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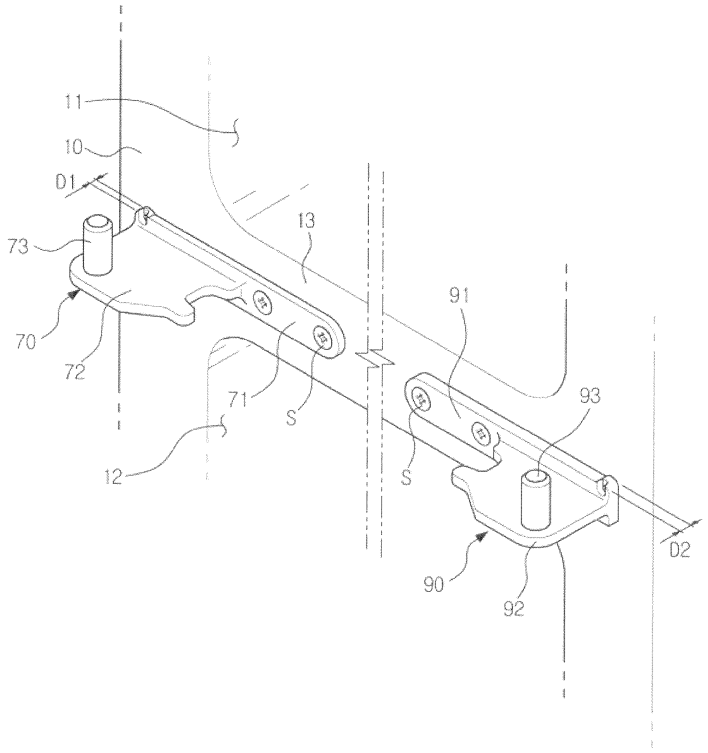
(54) Refrigerator

(57) A refrigerator includes a body, a first door rotatably coupled to one side of the body, and a second door rotatably coupled to the other side of the body. Both the first door and the second door having pocket portions disposed at rear sides of the doors so as to store food. A first upper hinge and a first lower hinge rotatably support the first door and a second upper hinge and a second lower hinge rotatably support the second door and a strength of the first lower hinge and a strength of the second lower hinge are different from each other.

FIG. 3



EP 2 801 775 A2

Description

BACKGROUND

1. Field

[0001] Embodiments of the present disclosure relate to a hinge that rotatably supports a door that opens/closes a storage compartment.

2. Description of the Related Art

[0002] In general, a refrigerator is a home appliance that keeps food fresh by including a storage compartment for storing food and a cold air supplying unit for supplying cold air to the storage compartment. The storage compartment has an open front side through which food can be put into or taken out from the storage compartment, and the open front side of the storage compartment is open/closed by a door.

[0003] A french door refrigerator (FDR) includes a refrigerator compartment disposed at an upper part of a body and a freezer compartment disposed at a lower part of the body. The refrigerator compartment is open/closed by a pair of rotating doors, and the freezer compartment is open/closed by a sliding door. In this case, the pair of rotating doors are rotatably supported by an upper hinge and a lower hinge, respectively.

[0004] In particular, the lower hinge supports a load of the door. In this case, a load applied to a left lower hinge and a load applied to a right lower hinge are different from each other.

[0005] For example, when a dispenser is disposed at a left door, the load applied to the right lower hinge may be greater than the load applied to the left lower hinge. In terms of a load of the door, a load of the left door is greater than a load of the right door due to a dispenser, but in terms of the capacity of a pocket portion disposed at a rear side of the door, the capacity of the right door is greater than that of the left door. Thus, if a maximum amount of food is stored in the pocket portion, the load applied to the right lower hinge may be greater than the load applied to the left lower hinge.

[0006] However, in a refrigerator according to the related art, strengths of lower hinges are designed based on a larger load without considering a difference between loads applied to both-side lower hinges, and the strengths are commonly applied to both-side lower hinges.

[0007] In this way, different loads applied to both-side lower hinges apply to a side by side type refrigerator. In general, since, in case of the side by side type refrigerator, the size of the refrigerator compartment is larger than the size of the freezer compartment, a larger load than a load applied to the lower hinge that supports a freezer compartment door is applied to the lower hinge that supports a refrigerator compartment door.

[0008] A bottom mounted freezer type refrigerator includes a refrigerator compartment disposed at an upper part of a body and a freezer compartment disposed at a lower part of the body. Each of the refrigerator compartment and the freezer compartment is open/closed by one rotating door. In the bottom mounted freezer type refrigerator, a considerably large load is applied to a lower hinge of a refrigerator compartment door that supports a load of the refrigerator compartment door and thus, a high strength is required in the lower hinge of the refrigerator compartment door.

SUMMARY

[0009] Therefore, it is an aspect of the present disclosure to provide a refrigerator having a pair of rotating doors and a pair of lower hinges that rotatably support the pair of rotating doors, wherein the pair of lower hinges are separately designed to have minimum strengths at which sagging is prevented, in consideration of a difference of loads applied to the pair of lower hinges.

[0010] Additional aspects of the present disclosure will be set forth in part in the description which follows and, in part, will be obvious from the description, or may be learned by practice of the present disclosure.

[0011] In accordance with one aspect of the present disclosure, a refrigerator includes: a body; a first door rotatably coupled to one side of the body and having a first pocket portion disposed at a rear side of the first door so as to store food; a second door rotatably coupled to the other side of the body and having a second pocket portion disposed at a rear side of the second door so as to store food; a first upper hinge and a first lower hinge coupled to an upper part and a lower part of the first door so as to rotatably support the first door; and a second upper hinge and a second lower hinge coupled to an upper part and a lower part of the second door so as to rotatably support the second door, wherein the first lower hinge may have a predetermined strength that resists deformation caused by a load of the first door and a load of the food stored in the first pocket portion, and the second lower hinge may have a predetermined strength that resists deformation caused by a load of the second door and a load of the food stored in the second pocket portion, and the strength of the first lower hinge and the strength of the second lower hinge may be different from each other.

[0012] A storage capacity of the first pocket portion may be smaller than a storage capacity of the second pocket portion, and the strength of the first lower hinge may be smaller than the strength of the second lower hinge.

[0013] Shapes of the first lower hinge and the second lower hinge may be asymmetrical.

[0014] Each of the first lower hinge and the second lower hinge may include a fixing portion coupled to the body and an extension portion, which extends from the fixing portion and from which a door rotation shaft protrudes, and a thickness of the fixing portion of the first

lower hinge and a thickness of the fixing portion of the second lower hinge may be different from each other.

[0015] Each of the first lower hinge and the second lower hinge may include a fixing portion coupled to the body and an extension portion, which extends from the fixing portion and from which a door rotation shaft protrudes, and one of the first lower hinge and the second lower hinge may further include a fillet portion disposed to reinforce connection strength of the fixing portion and the extension portion.

[0016] A material used to form the first lower hinge and a material used to form the second lower hinge may be different from each other.

[0017] A material used to form one of the first lower hinge and the second lower hinge may be a zinc alloy, and a material used to form the other one of the first lower hinge and the second lower hinge may be an aluminum alloy.

[0018] In accordance with another aspect of the present disclosure, a refrigerator includes: a body; an upper, first storage compartment and a lower, second storage compartment provided inside the body; a first door and a second door rotatably coupled to the body so as to open/close the first storage compartment and the second storage compartment; a first upper hinge and a first lower hinge coupled to an upper part and a lower part of the first door so as to rotatably support the first door; a second lower hinge coupled to a lower part of the second door so as to rotatably support the second door; a support shaft that perforates the second door and is vertically provided under the first lower hinge so as to support the first lower hinge; and a support leg coupled to a bottom end of the support shaft and supported on a ground.

[0019] The first lower hinge may include an insertion groove into which a top end of the support shaft is inserted and is coupled.

[0020] The second door may include a through hole through which the support shaft passes.

[0021] The second door may rotate around the support shaft.

[0022] The support shaft may perforate the second lower hinge.

[0023] The support shaft may be formed integrally with the second lower hinge.

[0024] The support shaft may include a female screw portion through which the support shaft is coupled to the support leg, and the support leg may include a male screw portion screw-coupled to the female screw portion.

[0025] The first storage compartment may be partitioned off from the second storage compartment.

[0026] In accordance with yet another aspect of the present disclosure, a refrigerator includes: a body; a first door coupled to the body by way of at least one first hinge; and a second door coupled to the body by way of at least one second hinge, wherein a max load strength of the at least one fist hinge is greater than a max load strength of the at least one second hinge.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] These and/or other aspects of the present disclosure 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 illustrates the entire structure of a refrigerator in accordance with an embodiment of the present disclosure;

FIG. 2 illustrates a combined structure of a second lower hinge of the refrigerator illustrated in FIG. 1;

FIG. 3 is a perspective view comparing a first lower hinge with the second lower hinge of the refrigerator of FIG. 1;

FIG. 4 is a cross-sectional view comparing the first lower hinge and the second lower hinge of the refrigerator of FIG. 1;

FIG. 5 illustrates comparison of a first lower hinge with a second lower hinge of a refrigerator in accordance with another embodiment of the present disclosure;

FIG. 6 illustrates the entire structure of a refrigerator in accordance with yet another embodiment of the present disclosure;

FIG. 7 illustrates a combined structure of a support shaft of the refrigerator illustrated in FIG. 6; and

FIG. 8 is a side cross-sectional view illustrating major elements of the refrigerator of FIG. 6.

DETAILED DESCRIPTION

[0028] Reference will now be made in detail to the embodiments of the present disclosure, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to like elements throughout.

[0029] FIG. 1 illustrates the entire structure of a refrigerator in accordance with an embodiment of the present disclosure.

[0030] Referring to FIG. 1, a refrigerator 1 includes a body 10, storage compartments 11 and 12 provided inside the body 10, and a cold air supplying unit (not shown) that supplies cold air to the storage compartments 11 and 12.

[0031] The storage compartments 11 and 12 are partitioned off into an upper refrigerator compartment 11 and a lower freezer compartment 12 by an intermediate wall 13. The refrigerator compartment 11 may be maintained at a temperature of about 0 to 5°C, and the freezer compartment 12 may be maintained at a temperature of about

-20. The refrigerator compartment 11 and the freezer compartment 12 have open front sides via which food can be put in or taken out from the refrigerator compartment 11 and the freezer compartment 12.

[0032] A shelf 14 on which food can be put, and a sealing container 15 in which food can be sealed and kept, may be provided at the refrigerator compartment 11. Also, an ice making unit 16 that makes ice may be provided at one side of the refrigerator compartment 11.

[0033] A sliding door 50 may be provided at the freezer compartment 12. The sliding door 50 includes a basket 51 in which food can be stored. The sliding door 50 may be slidably supported on rails 53 and thus may slide into or out from an internal space of the freezer compartment 12.

[0034] The refrigerator compartment 11 may be open/closed by a pair of rotating doors 30 and 40. The pair of rotating doors 30 and 40 include a first door 30 and a second door 40 that are provided at left and right sides of the body 10.

[0035] The refrigerator compartment 11 may or may not be partitioned off by a separate vertical wall. A portion of the refrigerator compartment 11 is open/closed by the first door 30, and the other portion of the refrigerator compartment 11 is open/closed by the second door 40.

[0036] The first door 30 and the second door 40 may be provided approximately symmetrical to each other. However, a dispenser 32 that may eject ice generated by the ice making unit 16 to the outside may be disposed in the first door 30. The dispenser 32 may eject water stored in a cooled state in the refrigerator compartment 11 to the outside, as well as ice.

[0037] A first pocket portion 31 and a second pocket portion 41 in which food can be portably stored, may be disposed at rear sides of the first door 30 and the second door 40. A beverage container or food having a small size may be stored in the first pocket portion 31 and the second pocket portion 41.

[0038] As described above, the dispenser 32 may be disposed in the first door 30. Thus, due to a region taken by the dispenser 32, the first pocket portion 31 may have a smaller storage capacity than that of the second pocket portion 41.

[0039] Thus, in a state in which no food is stored in the first pocket portion 31 and the second pocket portion 41, due to a load of the dispenser 32, the first door 30 may have a larger load than that of the second door 40. However, in a state in which a maximum amount of food is stored in the first pocket portion 31 and the second pocket portion 41, the entire load of the second door 40 and food stored in the second pocket portion 41 may be greater than the entire load of the first door 30 and food stored in the first pocket portion 31.

[0040] Each of the first door 30 and the second door 40 may be rotatably hinge-coupled to the body 10.

[0041] That is, the first door 30 is rotatably supported by a first upper hinge 60 coupled to an upper part of the first door 30 and a first lower hinge 70 coupled to a lower part of the first door 30. In particular, a load of the first door 30 is supported by the first lower hinge 70.

[0042] The second door 40 is rotatably supported by a second upper hinge 80 coupled to an upper part of the second door 40 and a second lower hinge 90 coupled to a lower part of the second door 40. In particular, a load of the second door 40 is supported by the second lower hinge 90.

[0043] Thus, each of the first lower hinge 70 and the second lower hinge 90 needs to have a sufficient strength at which deformation, such as sagging, does not occur due to loads applied to the first lower hinge 70 and the second lower hinge 90.

[0044] However, as described above, the loads applied to the first lower hinge 70 and the second lower hinge 90 are different from each other according to a difference between shapes of the first and second doors 30 and 40 and a difference between capacities of the first and second pocket portions 31 and 41 of the first and second doors 30 and 40. However, in a refrigerator according to the related art, strengths of both lower hinges 70 and 90 are commonly designed based on a larger load of loads of both lower hinges 70 and 90 without considering the difference between the loads applied to the first lower hinge 70 and the second lower hinge 90.

[0045] On the other hand, the first lower hinge 70 and the second lower hinge 90 of the refrigerator according to one embodiment of the present disclosure are separately designed to have minimum strengths at which deformation, such as sagging, does not occur, in consideration of the difference between the loads applied to the first lower hinge 70 and the second lower hinge 90.

[0046] That is, the first lower hinge 70 and the second lower hinge 90 of the refrigerator according to the embodiment of the present disclosure have different strengths. Thus, materials used to form a lower hinge to which a relatively small load is applied, among a pair of lower hinges 70 and 90 are saved so that costs can be reduced.

[0047] Hereinafter, a combined relationship between structures of the lower hinges 70 and 90 of the refrigerator according to the embodiment of the present disclosure will be described with reference to the drawings.

[0048] FIG. 2 illustrates a combined structure of a second lower hinge of the refrigerator illustrated in FIG. 1, FIG. 3 is a perspective view comparing a first lower hinge with the second lower hinge of the refrigerator of FIG. 1, and FIG. 4 is a cross-sectional view comparing the first lower hinge and the second lower hinge of the refrigerator of FIG. 1.

[0049] Referring to FIGS. 2 through 4, the first lower hinge 70 and the second lower hinge 90 include fixing portions 71 and 91 coupled to the body 10, extension portions 72 and 92 that extend from the fixing portions 71 and 91 to the first and second doors 30 and 40, and rotation shafts 73 and 93 that protrude from the extension portions 72 and 92. The first and second doors 30 and 40 may rotate about the rotation shafts 73 and 93.

[0050] The fixing portions 71 and 91 may be approximately vertically provided to closely contact the body 10, and the extension portions 72 and 92 may be approximately horizontally provided to support bottom surfaces of the first and second doors 30 and 40. Rotation shafts 73 and 93 may protrude from the extension portions 72 and 92 so as to rotatably support the first and second doors 30 and 40.

[0051] As illustrated in FIG. 2, at least one of fastening holes 94 into which a screw S is coupled, may be formed in the fixing portion 91, and at least one of fastening holes 17 that correspond to the fastening holes 94 of the fixing portion 91 may be formed in the body 10.

[0052] Thus, the second lower hinge 90 may be fixed to the body 10 when the screw S is fastened into the fastening holes 94 of the fixing portion 91 and the fastening holes 17 of the body 10. The first lower hinge 70 may also be fixed to the body 10 using the screw S, like the second lower hinge 90.

[0053] As illustrated in FIG. 4, reinforcement plates 79 and 99 may be further disposed in an internal space of the body 10 so as to fix the lower hinges 70 and 90. The reinforcement plates 79 and 99 are put over an inner side surface of the body 10 so that the screw S may be coupled to the reinforcement plates 79 and 99. Thus, a fastening force of the screw S may be reinforced. In FIG. 4, reference numeral 20 is an adiabatic material 20 disposed in the internal space of the body 10.

[0054] As illustrated in FIGS. 3 and 4, the fixing portion 71 of the first lower hinge 70 and the fixing portion 91 of the second lower hinge 90 have different thicknesses D1 and D2. That is, the thickness D1 of the fixing portion 71 of the first lower hinge 70 may be smaller than the thickness D2 of the fixing portion 91 of the second lower hinge 90.

[0055] This is because, as described above, the sum of a load of the first door 30 and a load of food stored in the first pocket portion 31 which are applied to the first lower hinge 70 is smaller than the sum of a load of the second door 40 and a load of food stored in the second pocket portion 41 which are applied to the second lower hinge 90.

[0056] That is, the thickness D1 of the fixing portion 71 of the first lower hinge 70 may be a minimum thickness at which the first lower hinge 70 may bear the load and may not be deformed when a maximum amount of food is stored in the first pocket portion 31. The thickness D2 of the fixing portion 91 of the second lower hinge 90 may be a minimum thickness at which the second lower hinge 90 may bear the load and may not be deformed when a maximum amount of food is stored in the second pocket portion 41.

[0057] FIG. 5 illustrates comparison of a first lower hinge with a second lower hinge of a refrigerator in accordance with another embodiment of the present disclosure.

[0058] A refrigerator in accordance with another embodiment of the present disclosure will be described with reference to FIG. 5. Like reference numerals are used in the same elements as those of FIG. 1, and descriptions thereof will be omitted.

[0059] The refrigerator according to one embodiment of the present disclosure may be only different from the refrigerator according to another embodiment of the present disclosure in a configuration of a second lower hinge 96. Although the refrigerator of FIG. 5 is the same as the refrigerator of FIG. 1 in that the second lower hinge 96 has a larger strength than that of a first lower hinge 70, the thickness of a fixing portion 91 of the second lower hinge 96 may not be different from the thickness of a fixing portion 71 of the first lower hinge 70.

[0060] However, the second lower hinge 96 may further include a fillet portion 95 that connects the fixing portion 91 and an extension portion 92 so as to reinforce connection strength of the fixing portion 91 and the extension portion 92. The fillet portion 95 may be rounded. In FIG. 5, the fillet portion 95 is continuously formed at a connection part of the fixing portion 91 and the extension portion 92. However, embodiments of the present disclosure are not limited thereto, and the fillet portion 95 may be intermittently formed.

[0061] Although the thickness of the fixing portion 91 does not increase due to the fillet portion 95, the second lower hinge 96 may have a larger strength than that of the first lower hinge 70.

[0062] In FIGS. 1 and 5, shapes of the first lower hinge and the second lower hinge are asymmetrical, and the first lower hinge and the second lower hinge have different strengths. However, although the shapes of the first lower hinge and the second lower hinge are symmetrical to each other, they are formed of different materials and thus may have different strengths.

[0063] For example, the first lower hinge having a relatively low strength may be formed of an aluminum alloy material, and the second lower hinge having a relatively high strength may be formed of a zinc alloy material.

[0064] Until now, a french door refrigerator (FDR) has been described in the current embodiment of the present disclosure. However, embodiments of the present disclosure are not limited thereto, and a refrigerator in which a pair of rotating doors are disposed right and left, such as a side by side type refrigerator, may be used.

[0065] FIG. 6 illustrates the entire structure of a refrigerator in accordance with yet another embodiment of the present disclosure.

[0066] The refrigerator in accordance with another embodiment of the present disclosure will be described with reference to FIG. 6.

[0067] A refrigerator 100 in accordance with one embodiment of the present disclosure includes a body 110, storage compartments 120 and 130 provided inside the body 110, and a cold air supplying unit (not shown) that supplies cold air to the storage compartments 120 and 130.

[0068] The storage compartments 120 and 130 are partitioned off into an upper refrigerator compartment 120

and a lower freezer compartment 130 by an intermediate wall 111, The refrigerator compartment 120 may be provided to have a larger size than that of the freezer compartment 130. A shelf 121 on which food can be put, and a sealing container 122 in which food can be sealed and kept, may be provided at the refrigerator compartment 120.

[0069] The refrigerator compartment 120 may be open/closed by one rotating door 140, and the freezer compartment 130 may also be open/closed by one rotating door 150. The refrigerator compartment door 140 and the freezer compartment door 150 may be open/closed while rotating in the same direction in the same line.

[0070] Each of the refrigerator compartment door 140 and the freezer compartment door 150 may be rotatably hinge-coupled to the body 110. The refrigerator compartment door 140 is supported by a first upper hinge 160 coupled to an upper part of the refrigerator compartment door 140 and by a first lower hinge 170 coupled to a lower part of the refrigerator compartment door 140.

[0071] The freezer compartment door 150 is rotatably supported by a second lower hinge 190 coupled to a lower part of the freezer compartment door 150 and by a support shaft 200 that perforates the freezer compartment door 150 and is vertically disposed. That is, no additional upper hinge is coupled to the freezer compartment door 150.

[0072] The support shaft 200 serves as a rotation shaft of the freezer compartment door 150 and simultaneously serves to support the first lower hinge 170. A through hole 151 through which the support shaft 200 may pass, may be formed in the freezer compartment door 150 in a vertical direction. A support leg 210 is coupled to a bottom end of the support shaft 200, and the support leg 210 contacts a ground and is supported thereon.

[0073] A load of the refrigerator compartment door 140 and a load of food stored in a pocket portion 141 disposed at a rear side of the refrigerator compartment door 140 are applied to the first lower hinge 170. In particular, in a bottom mounted freezer type refrigerator 100 according to one embodiment of the present disclosure, the refrigerator compartment 120 is open/closed by one refrigerator compartment door 140. Thus, a load applied to the first lower hinge 170 is greater than in other types of refrigerators.

[0074] Thus, the first lower hinge 170 may need to have a considerably high strength so as to bear the load.

[0075] However, in the refrigerator 100 according to another embodiment of the present disclosure, the first lower hinge 170 may be directly supported by the support shaft 200 on the ground so that a strength required for the first lower hinge 170 can be slightly reduced.

[0076] Structures of the first lower hinge 170, the second lower hinge 190, and the support shaft 200 of the refrigerator according to one embodiment of the present disclosure will be described in detail with reference to FIGS. 7 and 8.

[0077] The first lower hinge 170 is used to rotatably support an upper refrigerator compartment door and to support a load of the refrigerator compartment door and includes a fixing portion 171 coupled to a body and an extension portion 172 that extends from the fixing portion 171 to the door.

[0078] The fixing portion 171 may closely contact and may be coupled to a front side of the body, and at least one of fastening holes 174 into which a screw may be fixed, may be formed in the fixing portion 171. A rotation shaft 173 through which the refrigerator compartment door may be rotated, may protrude from the extension portion 172.

[0079] Also, an insertion groove 175 into which a top end of the support shaft 200 may be inserted and coupled, may be formed in a bottom surface of the first lower hinge 170.

[0080] The second lower hinge 190 is used to rotatably support a lower freezer compartment door and to support a load of the freezer compartment door and includes a fixing portion 191 coupled to the body and an extension portion 192 that extends from the fixing portion 191 to the door.

[0081] The fixing portion 191 may closely contact and may be coupled to a bottom surface of the body, and at least one of fastening holes 193 into which a screw may be fastened, may be formed in the fixing portion 191.

[0082] The support shaft 200 is used to support the first lower hinge 170 and to rotatably support the freezer compartment door, perforates the freezer compartment door, and is vertically provided.

[0083] A top end of the support shaft 200 is inserted into and coupled to the insertion groove 175 of the first lower hinge 170, and a bottom end of the support shaft 200 is coupled to the support leg 210. To this end, a female screw portion 201 may be disposed on the bottom end of the support shaft 200, and the support leg 210 may include a male screw portion 211 that is screw-coupled to the female screw portion 201 and a bottom cap portion 212 supported on the ground.

[0084] The support shaft 200 may be provided to perforate the extension portion 192 of the second lower hinge 190. The support shaft 200 may be provided integrally with the second lower hinge 190, or may be provided separately from the second lower hinge 190 and then may be fixed and coupled to the second lower hinge 190.

[0085] Through this structure, the first lower hinge 170 of the refrigerator compartment door to which an excessive load is applied, in the bottom mounted freezer type refrigerator is directly supported by the support shaft 200 on the ground. Thus, deformation, such as sagging of the first lower hinge 170 of the refrigerator compartment door, can be completely prevented, and costs for designing the first lower hinge 170 having a high strength can be reduced.

[0086] Although not shown, a cam unit (not shown) may be provided between the doors 140 and 150 and

the lower hinges 170 and 190 so as to semi-automatically open/close the doors 140 and 150.

[0087] Although it will be most efficient to apply embodiments of the present disclosure to the bottom mounted freezer type refrigerator, embodiments of the present disclosure are not limited thereto and may be widely applied to a refrigerator having upper and lower storage compartments partitioned off by an intermediate wall and rotating doors that open/close the upper and lower storage compartments.

[0088] As described above, in accordance with embodiments of the present disclosure, a left lower hinge and a right lower hinge are separately designed to have minimum strengths at which deformation, such as sagging, does not occur, in consideration of a difference of loads applied to the left lower hinge and the right lower hinge so that costs can be reduced.

[0089] In addition, in a bottom mounted freezer type refrigerator, a lower hinge of an upper door is directly supported by a support shaft on the ground on which the refrigerator is installed, so that the lower hinge of the upper door can be prevented from sagging and costs for manufacturing a high-strength hinge can be reduced.

[0090] Although a few embodiments of the present disclosure 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 principles and spirit of the disclosure, the scope of which is defined in the claims and their equivalents.

Claims

1. A refrigerator comprising:

a body;
a first door rotatably coupled to one side of the body and having a first pocket portion disposed at a rear side of the first door so as to store food;
a second door rotatably coupled to the other side of the body and having a second pocket portion disposed at a rear side of the second door so as to store food;
a first upper hinge and a first lower hinge coupled to an upper part and a lower part of the first door so as to rotatably support the first door; and
a second upper hinge and a second lower hinge coupled to an upper part and a lower part of the second door so as to rotatably support the second door,
wherein the first lower hinge has a predetermined strength that resists deformation caused by a load of the first door and a load of the food stored in the first pocket portion, and
the second lower hinge has a predetermined strength that resists deformation caused by a load of the second door and a load of the food stored in the second pocket portion, and
the strength of the first lower hinge and the strength of the second lower hinge are different from each other.

2. The refrigerator of claim 1, wherein a storage capacity of the first pocket portion is smaller than a storage capacity of the second pocket portion, and
the strength of the first lower hinge is smaller than the strength of the second lower hinge.

3. The refrigerator of claim 1, wherein shapes of the first lower hinge and the second lower hinge are asymmetrical.

4. The refrigerator of claim 1, wherein each of the first lower hinge and the second lower hinge comprises a fixing portion coupled to the body and an extension portion, which extends from the fixing portion and from which a door rotation shaft protrudes, and
a thickness of the fixing portion of the first lower hinge and a thickness of the fixing portion of the second lower hinge are different from each other.

5. The refrigerator of claim 1, wherein each of the first lower hinge and the second lower hinge comprises a fixing portion coupled to the body and an extension portion, which extends from the fixing portion and from which a door rotation shaft protrudes, and
one of the first lower hinge and the second lower hinge further comprises a fillet portion disposed to reinforce connection strength of the fixing portion and the extension portion.

6. The refrigerator of claim 1, wherein a material used to form the first lower hinge and a material used to form the second lower hinge are different from each other.

7. The refrigerator of claim 6, wherein a material used to form one of the first lower hinge and the second lower hinge is a zinc alloy, and
a material used to form the other one of the first lower hinge and the second lower hinge is an aluminum alloy.

8. A refrigerator comprising:

a body;
an upper, first storage compartment and a lower, second storage compartment provided inside the body;
a first door and a second door rotatably coupled to the body so as to open/close the first storage compartment and the second storage compartment;
a first upper hinge and a first lower hinge coupled to an upper part and a lower part of the first door so as to rotatably support the first door;

a second lower hinge coupled to a lower part of the second door so as to rotatably support the second door;
a support shaft that perforates the second door and is vertically provided under the first lower hinge so as to support the first lower hinge; and
a support leg coupled to a bottom end of the support shaft and supported on a ground.

9. The refrigerator of claim 8, wherein the first lower hinge comprises an insertion groove into which a top end of the support shaft is inserted and is coupled.

10. The refrigerator of claim 8, wherein the second door comprises a through hole through which the support shaft passes.

11. The refrigerator of claim 8, wherein the second door rotates around the support shaft.

12. The refrigerator of claim 8, wherein the support shaft perforates the second lower hinge.

13. The refrigerator of claim 8, wherein the support shaft is formed integrally with the second lower hinge.

14. The refrigerator of claim 8, wherein the support shaft comprises a female screw portion through which the support shaft is coupled to the support leg, and
the support leg comprises a male screw portion screw-coupled to the female screw portion.

15. The refrigerator of claim 8, wherein the first storage compartment is partitioned off from the second storage compartment.

FIG. 1

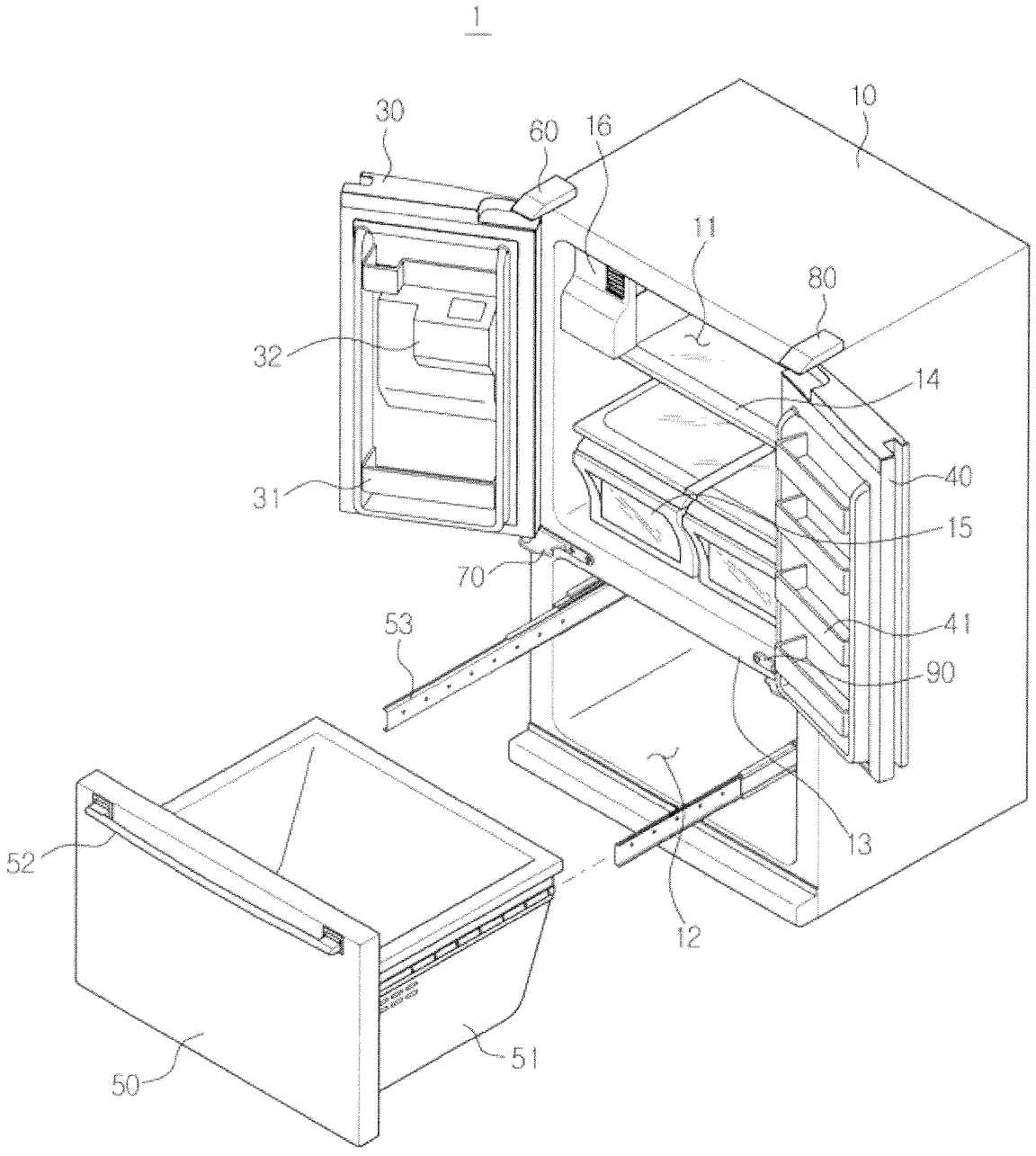


FIG. 2

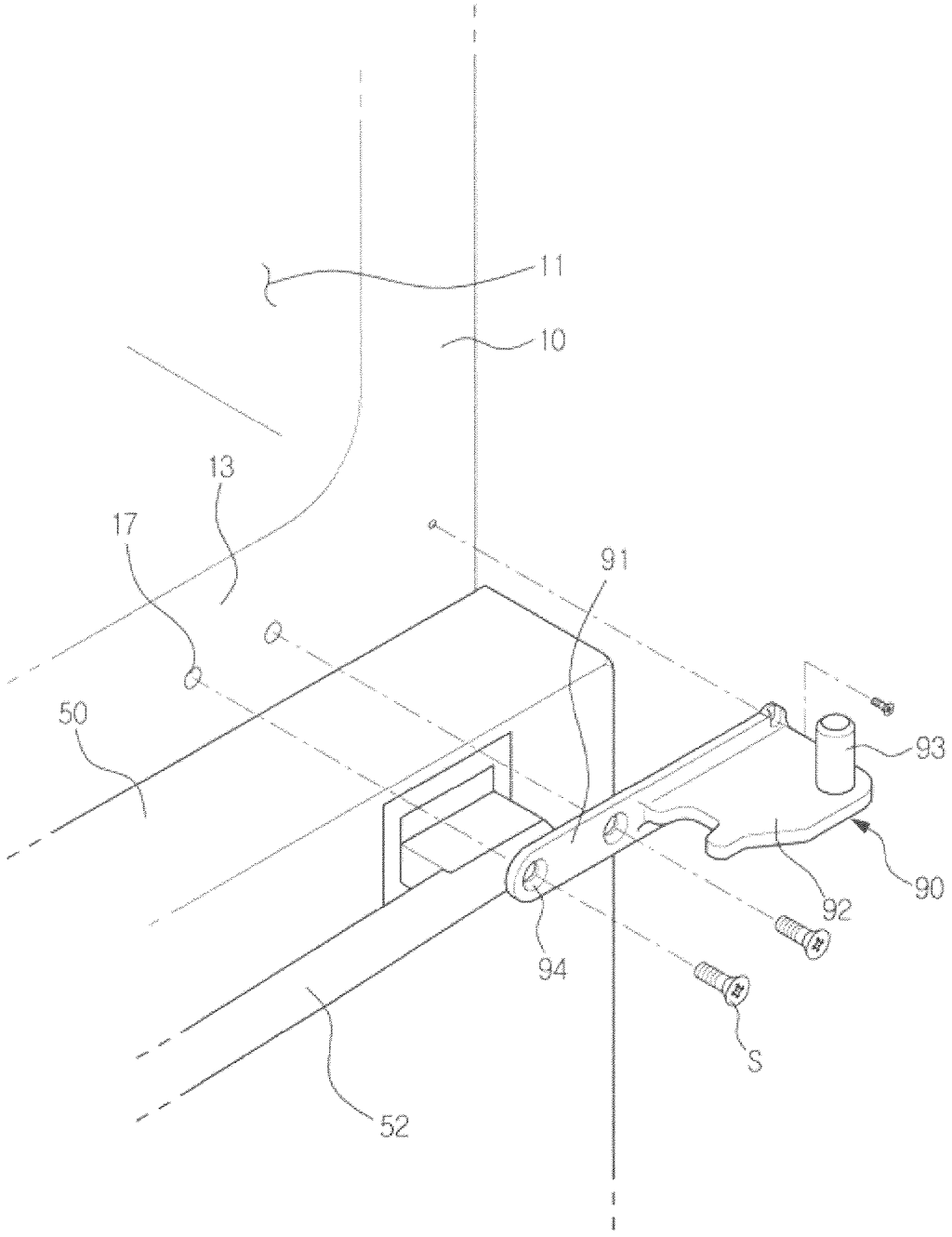


FIG. 3

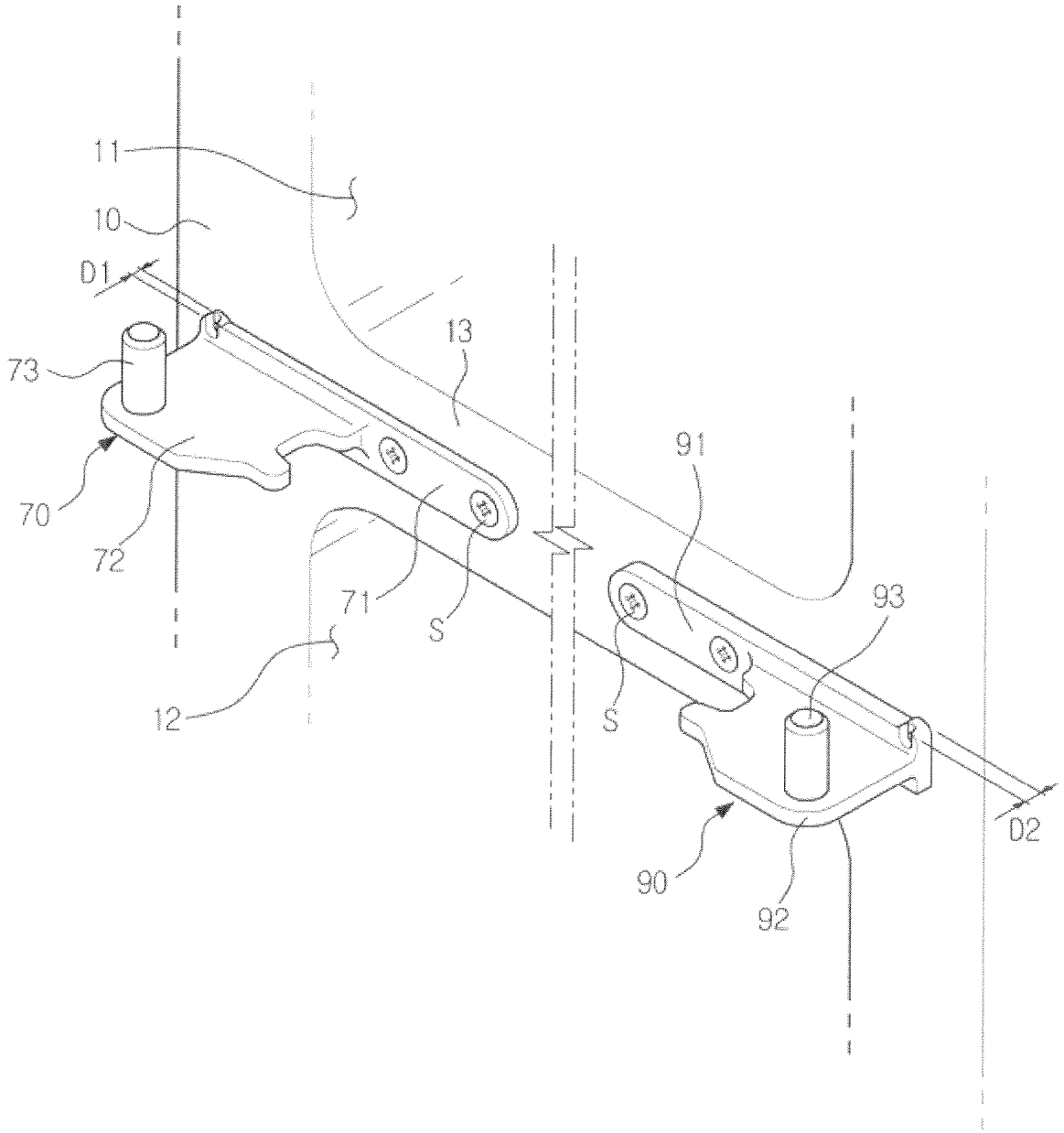


FIG. 4

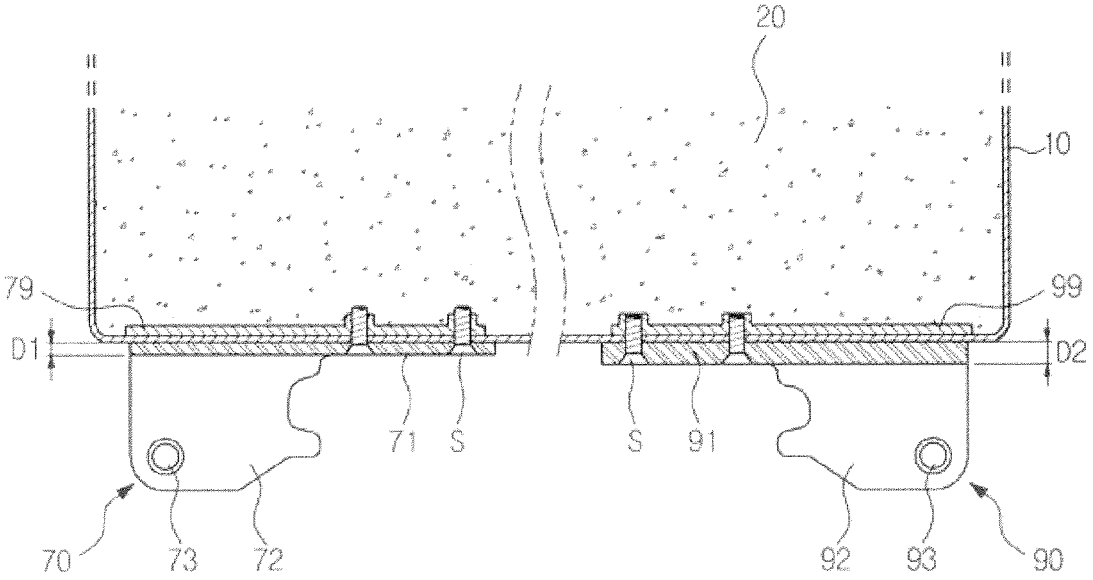


FIG. 5

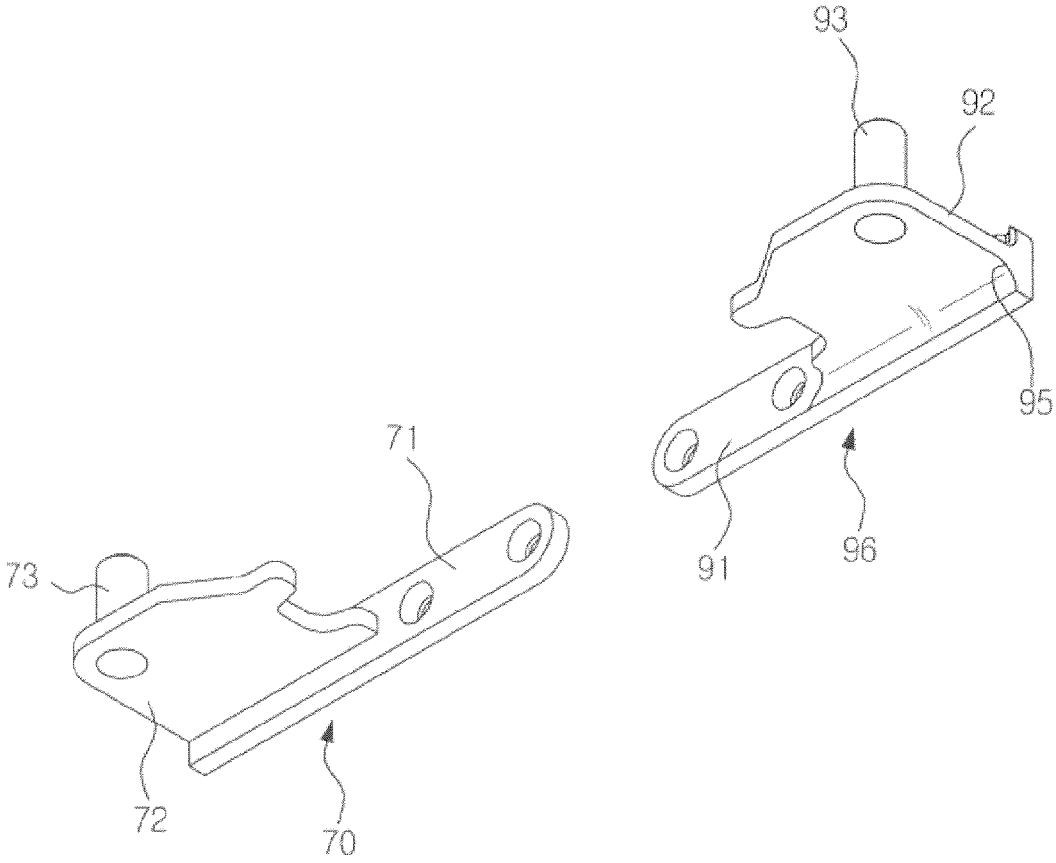


FIG. 6

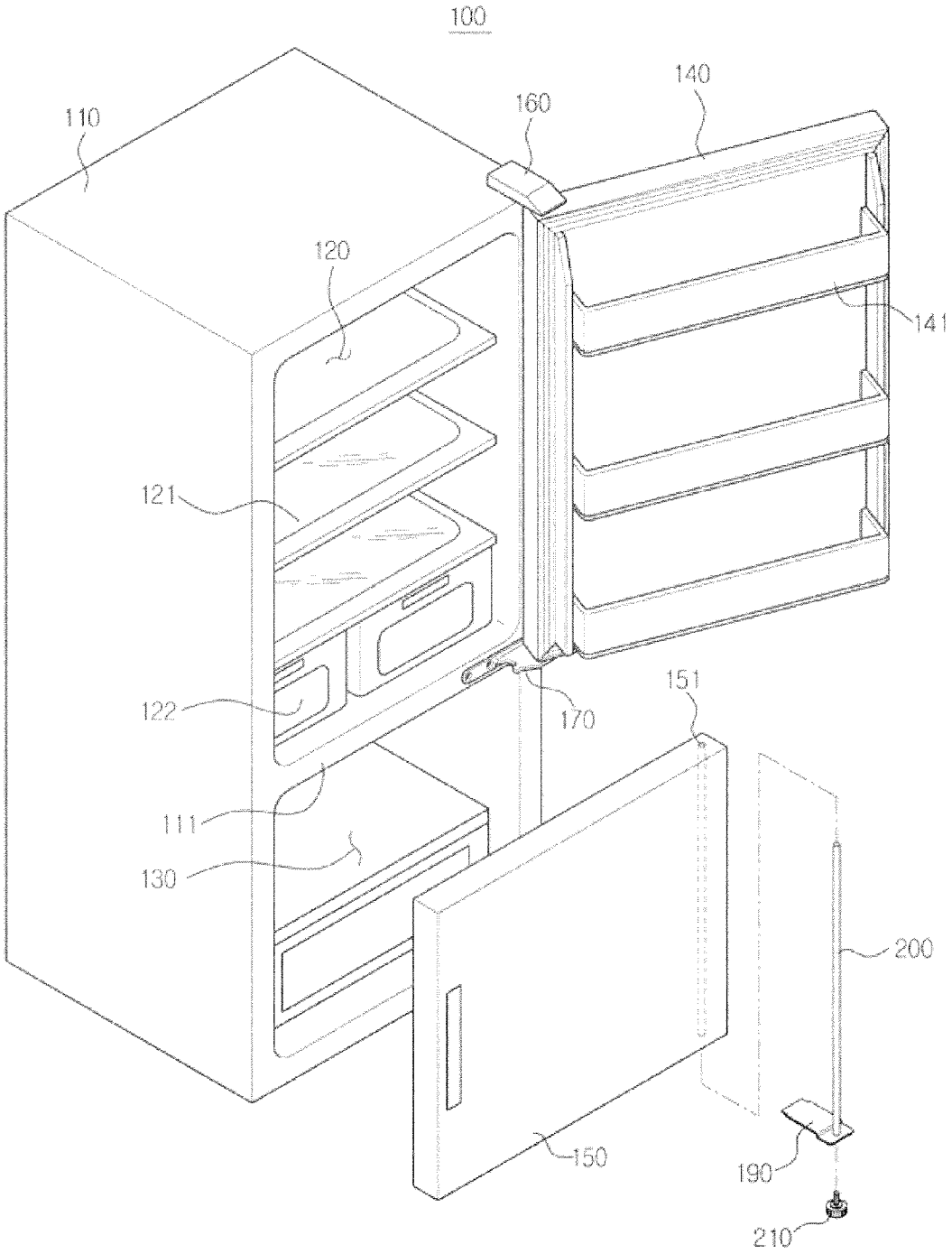


FIG. 7

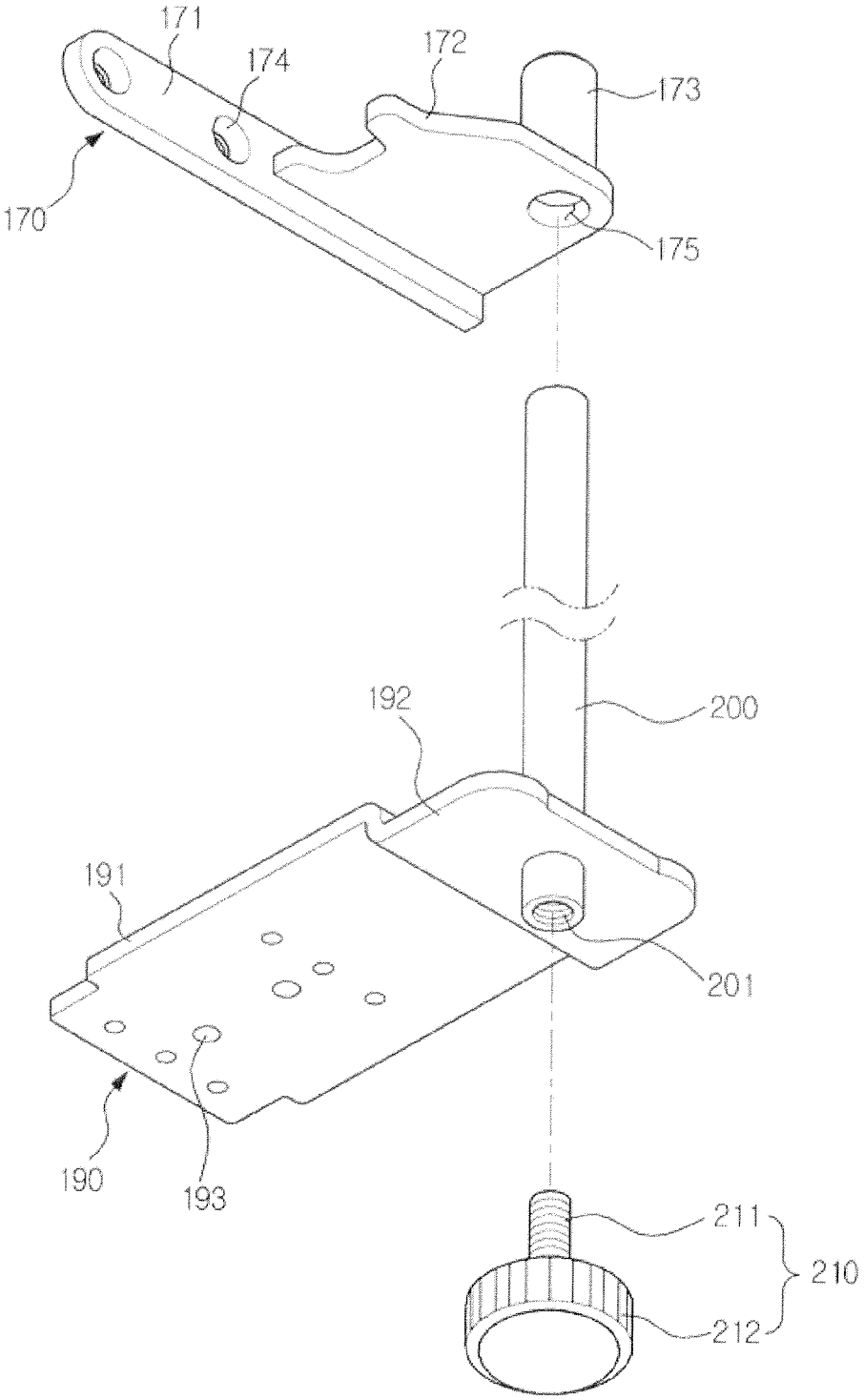


FIG. 8