recess formed in the bottom surface (14a) of the storage compartment,
characterized in that:

the at least one first rail (120) comprises a first vertical leg (122) extending vertically upward from the at least one recess, and a first horizontal leg (124) extending horizontally from a top end of the first vertical leg (122); and
 the at least one second rail (110) comprises a second vertical leg (112) extending vertically downward from the bottom (101) of the drawer (100), and a second horizontal leg (114) extending horizontally from a bottom end of the second vertical leg (112), configured so that there is an engagement and overlap between the first horizontal leg (124) and the second horizontal leg (114).

2. The refrigerator of claim 1, wherein the first roller (126) is provided at a bottom end of the first vertical leg (122).

3. The refrigerator of claim 1, wherein the at least one second rail (110) comprises a stopper (118) for limiting a movement range of the at least one second rail (110).

4. The refrigerator of claim 1, wherein the at least one second rail (110) further comprises a second roller (116) that maintains rolling contact with the at least one first rail (120).

5. The refrigerator of claim 4, wherein the second roller

(116) is provided at a distal end of the second horizontal leg (114).

6. The refrigerator of claim 1, wherein the drawer (100) further comprises a handle (102).

7. The refrigerator of claim 1, wherein the bottom surface (14a) of the storage compartment is formed by a barrier (16) that extends horizontally across the storage compartment to partition the storage compartment into a freezing compartment (32) and a refrigerating compartment (22).

8. The refrigerator of claim 7, wherein the freezing compartment (32) is disposed below the refrigerating compartment (22).

9. The refrigerator of claim 7, wherein the freezing compartment (32) is disposed above the refrigerating compartment (22).

10. The refrigerator of claim 1, wherein the bottom surface (14a) of the storage compartment (32; 22) is a lowermost wall of a freezing compartment (32) or a lowermost wall of a refrigerating compartment (22) formed within the storage compartment.

11. The refrigerator of claim 1, wherein the at least one second rail (110) comprises a pair of second rails (110) arranged along opposite end portions of an outer bottom surface of the drawer, and wherein the at least one recess comprises a pair of recesses and the at least one first rail (120) comprises a pair of first rails (120) respectively arranged in the pair of recesses, at positions respectively corresponding to the pair of second rails (110).

Patentansprüche

1. Kühlschrank, aufweisend:

einen Schrank mit einem darin gebildeten Aufbewahrungsfach (32; 22);
 eine Schublade (100), die verschiebbar in dem Aufbewahrungsfach (32; 22) aufgenommen ist; mindestens eine Ausnehmung, die in einer Bodenfläche (14a) des Aufbewahrungsfachs ausgebildet ist;
 mindestens eine erste Schiene (120), die zumindest teilweise in der mindestens einen Ausnehmung aufgenommen ist;
 mindestens eine zweite Schiene (110), die an einem Boden (101) der Schublade (100) derart vorgesehen ist, dass die mindestens eine zweite Schiene (110) gleitend mit der mindestens einen ersten Schiene (120) gekoppelt ist; und
 eine erste Rolle (126), die in der mindestens ei-

nen ersten Schiene (120) vorgesehen ist und die mindestens eine zweite Schiene (110) gleitend trägt, wobei die erste Rolle (126) zumindest teilweise in der mindestens einen Ausnehmung, die in der Bodenfläche (14a) des Aufbewahrungsfachs gebildet ist, aufgenommen ist, **dadurch gekennzeichnet, dass:**

die mindestens eine erste Schiene (120) einen ersten vertikalen Schenkel (122), der sich von der mindestens einen Ausnehmung vertikal nach oben erstreckt, und einen ersten horizontalen Schenkel (124), der sich horizontal von einem oberen Ende des ersten vertikalen Schenkels (122) erstreckt, aufweist; und
die mindestens eine zweite Schiene (110) einen zweiten vertikalen Schenkel (112), der sich von dem Boden (101) der Schublade (100) vertikal nach unten erstreckt, und einen zweiten horizontalen Schenkel (114), der sich horizontal von einem unteren Ende des zweiten vertikalen Schenkels (112) erstreckt, aufweist,
so konfiguriert, dass es einen Eingriff und eine Überlappung zwischen dem ersten horizontalen Schenkel (112) und dem zweiten horizontalen Schenkel (114) gibt.

2. Kühlschrank nach Anspruch 1, wobei die erste Rolle (126) an einem unteren Ende des ersten vertikalen Schenkels (122) vorgesehen ist.
3. Kühlschrank nach Anspruch 1, wobei die mindestens eine zweite Schiene (110) einen Anschlag (118) zum Begrenzen eines Bewegungsbereichs der mindestens einen zweiten Schiene (110) aufweist.
4. Kühlschrank nach Anspruch 1, wobei die mindestens eine zweite Schiene (110) ferner eine zweite Rolle (116) aufweist, die einen Rollkontakt mit der mindestens einen ersten Schiene (120) aufrechterhält.
5. Kühlschrank nach Anspruch 4, wobei die zweite Rolle (116) an einem distalen Ende des zweiten horizontalen Schenkels (114) vorgesehen ist.
6. Kühlschrank nach Anspruch 1, wobei die Schublade (100) ferner einen Griff (102) aufweist.
7. Kühlschrank nach Anspruch 1, wobei die Bodenfläche (14a) des Aufbewahrungsfachs durch eine Barriere (16) gebildet ist, die sich horizontal über das Aufbewahrungsfach erstreckt, um das Aufbewahrungsfach in ein Gefrierfach (32) und ein Kühlfach zu unterteilen (22).

8. Kühlschrank nach Anspruch 7, wobei das Gefrierfach (32) unterhalb des Kühlfachs (22) angeordnet ist.
9. Kühlschrank nach Anspruch 7, wobei das Gefrierfach (32) oberhalb des Kühlfachs (22) angeordnet ist.
10. Kühlschrank nach Anspruch 1, wobei die Bodenfläche (14a) des Aufbewahrungsfachs (32; 22) eine unterste Wand eines Gefrierfachs (32) oder eine unterste Wand eines in dem Aufbewahrungsfach gebildeten Kühlfachs (22) ist.
11. Kühlschrank nach Anspruch 1, wobei die mindestens eine zweite Schiene (110) ein Paar zweiter Schienen (110) aufweist, die entlang gegenüberliegenden Endabschnitten einer Bodenaußenfläche der Schublade angeordnet sind, und wobei die mindestens eine Ausnehmung ein Paar von Ausnehmungen aufweist und die mindestens eine erste Schiene (120) ein Paar von ersten Schienen (120) aufweist, die jeweils in dem Paar von Ausnehmungen an Positionen angeordnet sind, die jeweils dem Paar von zweiten Schienen (110) entsprechen.

Revendications

1. Réfrigérateur, comprenant :

une armoire ayant un compartiment de stockage (32 ; 22) formé à l'intérieur ;
un tiroir (100) reçu de manière coulissante dans le compartiment de stockage (32 ; 22) ;
au moins un évidement formé dans une surface de base (14a) du compartiment de stockage ;
au moins un premier rail (120) au moins partiellement reçu dans au moins un évidement ;
au moins un second rail (110) prévu sur un fond (101) du tiroir (100) de sorte que au moins un second rail (110) soit couplé de manière coulissante à au moins un premier rail (120) ; et
une première roulette (126) prévue dans au moins un premier rail (120) et soutenant de manière coulissante au moins un second rail (110), dans lequel la première roulette (126) est au moins partiellement reçue dans au moins un évidement formé dans la surface de base (14a) du compartiment de stockage,
caractérisé en ce que :

au moins un premier rail (120) comprend une première jambe verticale (122) s'étendant verticalement vers le haut à partir d'un évidement et une première jambe horizontale (124) s'étendant horizontalement à partir d'une extrémité de sommet de la première

re jambe verticale (122) ; et
 au moins un second rail (110) comprend
 une seconde jambe verticale (112) s'étendant
 verticalement vers le bas à partir du
 fond (101) du tiroir (100) et une seconde 5
 jambe horizontale (114) s'étendant horizon-
 talement à partir d'une extrémité de base
 de la seconde jambe verticale (112), confi-
 gué de sorte qu'il y ait une mise en prise
 et une superposition entre la première jam- 10
 be horizontale (112) et la seconde jambe
 horizontale (114).

au moins un second rail (110) comprend une paire
 de seconds rails (110) disposés le long de portions
 d'extrémité opposées d'une surface de fond exté-
 rieure du tiroir et dans lequel au moins un évidement
 comprend une paire d'évidements et au moins un
 premier rail (120) comprend une paire de premiers
 rails (120) disposés respectivement dans la paire
 d'évidements, à des positions correspondant res-
 pectivement à la paire de seconds rails (110).

2. Réfrigérateur selon la revendication 1, dans lequel
 la première roulette (126) est prévue au niveau d'une 15
 extrémité de base de la première jambe verticale .
3. Réfrigérateur selon la revendication 1, dans lequel
 au moins un second rail (110) comprend une butée 20
 (118) pour limiter une plage de mouvement d'au
 moins un second rail (110).
4. Réfrigérateur selon la revendication 1, dans lequel
 au moins un second rail (110) comprend en outre 25
 une seconde roulette (116) qui maintient un contact
 de roulement avec au moins un premier rail (120).
5. Réfrigérateur selon la revendication 4, dans lequel
 la seconde roulette (116) est prévue à une extrémité 30
 distale de la seconde jambe horizontale (114).
6. Réfrigérateur selon la revendication 1, dans lequel
 le tiroir (100) comprend en outre une poignée (102).
7. Réfrigérateur selon la revendication 1, dans lequel 35
 la surface de base (14a) du compartiment de stoc-
 kage est formée par une barrière (16) qui s'étend
 horizontalement au travers du compartiment de
 stockage afin de diviser le compartiment de stockage
 en un compartiment de congélation (32) et un com- 40
 partiment de réfrigération de réfrigération (22).
8. Réfrigérateur selon la revendication 7, dans lequel
 le compartiment de congélation (32) est disposé au- 45
 dessous du compartiment de réfrigération (22).
9. Réfrigérateur selon la revendication 7, dans lequel
 le compartiment de congélation (32) est disposé au-
 dessus du compartiment de réfrigération (22). 50
10. Réfrigérateur selon la revendication 1, dans lequel
 la surface de base (14a) du compartiment de stoc-
 kage (32 ; 22) est une paroi la plus inférieure d'un
 compartiment de congélation (32) ou une paroi la
 plus inférieure d'un compartiment de réfrigération 55
 (22) formé à l'intérieur du compartiment de stockage.
11. Réfrigérateur selon la revendication 1, dans lequel

FIG. 1

10

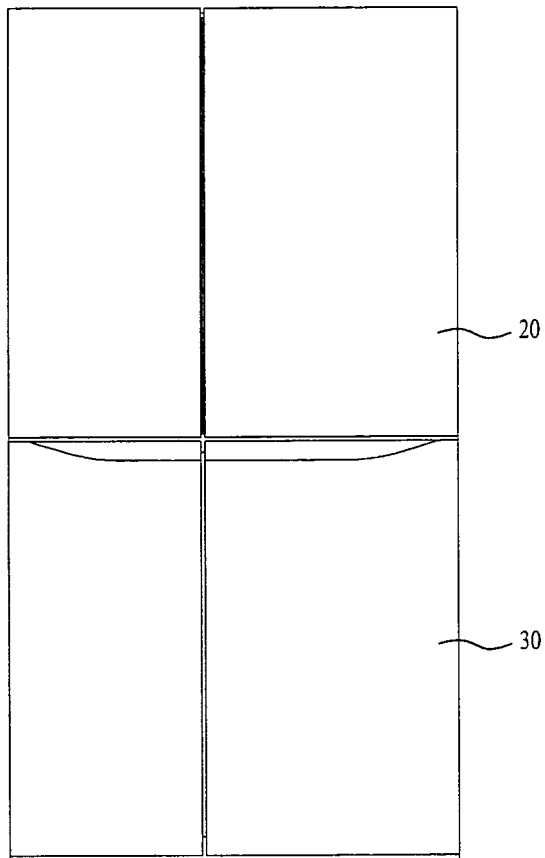


FIG. 2

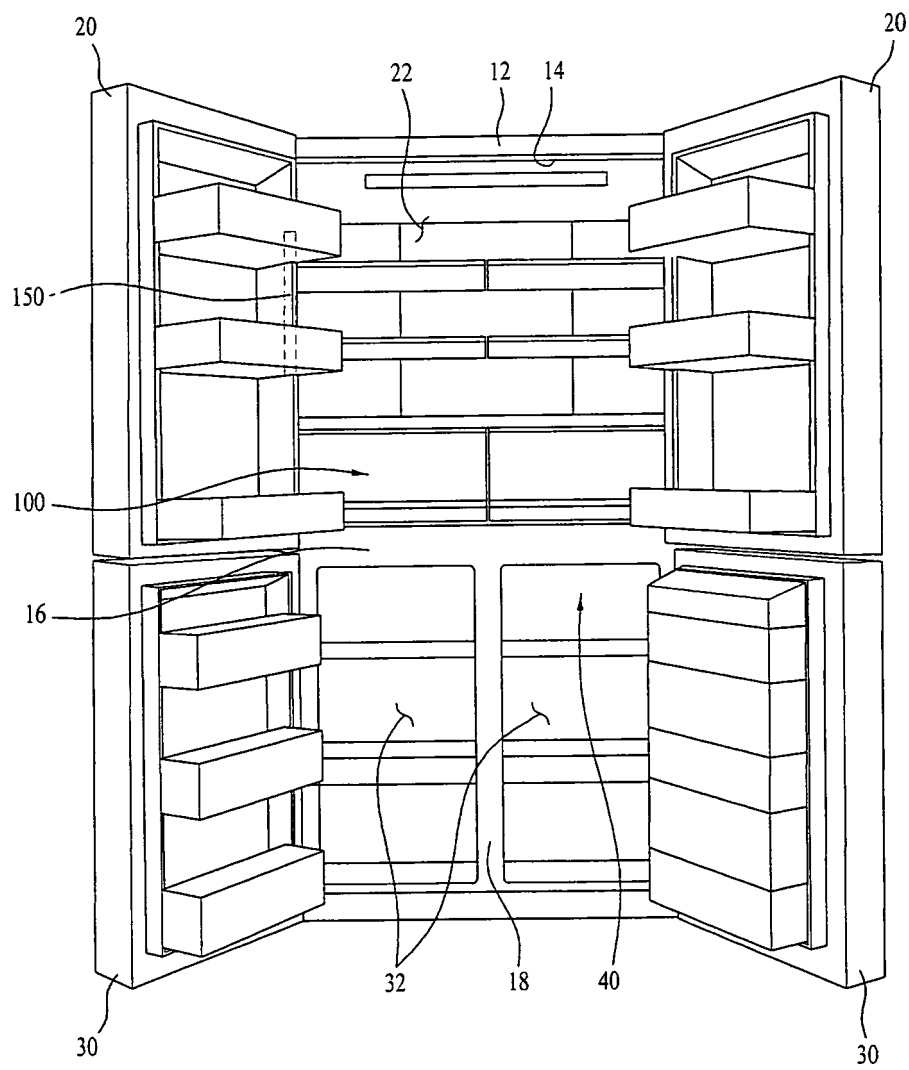


FIG. 3

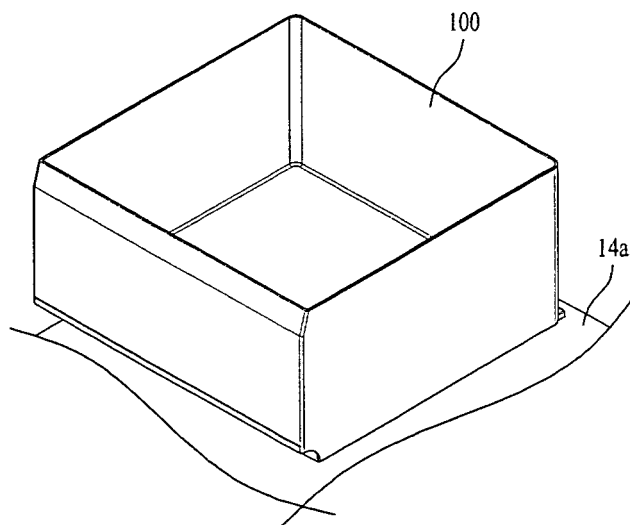


FIG. 4

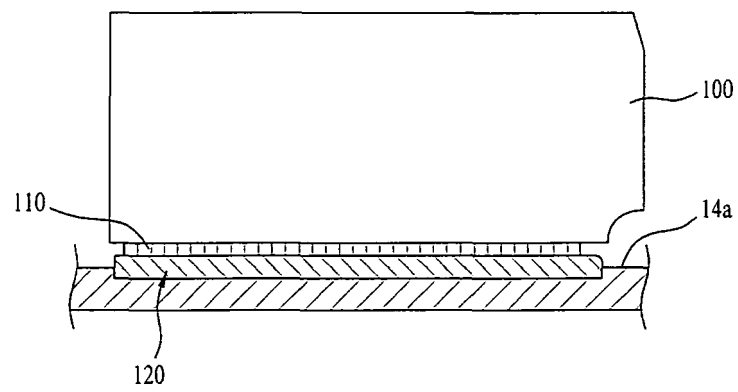


FIG. 5

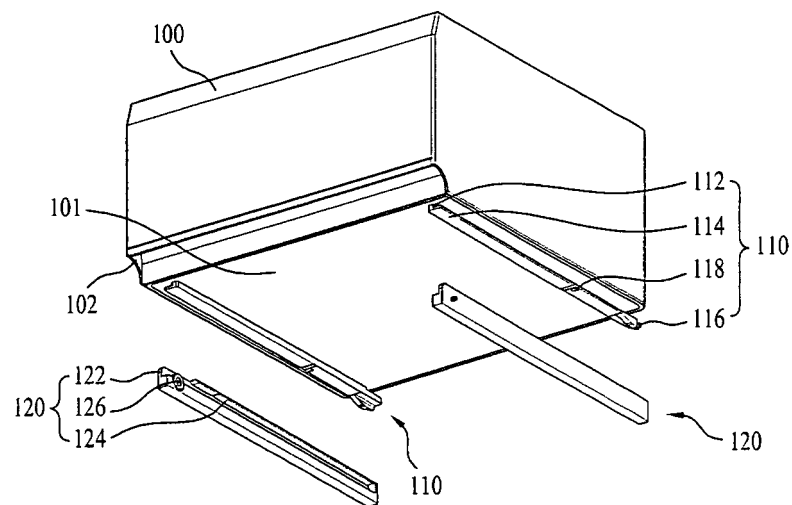


FIG. 6

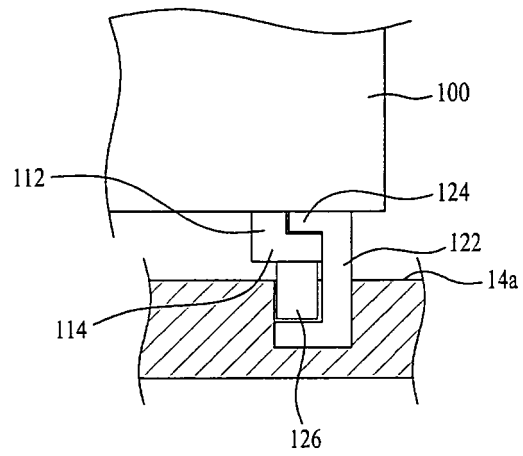


FIG. 7

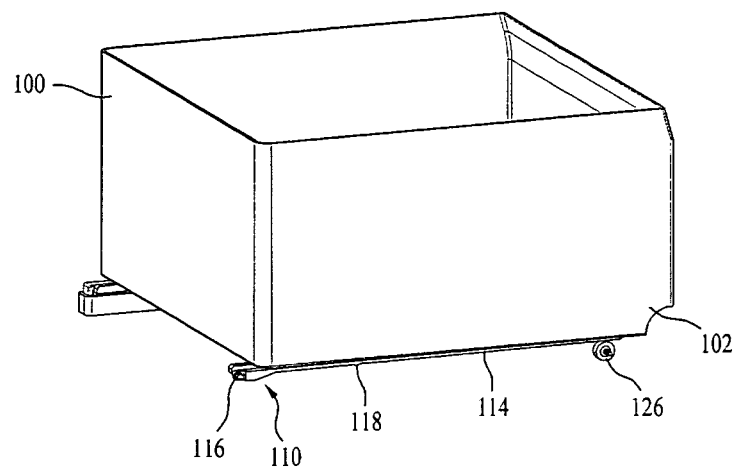
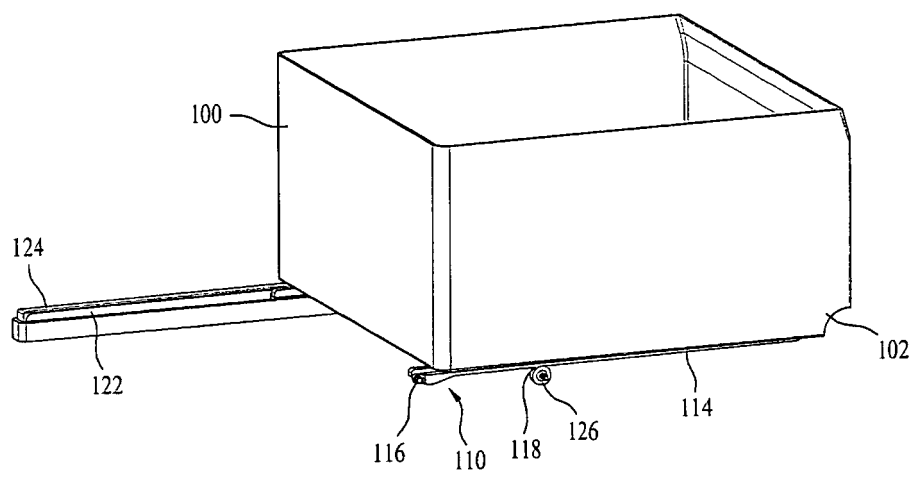


FIG. 8



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 2000046465 A [0004]
- DE 202004017126 U1 [0005]
- JP H09280727 A [0006]