A REFRIGERATOR COMPRISING A DOOR HANDLE

(54) Title: A REFRIGERATOR COMPRISING A DOOR HANDLE

(57) Abstract: The present invention relates to a refrigerator (1) comprising one or more doors (2, 102) for providing access to the refrigerating or freezing compartments and a single type door handle (7), mounted to the side panel (6) and to the top side or the bottom side panels (4, 5) of the door (2, 102) and utilized in different positions on the same door (2, 102) or on different doors (2, 102).

Published:
— without international search report and to be republished upon receipt of that report (Rule 48.2(g))
Description

A REFRIGERATOR COMPRISING A DOOR HANDLE

[0001] The present invention relates to a refrigerator comprising a door handle which can be utilized in different positions.

[0002] In refrigerators, generally two or more doors are provided for closing the refrigerating and freezing compartments and the compartments are positioned either one above the other or side by side. The refrigerator doors are opened, closed by the user by means of a door handle. Sometimes door handles having different designs are utilized in the doors for the purposes of ergonomic utilization and esthetic appearance. For example in a double door refrigerator with one above the other, symmetrical door handles mounted on the side walls of both doors perpendicular to each other are utilized for opening, closing the upper or the lower door, however the cost of the symmetrical door handles is high since they are manufactured separately for the upper and lower doors.


[0004] In the Korean Patent Application No. KR20050038821, door handles utilized in the upper and lower doors of refrigerators are explained.

[0005] In the Korean Patent Application No. KR20050038819, horizontal door handles mounted on the upper and lower doors of refrigerators suitable for use by right handed or left handed persons are explained.

[0006] In the Korean Patent Application No. KR20060054933, vertical door handles mounted on the upper and lower doors of refrigerators to be suitable for use by right handed or left handed persons are explained.

[0007] The aim of the present invention is the realization of a refrigerator comprising a single type door handle which can be mounted on the doors in different positions.

[0008] The refrigerator realized in order to attain the aim of the present invention is explicated in the claims.

[0009] The refrigerator of the present invention comprises a door handle manufactured as a single type and which can be utilized on different doors or in different positions on the same door.
[0010] The door handle consists of two pieces, a first grip portion and a second grip portion.

[0011] The first grip portion is configured as a flat rod, having a flat contact face situated on one end and a support situated on the other end providing thereof to be mounted on the top side panel or the bottom side panel of the door. When the door handle is desired to be utilized in another door other than the one where it is attached, the support is dismounted from the top side panel or the bottom side panel of the door where it is fastened and mounted on the top side panel or the bottom side panel of the other door. When the door handle is desired to be utilized in another position on the same door, the position of the support in the top side panel or the bottom side panel of the door is changed.

[0012] The second grip portion is configured like a curvilinear rod, and joined with the first grip portion in the same axis by one end of which being seated on the contact face of the first grip portion. The other end of the second grip portion extends by turning towards the side panel of the door and is mounted on the side panel by means of a connection plate. When the door handle is desired to be utilized in another door other than the one where it is attached, or in another position on the same door, the second grip portion is dismounted from the first grip portion and is joined with the first grip portion by being seated again on the contact face of the first grip portion after being rotated 180 degrees around its axis and the connection plate is dismounted from the side panel of the door where it is fastened and mounted on the side panel of the other door or the other side panel on the same door.

[0013] The door handle comprises a housing arranged on the contact face of the first grip portion and a protrusion situated on its end seated on the second grip portion which is inserted into the housing thus providing to join the first grip portion with the second grip portion. The housing and the protrusion provide the second grip portion to be snap-fittingly fastened to the first grip portion in both positions.

[0014] The door handle furthermore comprises two holes situated on the connection plate providing the connection plate to be mounted to the
second grip portion and to the side panel of the door and a pin disposed on the end of the second grip portion which is fitted into the hole. The second grip portion is mounted snap-fittingly to one of the holes on the connection plate by means of the pin on its end. The connection plate is mounted to the side edge of the upper or lower door by means of the other hole thereon and a screw.

[0015] In an embodiment of the present invention, the refrigerator comprises a lower door and an upper door, and if desired, the door handle mounted on the lower door can be dismounted and mounted on the upper door. In this embodiment, the support of the first grip portion is dismounted from the top side panel of the lower door and fastened to the bottom side panel of the upper door and the second grip portion is removed from the first grip portion to be seated in the contact face after rotating 180 degrees around its axis to be again joined with the first grip portion and is dismounted from the side panel of the lower door whereto it is mounted and attached to the side panel of the upper door by means of the connection plate.

[0016] In the refrigerator of the present invention, it is sufficient to only dislodge the second grip portion from the first grip portion and after rotating 180 degrees to again join with the first grip portion in order to mount a door handle prepared during manufacturing for mounting on the lower door on the upper door if necessary or a door handle prepared for mounting on the upper door to be mounted on the lower door if necessary or the door handle manufactured for mounting on the right (or left) side in the same door to be mounted to the left (or right) side if necessary. Since a single type door handle is utilized in different doors or in different position on the same door, advantage is provided in inventory and production costs.

[0017] The refrigerator realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

[0018] Figure 1 - is the schematic view of a refrigerator.

[0019] Figure 2 - is the exploded view of a door handle.

[0020] Figure 3 - is the perspective view of a door handle in the position of mounting on the door.

[0021] Figure 4 - is the perspective view of a door handle in the intermediate
position while being prepared for use in another position.

[0022] Figure 5 - is the perspective view of a door handle in the position of mounting on the door in another position.

[0023] The elements illustrated in the figures are numbered as follows:

1. Refrigerator
2. , 102 Door
3. Front panel
4. Top side panel
5. Bottom side panel
6. Side panel
7. Door handle
8. Contact face
9. Support
10. First grip portion
11. Connection plate
12. Second grip portion
13. Housing
14. Protrusion
15. Hole
16. Pin

[0024] The refrigerator (1) comprises one or more doors (2, 102) providing access to the refrigerating or freezing compartments, a front panel (3) disposed on the front side of the door (2, 102), a rear panel (not shown in the figures) disposed on the rear side of the door (2, 102), a horizontal top side panel (4) that joins the front panel (3) with the rear panel, extending backwards from the upper edge of the front panel (3), a horizontal bottom side panel (5), extending backwards from the lower edge of the front panel (3), two vertical side panels (6) extending backwards from the lateral sides of the front panel (3) and joining the top side panel (4) and the bottom side panel (5) and a door handle (7), one end of which is fastened to the top side panel (4) or the bottom side panel (5) of the door (2, 102) and the other end to one of the side panels (6) of the door (2, 102).

[0025] The door handle (7) comprises
a first grip portion (10) configured as a flat rod having a flat contact face (8) situated at one end and a support (9) at the other end, providing thereof to be mounted to the top side panel (4) or the bottom side panel (5), and wherein, when desired to be utilized in another door (2, 102) other than the door (2, 102) whereto it is fastened, the support (9) is dismounted from the top side panel (4) or the bottom side panel (5) of the door (2, 102) whereto it is fastened and mounted on the top side panel (4) or the bottom side panel (5) of the other door (2, 102) or wherein, when desired to be utilized in another position on the door (2, 102), the position of the support (9) on the top side panel (4) or the bottom side panel (5) is changed and
- a second grip portion (12) configured as a curved rod, joined end to end with the first grip portion (10) in the same axis (E) by one end of which being seated on the contact face (8) and the other end of which extends by turning toward the side panel (6), which has a connection plate (11) on its end extending to the side panel (6) for mounting thereof to the side panel (6), and when desired to be utilized on a door (2, 102) other than the door (2, 102) whereto it is fastened or desired to be utilized in another position on the door (2, 102), which is joined with the first grip portion (10) by being seated again on the contact face (8) after being rotated 180 degrees around the axis (E) of the first grip portion (10) and which is dismounted from the side panel (6) of the door (2, 102) whereto it is fastened and mounted on the side panel (6) of the other door (2, 102) or to the other side panel (6) of the same door (2, 102) by means of the connection plate (11).

[0026] The door handle (7) comprises a housing (13) on the contact face (8) of the first grip portion (10) and a protrusion (14) situated on the end of the second grip portion (12) seated on the contact face (8) which provides the joining of the second grip portion (12) with the first grip portion (10) by being inserted into the housing (13) (Figure 2). The housing (13) and the protrusion (14) provide the second grip portion (12) to be snap-fittingly fastened to the first grip portion (10).

[0027] The door handle (7) furthermore comprises two holes (15) situated on the
connection plate (11) and which provide the connection plate (11) to be mounted to the second grip portion (12) and to the side panel (6) of the door (2, 102) and a pin (16) disposed on the end of the second grip portion (12) which is inserted into one of the holes (15) (Figure 2). The connection plate (11) is fastened to the end of the second grip portion (12) by means of the first hole (15) and the pin (16) and fastened to the side panel (6) of the door (2, 102) by means of the second hole (15) and a screw inserted into the second hole (15).

In an embodiment of the present invention, the refrigerator (1) comprises a lower door (2) and an upper door (102), and if desired, the door handle (7) mounted on the lower door (2) can be dismounted and mounted on the upper door (102). In this embodiment, the support (9) of the first grip portion (10) is dismounted from the top side panel (4) of the lower door (2) and fastened to the bottom side panel (5) of the upper door (102) and the second grip portion (12) is removed from the first grip portion (10) to be seated in the contact face (8) after being rotated 180 degrees around its axis (E) to be joined again with the first grip portion (10) and is dismounted from the side panel (6) of the lower door (2) whereon it is mounted and fastened to the side panel (6) of the upper door (102) by means of the connection plate (11).

In this embodiment, a door handle (7) produced to be mounted on the lower door (2) is enabled to be mounted on the upper door (102) when required or a door handle (7) prepared for mounting on the upper door (102) is enabled to be mounted on the lower door (2) when required.

In the refrigerator (1) of the present invention, moreover if the door handle (7) is produced to be mounted for example on the left side of the door (2, 102) it can also be utilized on the right side of the door (2, 102) by rotating the second grip portion (12) 180 degrees over the first grip portion (10).

The door handle (7) is not produced in different molds for using on different doors (2, 102) or in different positions on the same door (2, 102) and provides a cost advantage since it is produced as a single type for using on each door (2, 102) or for using in the different positions on the same door (2, 102).
[0032] It is to be understood that the present invention is not limited by the embodiments disclosed above and a person skilled in the art can easily introduce different embodiments. These should be considered within the scope of the protection postulated by the claims of the present invention.
Claims

1. A refrigerator (1) comprising one or more doors (2, 102) for providing access to the refrigerating or freezing compartments, a front panel (3) disposed on the front side of the door (2, 102), a horizontal top side panel (4) that extends backwards from the upper edge of the front panel (3), a horizontal bottom side panel (5), extending backwards from the lower edge of the front panel (3), two vertical side panels (6) extending backwards from the lateral sides of the front panel (3) for joining the top side panel (4) and the bottom side panel (5) and a door handle (7), one end of which is fastened to the top side panel (4) or the bottom side panel (5) of the door (2, 102) and the other end to one of the side panels (6) of the door (2, 102), and characterized in that the door handle (7) comprising - a first grip portion (10) configured as a flat rod having a flat contact face (8) situated at one end and a support (9) at the other end, providing thereof to be mounted to the top side panel (4) or the bottom side panel (5), and wherein, when desired to be utilized in another door (2, 102) other than the door (2, 102) whereto it is fastened, the support (9) is dismounted from the top side panel (4) or the bottom side panel (5) of the door (2, 102) whereto it is fastened and mounted on the top side panel (4) or the bottom side panel (5) of the other door (2, 102) or wherein, when desired to be utilized in another position on the door (2, 102), the position of the support (9) on the top side panel (4) or the bottom side panel (5) is changed and - a second grip portion (12) configured as a curved rod, joined end to end with the first grip portion (10) in the same axis (E) by one end of which being seated on the contact face (8) and the other end of which extends by turning toward the side panel (6), which has a connection plate (11) on its end extending to the side panel (6) for mounting thereof to the side panel (6), and when desired to be utilized on a door (2, 102) other than the door (2, 102) whereto it is fastened or desired to be utilized in another position on the door (2, 102), which is joined with the first grip portion (10) by being seated again on the contact face (8) after being rotated 180 degrees around the axis (E) of the first grip portion (10) and which is dismounted from the side panel (6) of the door (2, 102) whereto it is fastened and mounted on the side panel (6) of the other door (2, 102) or to the other side panel (6) of the same door (2, 102) by means of the connection.
plate (11).

2. A refrigerator (1) as in Claim 1, **characterized in that** the door handle (7) comprising a housing (13) situated on the contact face (8) of the first grip portion (10) and a protrusion (14) situated at the end of the second grip portion (12) seated in the contact face (8) and which provides the joining of the second grip portion (12) with the first grip portion (10) by being inserted into the housing (13).

3. A refrigerator (1) as in Claim 1 or 2, **characterized in that** the door handle (7) comprising two holes (15) situated on the connection plate (11), which provide the connection plate (11) to be mounted to the second grip portion (12) and to the side panel (6) of the door (2, 102) and a pin (16) disposed on the end of the second grip portion (12) which is inserted into one of the holes (15).

4. A refrigerator (1) as in any one of the above Claims, **characterized in that** the door handle (7) which is mounted on the lower door (2) and if desired dismounted from the lower door (2) and mounted on the upper door (102), and comprising - a first grip portion (10) having the support (9) dismounted from the top side panel (4) of the lower door (2) and fastened to the bottom side panel (5) of the upper door (102) and - a second grip portion (12) which is joined with the first grip portion (10) by being dismounted from the first grip portion (10) and seated in the contact face (8) after being rotated 180 degrees around its axis (E) and having the connection plate (11) providing thereof to be dismounted from the side panel (6) of the lower door (2) to be fastened to the side panel of the upper door (102).