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(54) **Refrigerator**

Kühlanlage

Réfrigérateur

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Description

BACKGROUND

1. Field

[0001] Embodiments relate to a refrigerator having an extractable container equipped with a partition unit which divides a storage space formed in the extractable container into a proper size.

2. Description of the Related Art

[0002] Generally, a refrigerator refers to a device to store food fresh at a low temperature by supplying cold air to a food storage chamber. The food storage chamber includes a freezing chamber maintaining a temperature below freezing and a refrigerating chamber maintaining a temperature slightly above freezing.

[0003] Due to the large variety of food, the refrigerator has an increased storage space. Such an enlarged refrigerator may be equipped with an extractable container which is withdrawably connected and adapted to store vegetables and fruits.

[0004] The extractable container holds a storage space therein to store foodstuffs. Recently, extractable containers have been designed to have a storage space divided such that different types of food are well organized in the storage space without being randomly mixed.

[0005] JP S62 1089 U discloses a refrigerator according to the preamble of claim 1 and describes a drawer having a baseplate surrounded by a vertical side wall defining a storage space. Along a longitudinal direction, the storage space is divided by a longitudinal partition having a shape of a plate extending between opposing portions of the vertical side wall of the drawer. On both lateral sides of the longitudinal partition, lateral partitions made of wires further separate the storage space. The lateral partitions can slide along the longitudinal direction to change the partitioning of the storage space according to the items to be stored. For that, the lateral partitions are slidingly guided on the longitudinal partition and also slidingly guided adjacent to the corresponding sections of the vertical side wall of the drawer.

[0006] US 2005/0061021 A1 discloses a drawer type refrigerator, in which the storage space of one or more pullout drawers is divided into sections by an adjustable divider fence.

SUMMARY

[0007] It is an object of the invention to provide a refrigerator having an extractable container equipped with a partition unit, which can be efficiently mounted and divides a storage space thereof in a variable manner.

[0008] This object is achieved by the subject matter of claim 1. The dependent claims describe advantageous embodiments of the invention.

[0009] Additional aspects will be set forth in part in the description which follows and, in part, will be apparent from the description, or may be learned by practice of the invention.

5 **[0010]** The foregoing and/or aspects may be achieved by providing a refrigerator comprising:
a storage chamber; an extractable container withdrawably mounted in the storage chamber, the extractable container comprising a vertical wall defining a storage space;
10 and a partition unit that includes a rectangular frame including first and second facing side walls opened through a center thereof and seated on an inside of the vertical wall, a first partition member crossing the storage space in a first direction with both ends thereof supported by the first facing sidewalls of the rectangular frame, a second partition member crossing the storage space in a second direction intersecting the first direction with both ends thereof supported by the second facing sidewalls of the rectangular frame, a plurality of slide members respectively formed at both ends of the first and the second partition members, and a plurality of guide members respectively formed at the first and the second sidewalls of the rectangular frame.

15 **[0011]** The refrigerator may further include a cover member connected to the extractable container to enclose at least a part of the rectangular frame to separate the partition unit from the storage space.

20 **[0012]** The guide members may each include a guide groove extended along a horizontal length of the rectangular frame, and the slide members may each include a roller received in the guide groove to be in rolling-contact with an inside of the guide groove.

25 **[0013]** The guide members may each include a pair of guide shafts extended along a horizontal length of the rectangular frame to face each other at a vertical interval, and the slide members may each include a roller disposed between the pair of guide shafts in rolling-contact with the guide shafts.

30 **[0014]** The first and the second partition members may each include horizontal rods spaced upward and downward to face each other, and vertical rods connecting both ends of the respective horizontal rods, thereby forming a rectangular closed curve, and the slide member may include connection parts to which the vertical rods are removably connected.

35 **[0015]** The connection parts may each include a force-fit clamp opened upward and downward, and the vertical rods may be force-fitted in the force-fit clamps.

40 **[0016]** The vertical wall may include a seating part protruded out from an inside of the vertical wall so as to seat the rectangular frame thereon, and the cover member may be connected to enclose a part of the rectangular frame seated on the seating part.

45 **[0017]** The partition unit may include a single assembly inserted in and separated from the inside of the storage space, and the cover member may be removably connected to the extractable container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] These and/or other aspects will become apparent and more readily appreciated from the following description of the embodiments, taken in conjunction with the accompanying drawings of which:

FIG. 1 is a perspective view schematically showing the external appearance of a refrigerator according to an embodiment;

FIG. 2 is a perspective view showing the inside of the refrigerator according to the embodiment;

FIG. 3 is a perspective view showing an extractable container withdrawn from the refrigerator;

FIG. 4 is a perspective view showing the extractable container of the refrigerator;

FIG. 5 is a sectional view showing a handle part of a partition unit according to the embodiment;

FIG. 6 is a view showing a conveying unit provided at one sidewall within a storage space of the extractable container;

FIG. 7 and FIG. 8 are sectional views showing an elastic fixing member formed at the conveying unit according to the embodiment;

FIG. 9 is a sectional view showing the operation of the partition unit;

FIG. 10 is a perspective view of an extractable container according to another embodiment;

FIG. 11 is an exploded perspective view of the conveying unit according to the embodiment of FIG. 10;

FIG. 12 is a sectional view showing the operation of the conveying unit according to the embodiment of FIG. 10;

FIG. 13 is a view showing an extractable container with a partition unit according to the invention;

FIG. 14 is an exploded perspective view of the extractable container with a partition unit according to the embodiment of FIG. 13;

FIG. 15 is a view showing the relationship between a partition member and a slide member of the partition unit, according to the embodiment of FIG. 13; and

FIG. 16 is a view showing the relationship between a guide member and a slide member of the partition unit, according to the embodiment of FIG. 13.

FIG. 17 is a sectional view taken along line A-A of FIG. 13

DETAILED DESCRIPTION

[0019] Reference will now be made in detail to the embodiments, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to like elements throughout.

[0020] FIG. 1 is a perspective view schematically showing the external appearance of a refrigerator according to an embodiment. FIG. 2 is a perspective view showing the inside of the refrigerator.

[0021] Referring to FIG. 1 and FIG. 2, a refrigerator according to the embodiment includes a main body 10 having storage chambers 11 and 12, and doors 13 and 14 opening and closing a front side of the main body 10.

[0022] The storage chambers 11 and 12 include a refrigerating chamber 11 and a freezing chamber 12 disposed respectively at a lower part and an upper part with respect to a lateral partition 15 which divides the inside of the main body 10 into upper and lower parts.

[0023] The doors 13 and 14 include a refrigerating chamber door 13 opening and closing the refrigerating chamber 11, and a freezing chamber door 14 opening and closing the freezing chamber 12.

[0024] A plurality of door guards 16 are formed on the inside of the refrigerating chamber door 13 to store beverage bottles and relatively small items.

[0025] Additionally, a dispenser 17 may be mounted to the refrigerating chamber door 13 to enable a user to obtain water or ice from the outside.

[0026] The refrigerating chamber 11 includes a plurality of shelves 18 disposed at an upper part thereof, and a plurality of extractable containers 20 withdrawably mounted at a lower part thereof. The extractable containers 20 each have a storage space to store food such as vegetables and fruits.

[0027] The extractable container 20 according to the embodiment is inserted in and withdrawn from the inside of the storage chamber, but is not limited to such a structure. For example, the whole front side of the extractable container 20 may define the refrigerator door so that the extractable container 20 can be withdrawn from the outside.

[0028] FIG. 3 is a perspective view showing an extractable container being withdrawn from the refrigerator. FIG. 4 is a perspective view showing the extractable container of the refrigerator. FIG. 5 is a sectional view showing a handle part of a partition unit of the extractable container.

[0029] Referring to FIGS. 3 and 4, the extractable container 20 includes a bottom surface 23 and a vertical wall extended upward from an outer circumference of the bottom surface 23, thereby forming a storage space to store food. Thus, the extractable container 20 has a hexahedral shape opened to the upper part.

[0030] The vertical wall includes two sidewalls 25a and 25b extended upward from both sides of the bottom surface 23, and a front wall 25c and a rear wall 25d extended upward from the front and the rear of the bottom surface 23, respectively.

[0031] A guide slot 26 is formed on each side of the vertical wall 25, being extended in a lateral direction and connected with a conveying unit 60 and a partition member 50 that will be described later. The guide slot 26 may be formed integrally with the vertical wall 25. Alternatively, as shown in FIG. 10, the guide slot 26 may be formed at a sealing cover 30 that seals an opening 28 which is formed on each side of the vertical wall 25 to mount of the conveying unit 60.

[0032] A partition unit 40 is disposed in a storage space

21 to divide the storage space 21 into a plurality of areas. The partition unit 40 may include the partition member 50 that divides the storage space 21 into two or more separate spaces in the forward and the backward directions and in the left and the right directions.

[0033] More specifically, the partition member 50 may include a lateral partition 50a dividing the storage space 21 forward and backward, and a longitudinal partition 50b dividing the storage space 21 to the left and the right.

[0034] The partition member 50 may include pairs of horizontal rods 51 and 53, each pair of which includes upper and lower horizontal rods spaced to face each other, and pairs of vertical rods 52 and 54, each pair of which connects both ends of the respective horizontal rods 51 and 53.

[0035] Accordingly, the partition member 50 forms rectangular closed curves each having a pair of long sides and a pair of short sides.

[0036] The horizontal rods 51 and 53 and the vertical rods 52 and 54 may be formed by bending a wire or a pipe having a sufficient strength.

[0037] Lengths of the horizontal rods 51 of the lateral partition 50a may be slightly smaller than a distance between the sidewalls 25a and 25b of the extractable container 20. Lengths of the vertical rods 53 of the longitudinal partition 50b may be slightly smaller than a distance between the front wall 25c and the rear wall 25d of the extractable container 20.

[0038] Lengths of the vertical rods 52 and 54 may be almost the same as the height of the extractable container 21. Also, a connection projection 55 may be extended outward from the middle of the respective vertical rods 52 and 54, to be engaged with the conveying unit 60 that will be described later.

[0039] The connection projection 55 is inserted in the guide slot 26 formed on the vertical wall 25, thereby being engaged with the conveying unit 60.

[0040] In addition, a handle member 56 may be formed at an intersection between the lateral partition 50a and the longitudinal partition 50b, so as to guide the movement of the lateral partition 50a forward and backward or the longitudinal partition 50b to the left and the right.

[0041] As shown in FIG. 5, the handle member 56 has a substantially cylindrical form and includes rod connection holes 57 and 58 into which upper ones of the horizontal rods 51 and 53 of the lateral partition 50a and the longitudinal partition 50b are inserted.

[0042] More specifically, the rod connection holes 57 and 58 are divided into a first rod connection hole 57 opened in the left and the right directions to insert the upper horizontal rod 51 of the lateral partition 50a, and a second rod connection hole 58 disposed at an upper part of the first rod connection hole 57 and opened in the forward and backward directions to insert the upper horizontal rod 53 of the longitudinal partition 50b intersecting the lateral partition 50a.

[0043] Thus, when the handle member 56 is moved to the left and the right, the longitudinal partition 50b is

moved to the left and the right along the horizontal rod 51 of the lateral partition 50a. When the handle member 56 is moved forward and backward, the lateral partition 50a is moved forward and backward along the horizontal rod 53 of the longitudinal partition 50b.

[0044] Additionally, the partition unit 40 may include the conveying unit 60 to move and fix the partition member 50.

[0045] The conveying unit 60 is disposed on an inner space S of each side of the vertical wall 25 defining the storage space 21 (refer to FIG. 8). Both sides of each partition member 50 are engaged with the corresponding pair of conveying units 60.

[0046] Accordingly, the partition member 50 is stably operated while the aesthetics thereof are improved since the conveying unit 60 is not seen from the outside. Also, the storage space 21 may be efficiently used as a storage space.

[0047] Furthermore, the extractable container 20 may be protected from frictional scratches that may be caused on an inner surface of the vertical wall 25 by the movement of the partition member 50.

[0048] The conveying unit 60 may include a guide part 61 guiding the movement of the partition member 50, and a fixing part restricting the movement of the partition member 50 by fixing the partition member 50.

[0049] FIG. 6 is a view showing a conveying unit provided at one sidewall in the storage space of the extractable container.

[0050] As shown in FIG. 6, the conveying unit 60 is formed in the inner space of one sidewall 25a of the extractable container 20 to guide the movement of the partition member 50. The guide part 61 of the conveying unit 60 includes a guide rail 62 fixed to the inner surface of the sidewall 25a and a moving block 64 slidably coupled with the guide rail 62.

[0051] The guide rail 62 has a rectangular form extended in the forward and the backward directions and includes connection parts 63 formed on both sides thereof for connection with a rail fixing device 27 formed on the inner surface of the sidewall 25a.

[0052] The moving block 64 encloses an outer side of the guide rail 62, and includes a connection projection coupling part 65 coupled with the connection projection 55 of the partition member 50.

[0053] The fixing part of the conveying unit 60, restricting the movement of the partition member 50, may include an uneven surface part 71 including pluralities of fixing grooves 71a and fixing ridges 71b formed on one surface of the guide rail 62, and an elastic fixing member 73 formed at the moving block 64 to advance and recede along the shape of the uneven surface part 71.

[0054] The elastic fixing member 73 may be implemented by any member capable of elastically advancing and receding according to the shape of the fixing grooves 71a and the fixing ridges 71b. Hereinafter, various versions of the elastic fixing member 73 will be explained in detail.

[0055] FIG. 7 and FIG. 8 are sectional views showing the elastic fixing member formed at the conveying unit according to the embodiment.

[0056] Referring to FIG. 7, the elastic fixing member 73 of the fixing part may include a projection made of an elastic material and disposed on an inner surface 66 of the moving block 64 facing the uneven surface part 71 of the guide rail 62.

[0057] Accordingly, as the moving block 64 is moved in the direction indicated by arrows in FIG. 7, the elastic projection of the elastic fixing member 73 advances and recedes by being deformed according to the shape of the fixing ridges and grooves 71 b and 71a.

[0058] Therefore, when the elastic projection is inserted in any of the fixing grooves 71a, the moving block 64 is maintained in a fixed state unless external force is applied. Thus, the partition member 50 is able to divide the storage space 21 by moving step by step in connection with the moving block 64, as shown in FIG. 9.

[0059] Referring to FIG. 8, the elastic fixing member of the fixing part may include a pressing projection 91 and an elastic member 93. The pressing projection 91 moves in and out of a projection recess 67 formed in the center of the inner surface 66 of the moving block 64 facing the uneven surface part 71 formed at the guide rail 62. The elastic member 93 elastically biases the pressing projection 91 toward the uneven surface part 71.

[0060] The embodiment has been described in a manner that the conveying unit 60 which has the guide part 61 guiding the movement of the partition member 50 and the fixing part restricting the movement of the partition member 50 is disposed in the inner space on the vertical wall 25. However, the conveying unit 60 may be mounted on an outer surface of the vertical wall 25.

[0061] FIG. 11 is an exploded perspective view of a conveying unit according to another embodiment. FIG. 12 is a sectional view showing the operation of the conveying unit of FIG. 11.

[0062] Referring to FIG. 11, a guide part 80 of the conveying unit according to this embodiment includes a guide rail 81 having a guide groove 83, and a roller 85 rotatably connected to the connection projection 55 of the partition member 50 to be inserted and moved in the guide groove 83.

[0063] The fixing part that restricts the movement of the partition member 50 includes an uneven surface part 88 disposed at a lower part of the guide groove 83 that supports the roller 85 and including a plurality of fixing prominences 88a and fixing recesses 88b.

[0064] As shown in FIG. 11, according to this structure, the partition member 50 is restrained from moving when the roller 85 is caught in the fixing recesses 88b, and is moved beyond the fixing prominences 88a when a predetermined external force is applied to move the partition member 50.

[0065] FIG. 13 is a view showing an extractable container with a partition unit according to the invention. FIG. 14 is an exploded perspective view of the extractable

container with a partition unit according to the embodiment of FIG. 13. FIG. 15 is a view showing the relationship between a partition member and a slide member of the partition unit, according to the embodiment of FIG. 13.

[0066] Referring to FIGS. 13 and 14, a partition unit 200 is equipped with a partition member 230 that divides a storage space 101 of an extractable container 100 into at least four spaces. The partition unit 200 may be formed into a single assembly so as to be efficiently mounted in the extractable container 100 and to improve the stability of movement of the partition member 230. For this purpose, the partition unit 200 may include a frame 210 opened through the center and shaped corresponding to an outer circumference of the storage space 101 of the extractable container 100. Specifically, the frame 210 may have a shape corresponding to an outer circumference of a vertical wall 105 extended upward from an outer circumference of a bottom surface 103, thereby forming the storage space 101.

[0067] The frame 210 may include two first sidewalls 211 and 212 facing each other in a first direction, that is, a longitudinal direction, and two second sidewalls 213 and 214 facing each other in a second direction intersecting the first direction, that is, a lateral direction. The first and the second sidewalls 211, 212, 213 and 214 are connected to one another at ends thereof by connection members 215, accordingly forming a substantially rectangular frame.

[0068] In addition, the partition unit 200 may include the partition member 230 that divides the inside of the frame 210 opened through the center into at least four spaces.

[0069] To this end, the partition member 230 may include a first partition member 231 supported by the first sidewalls 211 and 212 at both ends thereof, thereby crossing the inside of the frame 210 in the first direction (longitudinal direction), and a second partition member 235 supported by the second sidewalls 213 and 215 at both ends thereof, thereby crossing the inside of the frame 210 in the second direction (lateral direction).

[0070] The first partition member 231 and the second partition member 235 may respectively include pairs of horizontal rods 232 and 236 spaced upward and downward to face each other, and pairs of vertical rods 233 and 237 respectively connecting both ends of the horizontal rods 232 and 236, thereby forming a rectangular closed curve.

[0071] The first and the second partition members 231 and 235 are arranged across each other and supported by the frame 210 at both ends thereof to be linearly movable.

[0072] A slide member 250 is connected to the vertical rods 233 and 237 formed at both ends of the first and the second partition members 231 and 235. The frame 210 may include guide members 270 to which the slide members 250 are movably connected. The guide members 270 stably guide the linear movements of the slide members 250.

[0073] The guide members 270 are formed of a relatively high strength material so as not to be deformed or shaken during the movement of the slide members 250. The guide members 270 may be connected to the frame 210, or integrally formed with the frame 210 by forming the frame 210 by injection molding a relatively high strength material such as aluminum.

[0074] According to this structure, although the extractable container 100 made of plastic is deformed, the partition member 230 is linearly guided along the guide members 270 of the frame 210 and therefore moved stably without shaking.

[0075] Referring to FIG. 15, the slide members 250 may be substantially rectangular plates provided to the vertical rods 233 and 237 of the first and the second partition members 231 and 235. The slide members 250 may be separately formed and then connected to the partition member 230.

[0076] For this, the slide members 250 may each include a connection part 251 formed at one side thereof to be connected with the vertical rods 233 and 237 of the first and the second partition members 231 and 235.

[0077] The connection part 251 may have any configurations enabling removable connection of the slide member 250 to the partition member 230. For example, as shown in FIG. 15, the connection part 251 may include a force-fit clamp 252 opened upward and downward for force-fit engagement with the vertical rods 233 and 237 of the partition members 231 and 235.

[0078] Connection between the partition 230 and the slide members 250 may be conveniently achieved by force-fitting the vertical rods 233 and 237 of the partition member 230 in the force-fit clamps 252 of the slide members 250.

[0079] In addition, since the force-fit clamps 252 are opened upward and downward, the force-fitting positions of the vertical rods 233 and 237 may be freely adjusted along the length of the vertical rods 233 and 237. Accordingly, the mounting height of the partition member 230 in the storage space 101 of the extractable container 100 may be adjusted.

[0080] That is, the user is able to adjust the height of the partition member 230 simply by adjusting the force-fitting positions of the vertical rods 233 and 237 of the partition member 230 with respect to the force-fit clamps 252 according to the height of items stored in the storage space 101 of the extractable container 100. As a result, user convenience and space efficiency are further improved.

[0081] The guide members 270 are formed to the first and the second sidewalls 211, 212, 213 and 214 of the frame 210 to guide linear movements of the slide members 250, and may each include a guide groove 271 extended along a horizontal length of the frame 210 and recessed by a predetermined depth.

[0082] The slide members 250 may be inserted in and moved along the guide groove 271. However, rollers 255 may be rotatably mounted within the slide member 250

to be in rolling-contact with upper and lower inner surfaces of the guide groove 271, as shown in FIG. 15.

[0083] In addition, as shown in FIG. 16, each of the guide members 270 may further include a pair of guide shafts 273 extended along the horizontal length of the frame 210 to face each other at a vertical interval, and disposed at positions corresponding to the first and the second sidewalls 211, 212, 213 and 214 of the frame 210.

[0084] The rollers 255 rotatably connected with the slide member 250 are disposed between the pair of guide shafts 273 in rolling-contact with the pair of guide shafts 273. According to this, the slide member 250 is linearly moved along the guide shafts 273.

[0085] Although the guide member 270 includes the guide groove 271 or the pair of guide shafts 273 while the slide member 250 includes the rollers 255 in rolling-contact with the guide groove 271 or the guide shafts 273 according to FIGS. 15 and 16, this embodiment is suggested only by way of example. Therefore, any other structures may be formed on the first and the second sidewalls 211, 212, 213 and 214 of the frame 210 so long as such structures enable the guide member 270 to guide the linear movement of the slide member 250.

[0086] Also, the sliding member 250 removably connected to the partition member 230 in the embodiment of FIG. 15 may be integrally formed with the partition member 230.

[0087] Referring to FIG. 14, when the partition unit 200 constructed into a single assembly as described above is properly received in the storage space 101 of the extractable container 100, at least a part of the frame 210 may be covered by a cover member 300 connected to an upper circumference of the extractable container 100.

[0088] For this structure, a seating part 107 may be formed at an inside of the vertical wall 105 extended upward from the circumference of the bottom surface 103, thereby forming the storage space 101 of the extractable container 100, so that the frame 210 of the partition unit 200 is supported and seated on the seating part 107.

[0089] The seating part 107 is protruded out from the inside of the vertical wall 105 of the extractable container 100 into a shape corresponding to the circumference of the frame 210, so as to support a lower surface of the frame 210 of the partition unit 200.

[0090] When the partition unit 200 is inserted from the upper part of the storage space 101 of the extractable container 100, the lower surface of the frame 210 is supported by the seating part 107. Accordingly, the partition unit 200 is safely supported in the storage space 101.

[0091] The cover member 300 may be connected to the upper circumference of the extractable container 100 to enclose part of the frame 210 as shown in FIG. 17, in order to prevent the frame 210 seated on the seating part 107 from being exposed in the storage space 101 and also being separated from the extractable container 100.

[0092] The cover member 300 is shaped corresponding to the circumference of the extractable container 100, and therefore is force-fitted with the inside of the vertical

wall 105 forming the storage space 101 of the extractable container 100. The cover member 300 may be removably connected to the extractable container 100 through a dedicated connection member (not shown).

[0093] Thus, the frame 210 of the partition unit 200 is not exposed in the storage space 101, accordingly improving aesthetics. In addition, the movement stability is improved since entrance of foreign substances to the guide members 270 guiding the movements of the slide members 250 is reduced.

[0094] Furthermore, the guide members 270 and the slide members 250 will be less likely to interfere with items stored in the storage space 101 due to the presence of the cover member 300. Therefore, damage of the items is reduced while further improving the space efficiency of the storage space 101.

[0095] As is apparent from the above description, a partition unit of an extractable container for a refrigerator according to the embodiments may efficiently divide a storage space of the extractable container according to quantities of stored food, through a simple operation. Thus, the user convenience is improved.

[0096] Furthermore, since a conveying unit to move partition members that divide the storage space is not exposed to the outside, the aesthetics of the extractable container are improved while minimizing scratches that may be generated as the partition members are moving.

[0097] Although a few embodiments have been shown and described, it would be appreciated by those skilled in the art that changes may be made in these embodiments without departing from the invention, the scope of which is defined in the claims.

Claims

1. A refrigerator comprising:

a storage chamber (11, 12);
 an extractable container (20, 100) withdrawably mounted in the storage chamber (11, 12), the extractable container (20, 100) comprising a vertical wall (105) defining a storage space (101); and
 a partition unit (200); **characterized in that** the partition unit (200) includes a rectangular frame (210) comprising first and second facing side walls (211, 212; 213, 214) opened through a center thereof and seated on an inside of the vertical wall (105), a first partition member (231) crossing the storage space (101) in a first direction with both ends thereof supported by the first facing sidewalls (211, 212) of the rectangular frame (210), a second partition member (235) crossing the storage space (101) in a second direction intersecting the first direction with both ends thereof supported by the second facing sidewalls (213, 214) of the rectangular frame

(210), a plurality of slide members (250) formed at both ends of the first and the second partition members (231; 235), and a plurality of guide members (270) formed at the first and the second sidewalls (211, 212; 213, 214) of the rectangular frame (210).

2. The refrigerator according to claim 1, further comprising a cover member (300) connected to the extractable container (20, 100) to enclose at least a part of the rectangular frame (210) so that separation of the partition unit (200) from the storage space (101) is prevented.

3. The refrigerator according to claim 1 or 2, wherein the guide members (270) each comprise a guide groove (271) extended along a horizontal length of the rectangular frame (210), and the slide members (250) each comprise a roller (255) received in the guide groove (271) to be in rolling contact with an inside of the guide groove (271).

4. The refrigerator according to claim 1 or 2, wherein the guide members (270) each comprise a pair of guide shafts (273) extended along a horizontal length of the rectangular frame (210) to face each other at a vertical interval, and the slide members (250) each comprise a roller (255) disposed between the pair of guide shafts (273) in rolling contact with the guide shafts (273).

5. The refrigerator according to any one of the preceding claims, wherein the first and the second partition members (231, 235) each comprise horizontal rods (232, 236) spaced vertically and facing each other, and vertical rods (233, 237) connecting both ends of the respective horizontal rods (232, 236), thereby forming a rectangular closed curve, and the slide member (250) comprises connection parts (251) to which the vertical rods (233, 237) are removably connected.

6. The refrigerator according to claim 5, wherein the connection parts (251) each comprise a force-fit clamp (252) opened upward and downward, and the vertical rods (233, 237) are force-fitted in the force-fit clamps (252).

7. The refrigerator according to claim 2, wherein the vertical wall (105) comprises a seating part (107) protruded from an inside of the vertical wall (105) to seat the rectangular frame (210) thereon, and the cover member (300) is connected to enclose a part of the rectangular frame (210) seated on the seating part (270).

8. The refrigerator according to claim 2, wherein the partition unit (200) comprises a single assembly in-

serted in and separated from the inside of the storage space (201), and the cover member (300) is removably connected to the extractable container (20, 100).

Patentansprüche

1. Kühlschrank umfassend:

eine Lagerkammer (11, 12);
einen entfernbar in der Lagerkammer (11, 12) montierten herausziehbaren Behälter (20, 100), wobei der herausziehbare Behälter (20, 100) eine einen Lagerraum (101) definierende vertikale Wand (105) umfasst; und
eine Trenneinheit (200);

dadurch gekennzeichnet, dass die Trenneinheit (200) einen rechteckigen Rahmen (210) umfassend erste und zweite Seitenwände (211, 212; 213, 214), geöffnet durch eine Mitte hiervon und auf einer Innenseite der vertikalen Wand (105) sitzend, umfasst, wobei ein erstes Trennelement (231) den Lagerraum (101) in einer ersten Richtung mit beiden Enden hiervon von den ersten gegenüberliegenden Seitenwänden (211, 212) des rechteckigen Rahmens (210) gestützt durchquert, ein zweites Trennelement (235) den Lagerraum (101) in einer die erste Richtung schneidenden zweiten Richtung mit beiden Enden hiervon von den zweiten gegenüberliegenden Seitenwänden (213, 214) des rechteckigen Rahmens (210) gestützt durchquert, eine Vielzahl von Gleitelementen (250) an beiden Enden von erstem und zweitem Teilelement (231; 235) gebildet ist und eine Vielzahl von Führungselementen (270) an ersten und zweiten Seitenwänden (211, 212; 213, 214) des rechteckigen Rahmens (210) gebildet ist.

2. Kühlschrank nach Anspruch 1, ferner umfassend ein mit dem herausziehbaren Behälter (20, 100) verbundenes Abdeckelement (300), um wenigstens einen Teil des rechteckigen Rahmens (210) zu umschließen, so dass ein Trennen der Trenneinheit (200) vom Lagerraum (101) verhindert wird.

3. Kühlschrank nach Anspruch 1 oder 2, wobei die Führungselemente (270) jeweils eine entlang einer horizontalen Länge des rechteckigen Rahmens (210) verlängerte Führungsnut (271) umfassen, und die Gleitelemente (250) jeweils eine in der Führungsnut (271) aufgenommene Rolle (255) umfassen, so dass diese in rollendem Kontakt mit einer Innenseite der Führungsnut (271) steht.

4. Kühlschrank nach Anspruch 1 oder 2, wobei die Führungselemente (270) jeweils ein Paar von entlang

einer horizontalen Länge des rechteckigen Rahmens (210) verlängerten Führungswellen (273) umfassen, so dass diese in einem vertikalen Intervall zueinander zeigen, und

5 die Gleitelemente (250) jeweils eine zwischen dem Paar von Führungswellen (273) in rollendem Kontakt mit den Führungswellen (273) angeordnete Rolle (255) umfassen.

10 5. Kühlschrank nach einem der vorhergehenden Ansprüche, wobei erstes und zweites Trennelement (231, 235) jeweils vertikal beabstandete und zueinander zeigende horizontale Stäbe (232, 236) und beide Enden der entsprechenden horizontalen Stäbe (232, 236) verbindende vertikale Stäbe (233, 237) umfassen, wodurch eine rechteckige geschlossene Kurve gebildet wird, und

15 das Gleitelement (250) Verbindungsteile (251) umfasst, mit denen die vertikalen Stäbe (233, 237) abnehmbar verbunden sind.

20 6. Kühlschrank nach Anspruch 5, wobei die Verbindungsteile (251) jeweils eine nach oben und nach unten geöffnete Presspassungsklemme (252) umfassen und die vertikalen Stäbe (233, 237) eine Presspassung in den Presspassungsklemmen (252) aufweisen.

25 7. Kühlschrank nach Anspruch 2, wobei die vertikale Wand (105) einen von einer Innenseite der vertikalen Wand (105) vorstehenden Sitzteil (107) umfasst, damit der rechteckige Rahmen (210) darauf sitzen kann, und das Abdeckelement (300) verbunden ist, um einen Teil des auf dem Sitzteil (270) sitzenden rechteckigen Rahmens (210) zu umschließen.

30 8. Kühlschrank nach Anspruch 2, wobei die Trenneinheit (200) eine einzelne Baugruppe umfasst, eingeführt in die und getrennt von der Innenseite des Lagerraums (201), und das Abdeckelement (300) abnehmbar mit dem herausziehbaren Behälter (20, 100) verbunden ist.

45 Revendications

1. Réfrigérateur comprenant:

une chambre de stockage (11, 12);
un contenant extractible (20, 100) monté de manière amovible dans la chambre de stockage (11, 12), le contenant extractible (20, 100) comprenant une paroi verticale (105) définissant un espace de stockage (101); et

55 une unité de séparation (200); **caractérisé en ce que** l'unité de séparation (200) comprend un cadre rectangulaire (210) comprenant des première et seconde parois latérales en regard

- (211, 212; 213, 214) ouvertes à travers son centre et reposant sur un côté intérieur de la paroi verticale (105), un premier élément de séparation (231) traversant l'espace de stockage (101) dans une première direction avec ses deux extrémités supportées par les premières parois latérales en regard (211, 212) du cadre rectangulaire (210), un second élément de séparation (235) traversant l'espace de stockage (101) dans une seconde direction coupant la première direction avec ses deux extrémités supportées par les seconds parois latérales en regard (213, 214) du cadre rectangulaire (210), une pluralité d'éléments coulissants (250) formés aux deux extrémités des premier et second éléments de séparation (231 ; 235), et une pluralité d'éléments de guidage (270) formés au niveau des première et second parois latérales (211, 212 ; 213, 214) du cadre rectangulaire (210).
2. Réfrigérateur selon la revendication 1, comprenant en outre un élément de recouvrement (300) relié au contenant extractible (20, 100) pour enfermer au moins une partie du cadre rectangulaire (210) pour éviter que l'unité de séparation (200) ne se libère de l'espace de stockage (101).
3. Réfrigérateur selon les revendications 1 ou 2, dans lequel les éléments de guidage (270) comprennent chacun une rainure de guidage (271) s'étendant sur une longueur horizontale du cadre rectangulaire (210), et les éléments coulissants (250) comprennent chacun un rouleau (255) logé dans la rainure de guidage (271) pour être en contact de roulement avec un intérieur de la rainure de guidage (271).
4. Réfrigérateur selon les revendications 1 ou 2, dans lequel les éléments de guidage (270) comprennent chacun une paire d'arbres de guidage (273) s'étendant sur une longueur horizontale du cadre rectangulaire (210) pour se faire face à un intervalle vertical, et les éléments coulissants (250) comprennent chacun un rouleau (255) disposé entre la paire d'arbres de guidage (273) en contact de roulement avec les arbres de guidage (273).
5. Réfrigérateur selon l'une quelconque des revendications précédentes, dans lequel les premier et second éléments de séparation (231, 235) comprennent chacun des barres horizontales (232, 236) espacées verticalement et en regard, et des barres verticales (233, 237) reliant les deux extrémités des barres horizontales respectives (232, 236), formant ainsi une courbe rectangulaire fermée, et l'élément coulissant (250) comprend des parties de connexion (251) auxquelles les barres verticales (233, 237) sont reliées de manière amovible.
6. Réfrigérateur selon la revendication 5, dans lequel les pièces de connexion (251) comprennent chacune un collier de serrage à force (252) ouvert vers le haut et vers le bas, et les barres verticales (233, 237) sont fixées par force dans les colliers de serrage à force (252).
7. Réfrigérateur selon la revendication 2, dans lequel la paroi verticale (105) comprend une partie d'assise (107) faisant saillie d'une partie intérieure de la paroi verticale (105) pour y placer le cadre rectangulaire (210), et l'élément de recouvrement (300) est relié pour entourer une partie du cadre rectangulaire (210) assise sur la partie d'assise (270).
8. Réfrigérateur selon la revendication 2, dans lequel l'unité de séparation (200) comprend un seul ensemble inséré à l'intérieur et séparé de l'intérieur de l'espace de stockage (201), et l'élément de recouvrement (300) est relié de manière amovible au contenant extractible (20, 100).

FIG. 1

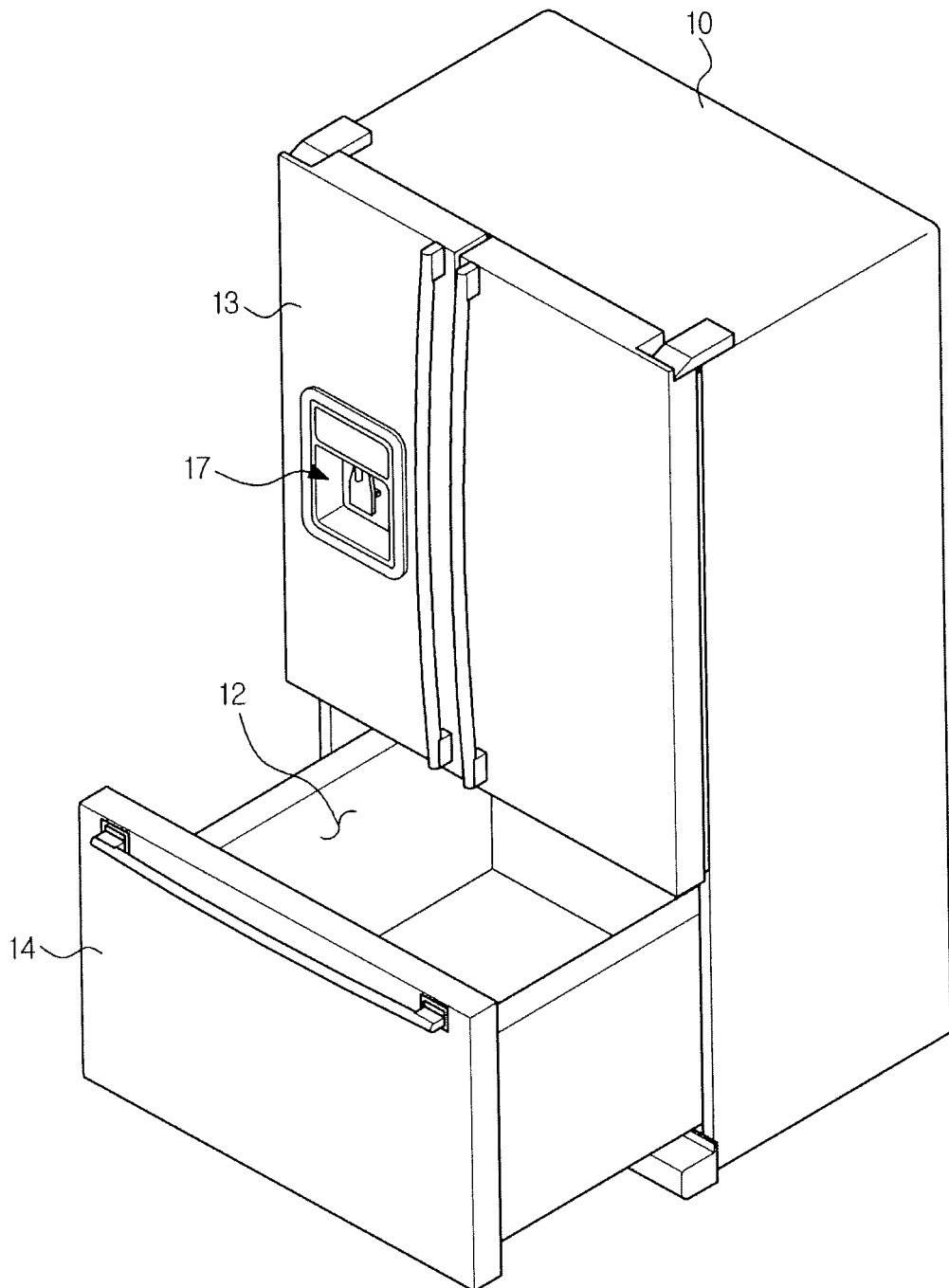


FIG. 2

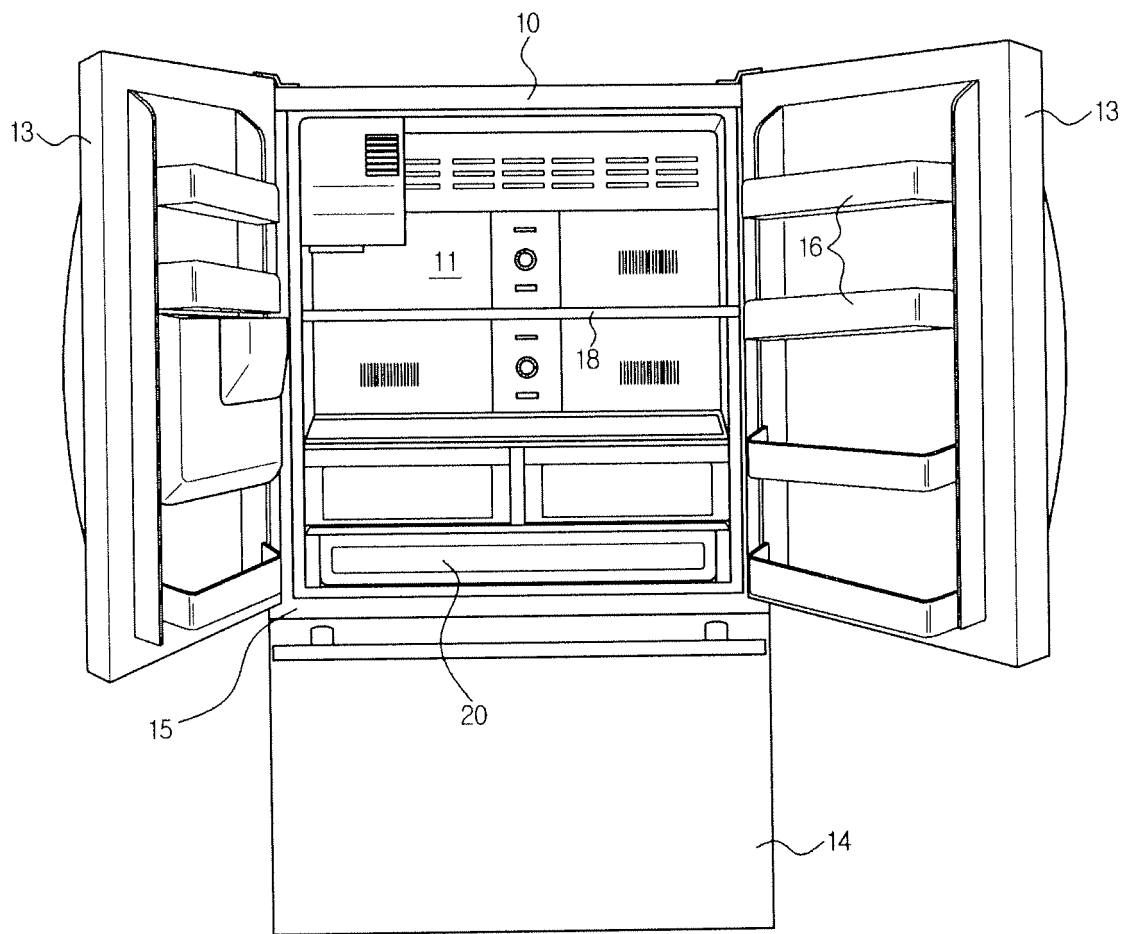


FIG. 3

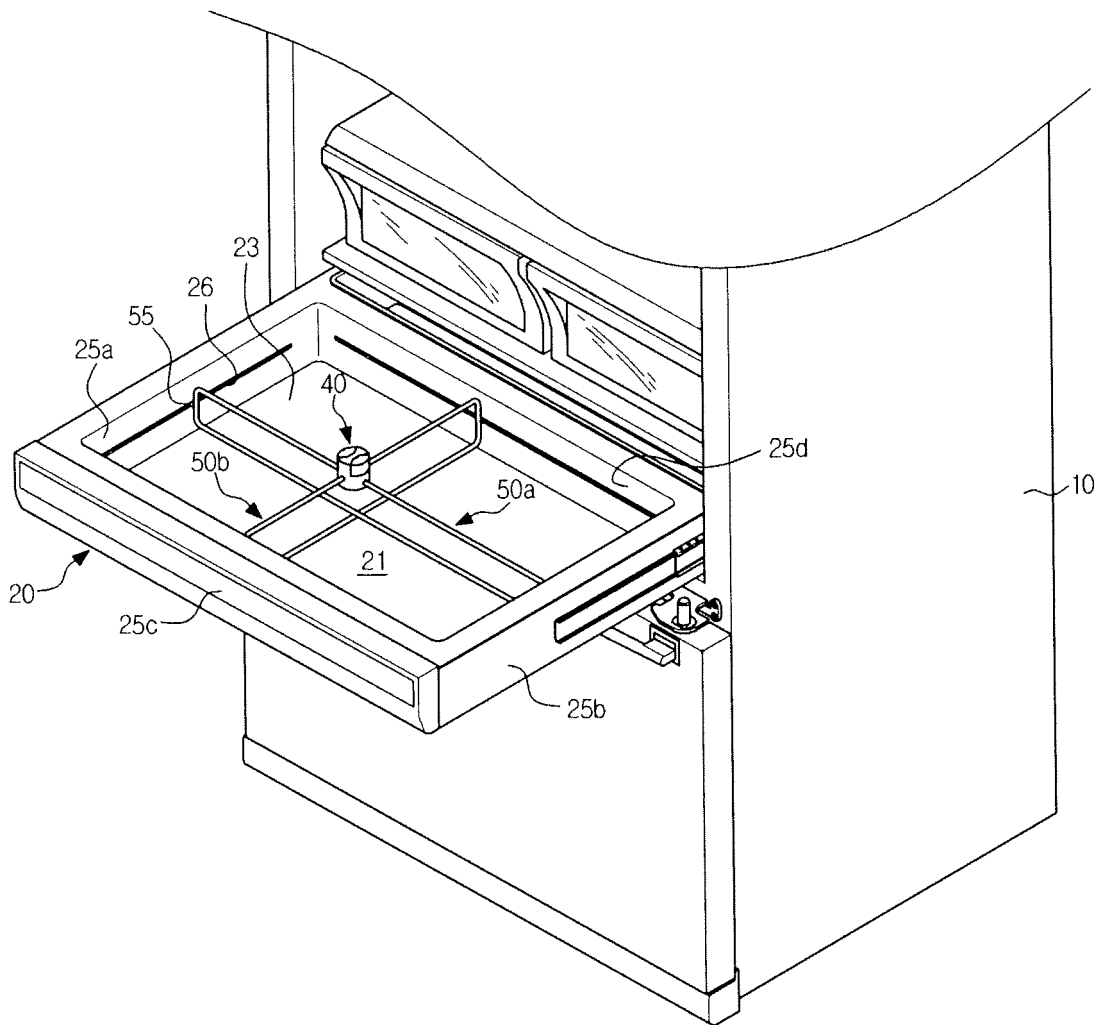


FIG. 4

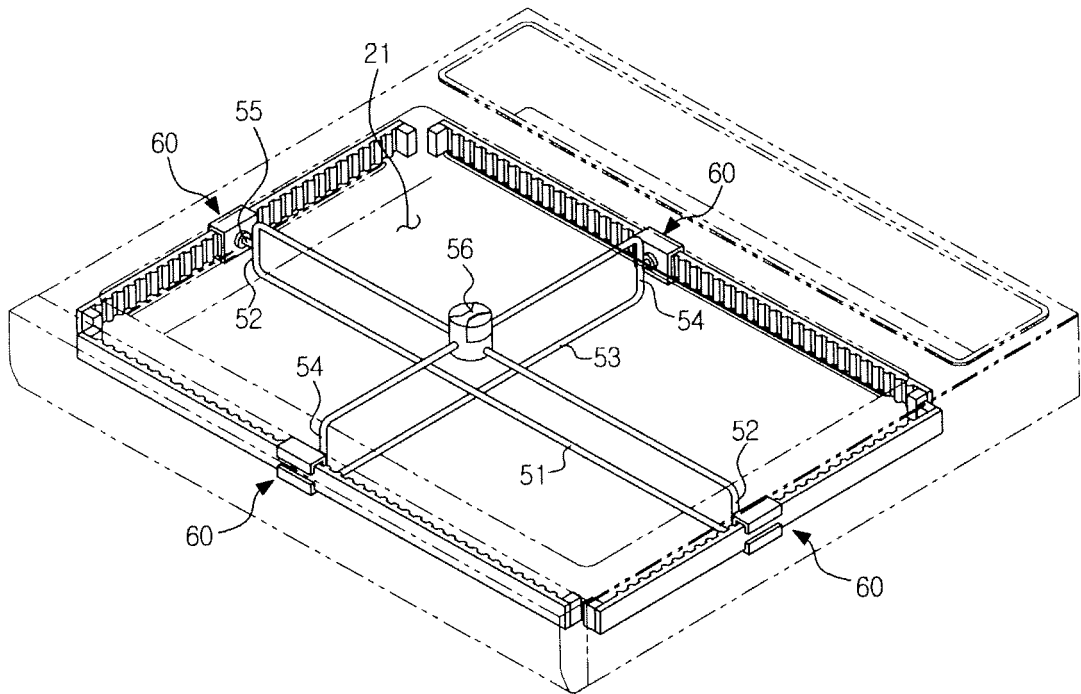


FIG. 5

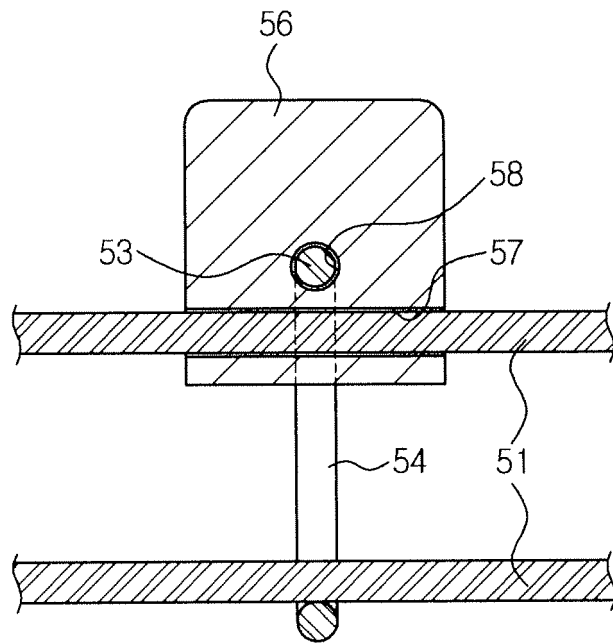


FIG. 6

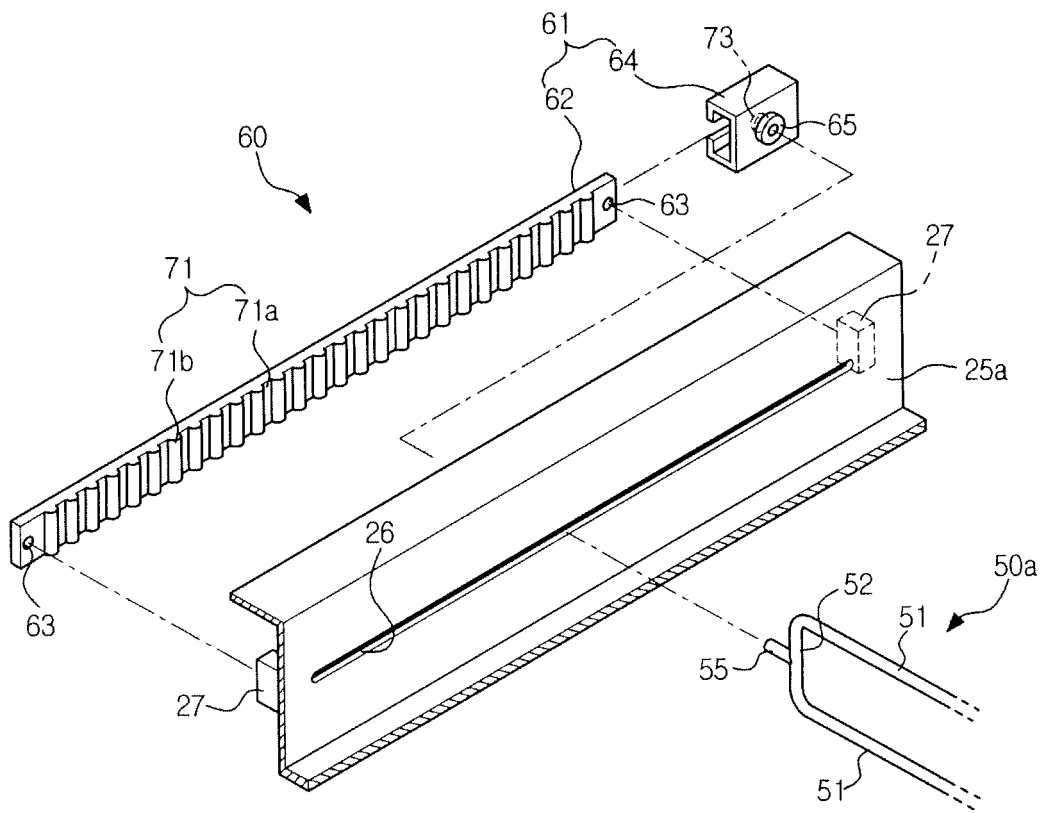


FIG. 7

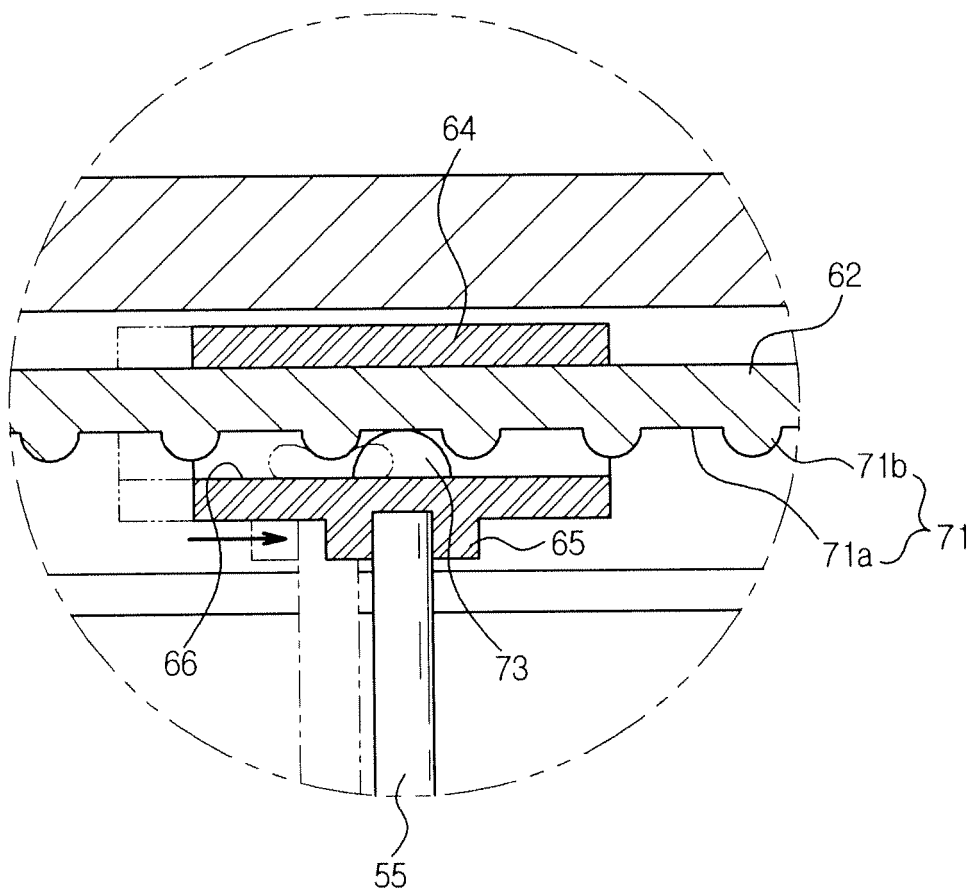


FIG. 8

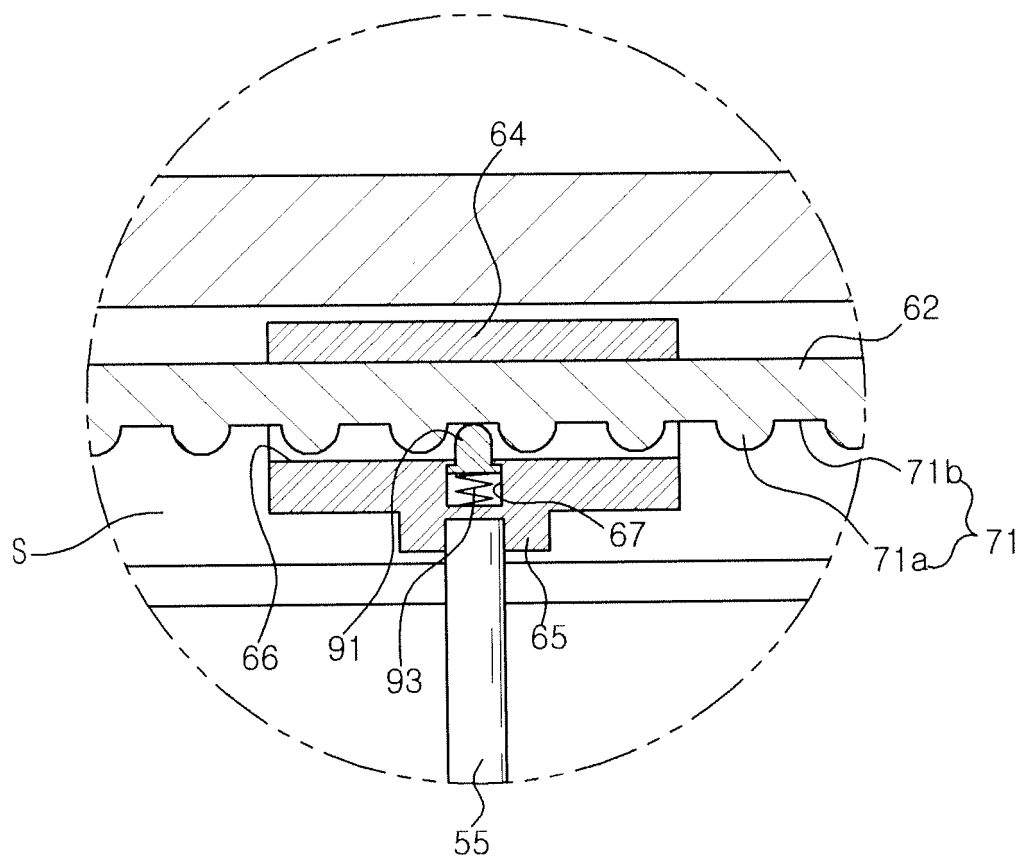


FIG. 9

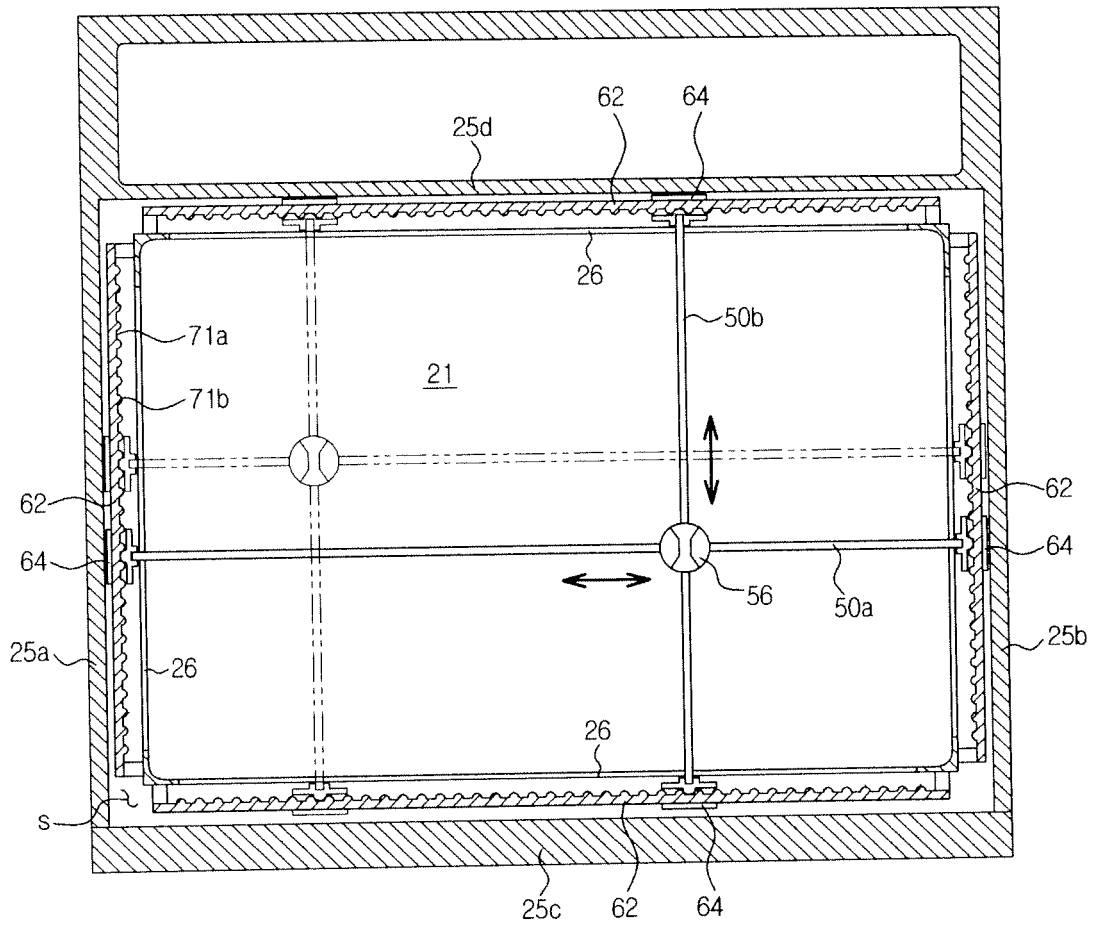


FIG. 10

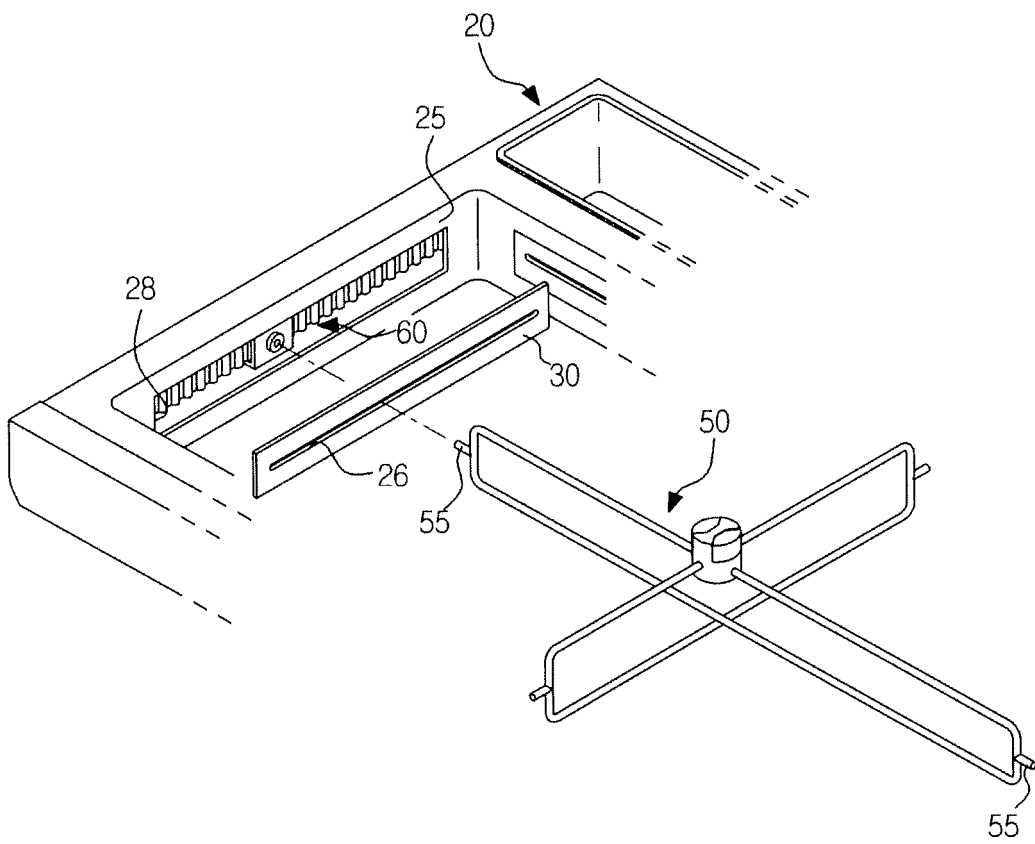


FIG. 11

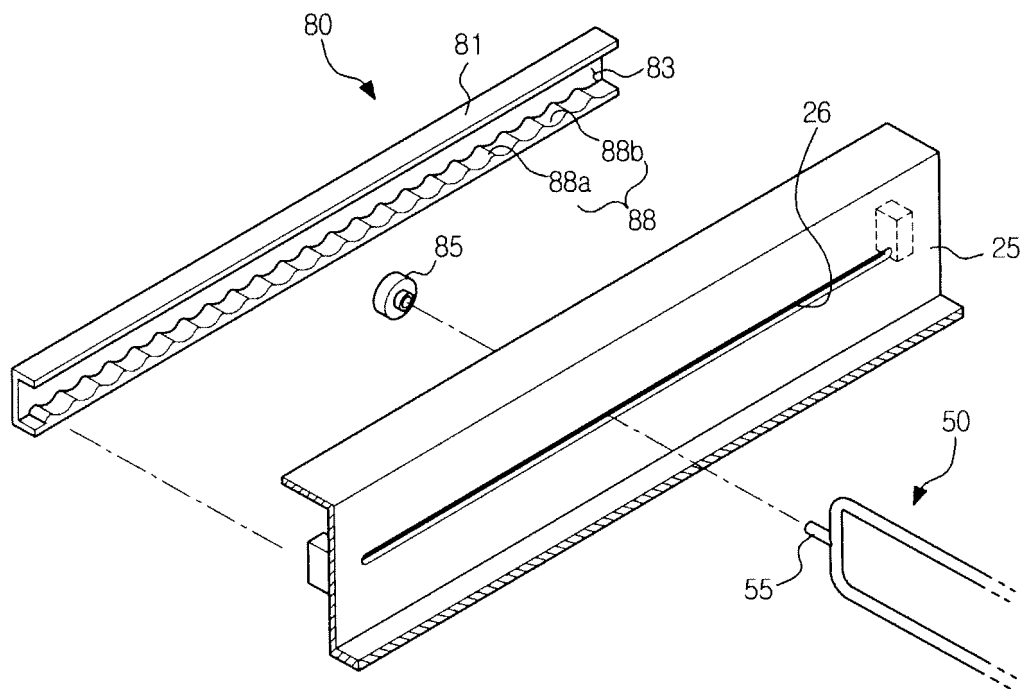


FIG. 12

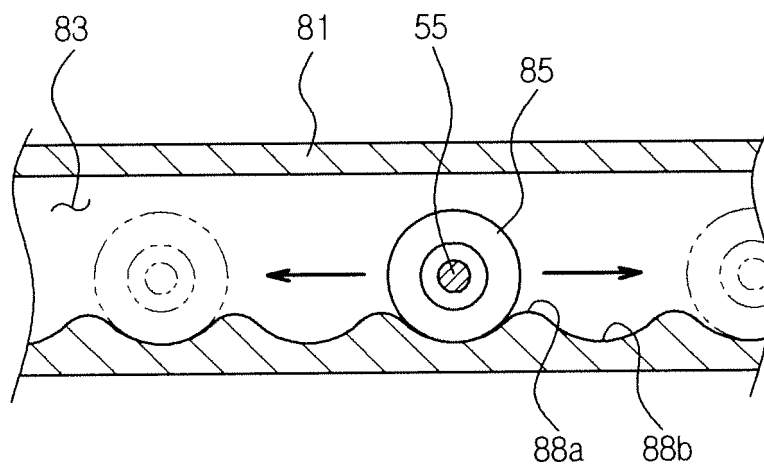


FIG. 14

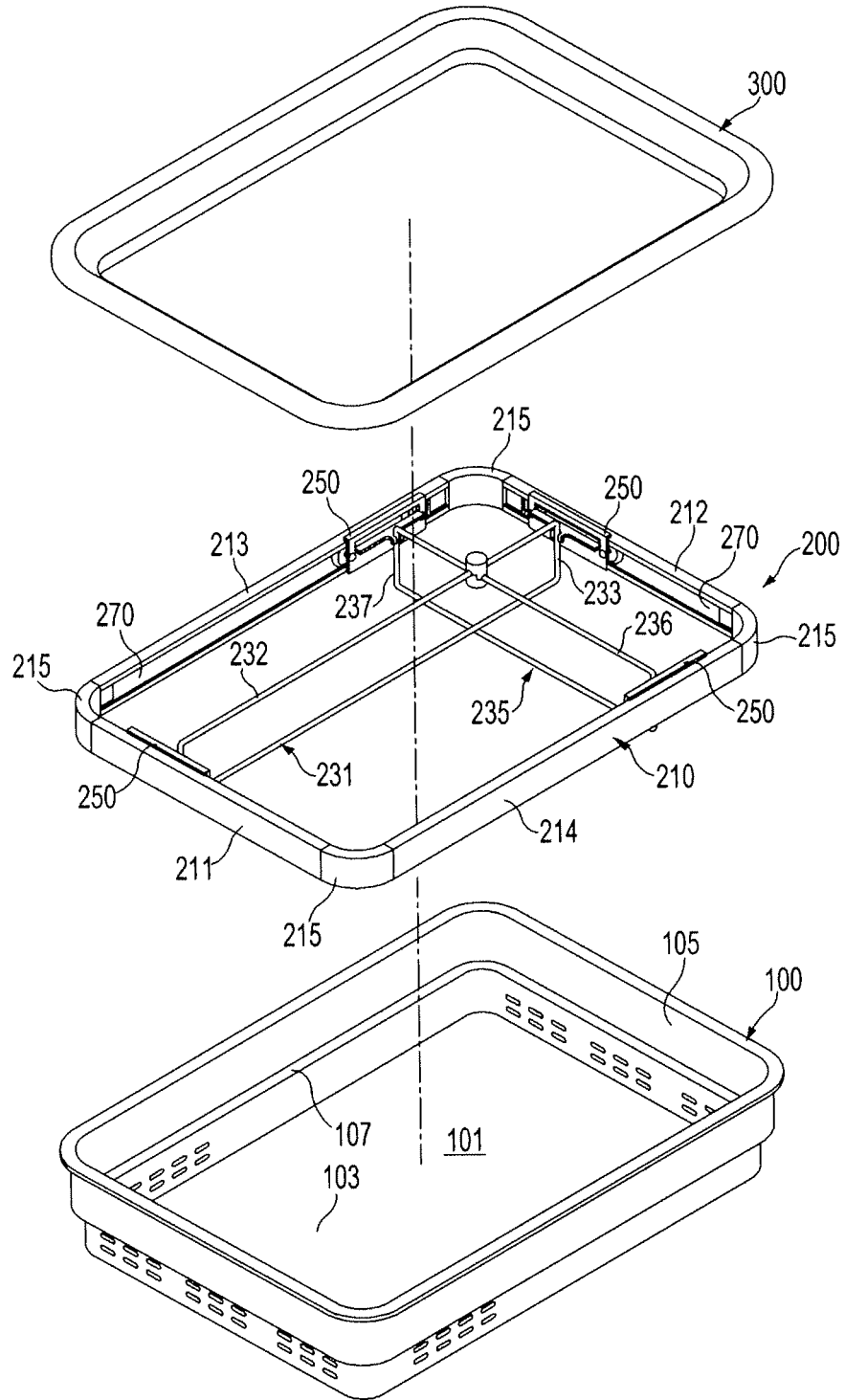


FIG. 15

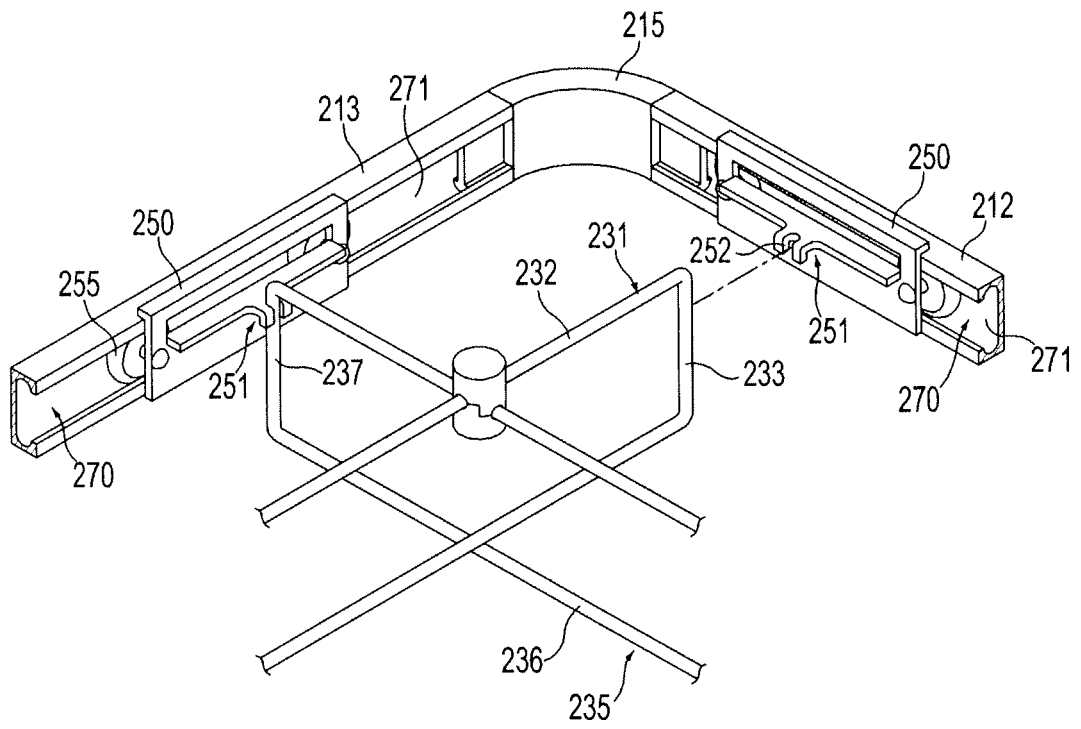


FIG. 16

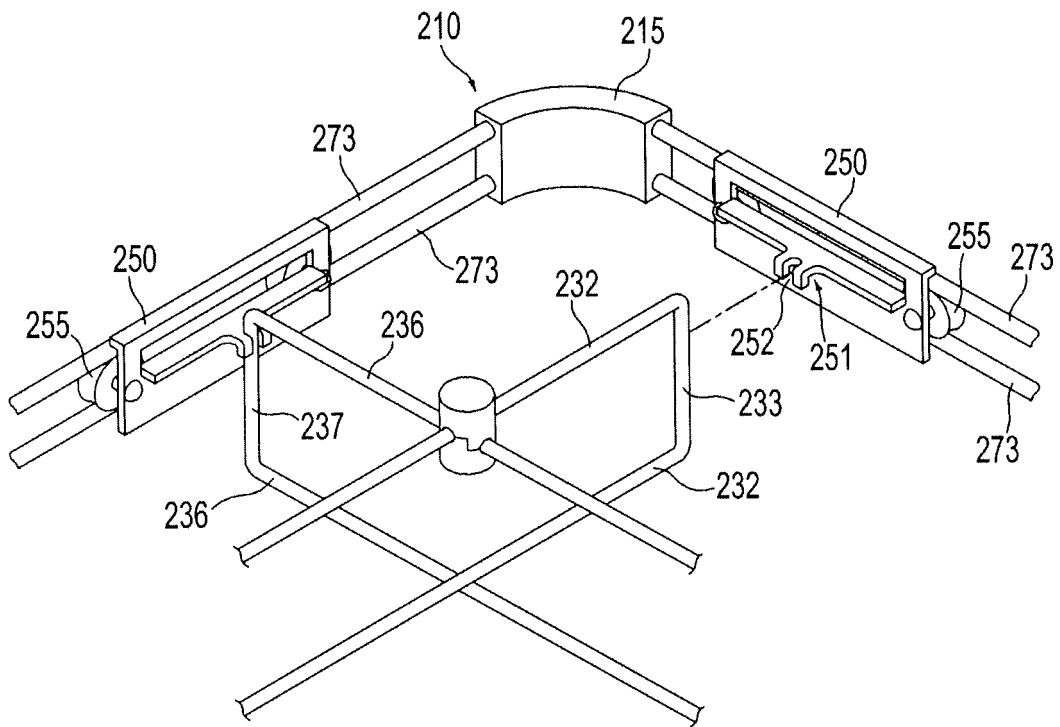
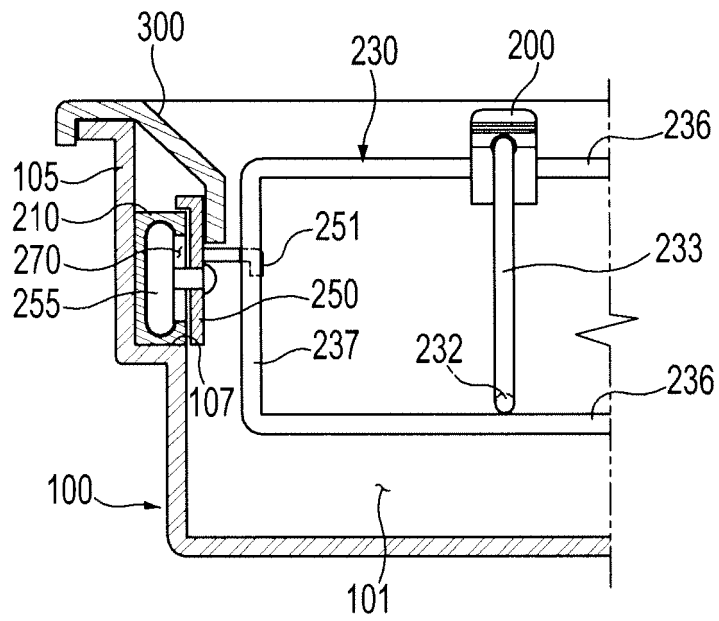


FIG. 17



REFERENCES CITED IN THE DESCRIPTION

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