

CLAIMS

[Claim 1]

A handle structure of a refrigerator comprising:

a handle made of a metal and having a hollow pipe shape for opening and closing a

5 door of a storage chamber of the refrigerator;

at least two mounting members fixed to a decorative surface of the door and supporting the handle;

a mounting member cover fixed to the decorative surface of the door for covering each mounting member, and

10 fixing members having substantially a same diameter as a hollow portion of the handle having the hollow pipe shape, the fixing members being provided in a same number as the at least two mounting members inserted into the handle,

wherein the handle has holes into which the respective mounting members are inserted,

15 wherein an outer surface of each mounting member inserted into the handle through the corresponding one of the holes is in contact with an inner periphery of the hole,

wherein each mounting member is fixed to the door at an end opposite to an end of the mounting member inserted into the handle, ~~and~~

20 wherein each fixing member inserted into the handle is fixed to a portion of the outer surface of the corresponding one of the mounting members inserted into the handle through the corresponding hole, ~~and~~

wherein the mounting member cover comprises a boss which penetrates through a boss hole formed in the door panel and beyond the rear surface of the door panel, when the mounting member cover is fixed to the door panel.

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[Claim 2]

The handle structure of claim 1, further comprising:

a reinforcing plate fixed to a rear surface of a door panel of the door opposite to the decorative surface, and fixed at a portion countering with the portion at which the corresponding mounting member is fixed on the decorative surface with same type fixing means such that a plate surface of the reinforcing plate is parallel to the rear surface,

wherein the reinforcing plate further comprises an other boss hole into which the boss of the mounting member cover is inserted, when the mounting member cover is fixed to the door panel.

[Claim ~~23~~]

The handle structure of claim 1 or 2,

wherein at least one hollow portion rib extending in a longitudinal direction of the handle stands erect from an inner surface of the hollow portion, and

wherein, when each fixing member is inserted into the handle and fixed to the portion of the outer surface of the corresponding mounting member inserted into the handle through the corresponding hole of the handle, the at least one hollow portion rib is inserted into at least one fitting portion of the fixing member formed at such a position as to correspond to a position of the at least one hollow portion rib.

[Claim ~~34~~]

The handle structure of claim ~~23~~,

wherein each fixing member is a fixing plate that is a steel plate having substantially the same diameter as the hollow portion,

wherein the at least one fitting portion is a cutout formed in the fixing plate, and

wherein, when each fixing plate is fixed to the portion of the outer surface of the corresponding mounting member inserted into the handle through the corresponding hole of the handle, the at least one hollow portion rib is inserted into the cutout in the fixing plate.

[Claim ~~45~~]

The handle structure of any one of claims 1 to 34,
wherein the handle has openings at both ends thereof in a longitudinal direction,
and
wherein the handle structure comprises handle caps that are attached to the
5 respective ends thereof by being pressure-inserted.

[Claim 56]

The handle structure of claim 32,
wherein each fixing member has a cylindrical shape having substantially the same
10 outer diameter as the hollow portion, and
wherein, when each fixing member is fixed to the portion of the outer surface of the
corresponding mounting member inserted into the handle through the corresponding hole of
the handle, the at least one hollow portion rib is inserted into at least one groove formed in
an outer surface of the fixing member at such a position as to correspond to the position of
15 the at least one hollow portion rib.

[Claim 67]

The handle structure of claim 56,
wherein the handle has openings at both ends thereof in a longitudinal direction,
20 wherein each fixing member has a claw on a side of the corresponding end of the
handle when having been inserted into from the corresponding end, and
wherein the handle structure further comprises handle caps each having a claw hole
on a side surface thereof, the handle caps being attached to the ends of the handle by
fitting the claw holes and the claws to one another.

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[Claim 87]

The handle structure of any one of claims 2-3 to 67,

wherein each fixing member has a protrusion that protrudes from a surface that is to be fixed to the mounting member,

wherein each mounting member has a hole in a portion of the outer surface thereof which the fixing member is fixed, the portion corresponding to the protrusion,

5 wherein, when each fixing member is fixed to the portion of the outer surface of the corresponding mounting member inserted into the handle through the corresponding hole of the handle, the protrusion is inserted into the hole of the mounting member.

[Claim ~~89~~]

10 The handle structure of any one of claims 1 to ~~78~~, wherein the holes of the handle into which the mounting members are inserted are formed such a shape that, when the mounting members are inserted into the holes, the entirety of the inner peripheries of the holes are in contact with the outer surfaces of the mounting members.

15 [Claim ~~910~~]

The handle structure of any one of claims 1 to ~~89~~, ~~further comprising:~~
~~a mounting member cover fixed to the decorative surface of the door for covering~~
~~each mounting member,~~

20 wherein position fixing means is formed in an inner side of the mounting member cover to fix the position of the corresponding mounting member inside the mounting member cover.

[Claim ~~1011~~]

25 The handle structure of any one of claims ~~21~~ to ~~910~~, ~~further comprising:~~
~~a reinforcing plate fixed to a rear surface of a door panel of the door opposite to the decorative surface, and fixed at a portion countering with the portion at which the corresponding mounting member is fixed on the decorative surface with same type fixing means such that a plate surface of the reinforcing plate is parallel to the rear surface, and~~

wherein both end portions of the reinforcing plate in a direction perpendicular to a longitudinal direction of the handle are bent in directions away from the rear surface and form wobble prevention portions.