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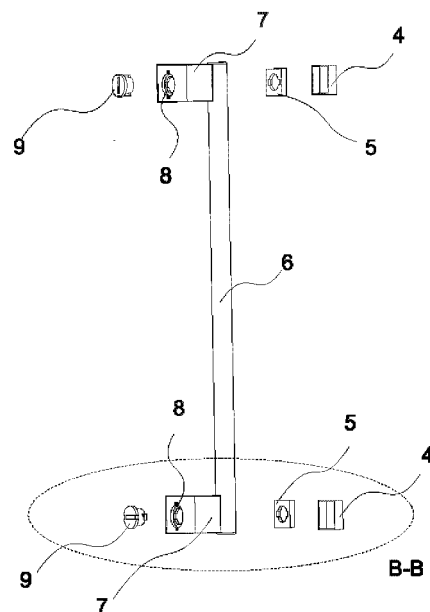
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(54) A COOLING APPLIANCE HAVING AN IMPROVED HANDLE

(57) The present invention relates to a cooling appliance (1) comprising; a body (2) wherein the articles to be cooled are placed; a door (3) pivotable attached onto the body (2) comprising a pair of slots; a connector (4)

placed inside the slot; a counterpart connector (5) placed inside the connector (4); a handle (6) having an element (7) extending in between the body (2) and the handle (6) wherein the element (7) comprises a slot (8).

Figure 3



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Description

[0001] The present invention relates to a cooling appliance, in particular to a cooling appliance having improved handle wherein the handle can be selectively mounted by a user for left-hand swing or right-hand swing.

[0002] The cooling appliances are provided with a wide range of handle types. Most of the cooling appliances are provided with a reversible hinge system and a reversible handle which allows the users to selectively mount the door depending on the location of the cooling appliance. The user may mount the door to the body for either left-hand or right-hand swing. Many users need to change the swing direction of the door so as to meet their need. As a result, the customer may change by virtue of the reversible hinge system and the reversible handle, the swing direction of the door prior to installing the refrigerator at its designated location in the kitchen such that the door opens and closes in conformity with the kitchen layout.

[0003] In such cooling appliances, operational parts such as hinges, the handle and the parts required to assemble the hinges and the handle onto the body are all rendered transferrable from one side of the door to an opposite side of the door when reversing the swing direction of the door. As a result, the user is enabled to easily reverse the swing direction of the door without the need of extra elements and maintenance personnel.

[0004] The customer removes the parts which conceal the demountable elements of the handle system, along with the parts related to hinges, in order to change the swing direction of the door. Subsequently, the customer demounts the reversible handle, along with the parts, from their current position on the door and re-mounts the same to an opposite side of the door.

[0005] A prior art publication in the technical field of the present invention may be referred to as WO2015144247A1 among others, the document disclosing a handle assembly for use in a door of a refrigeration appliance.

[0006] A drawback of this type of a handle is that the complexity of the parts increases the manufacturing costs including the costs for material and labor.

[0007] A prior art publication in the technical field of the present invention may be referred to as US20130285527A1 among others, the document disclosing a handle for use in a door of a refrigeration appliance and an assembly method thereof.

[0008] A drawback of this type of a handle is that the screws and assembly of the same increases the manufacturing costs including the costs for material and labor.

[0009] An objective of the present invention is to decrease the number of screws used during assembly which in turn will affect the manufacturing costs including the costs for material and labor in a positive manner.

[0010] Another objective of the present invention is to provide ease of assembly during manufacturing by elim-

inating the need to use pressurized air.

[0011] Another objective of the present invention is to provide the users with a handle wherein the users themselves may easily change the location of the handle in case they change the swing direction of the door.

[0012] The method realized to achieve the aim of the present invention and disclosed in the first claim and the dependent claims comprises a cooling appliance. The cooling appliance comprises a body and a door pivotable attached to the body. The door comprises at least a pair of slots provided on a frame wherein the frame comprises a pair of vertical and perpendicular slots. The slots are preferably provided on the vertical panels and on both sides of the door. Prior to the injection of the insulation material, a connector part is placed inside the said slots. Afterwards, the insulation material is injected into the volume of the door. As a result, the connector is unmovably fixed inside the slots. A counterpart connector is placed inside the connector providing a rigid surface onto which further parts can be attached. A handle comprising an element wherein the element comprises hole is placed onto the door such that the hole of the handle is configured to coincide with the counterpart connector. A fixing part is inserted inside the counterpart connector by passing through the hole. Afterwards, the fixing part is rotated inside the counterpart connector, therefore releasable fixing the handle onto the door.

[0013] In an embodiment of the invention, the handle comprises two elements spaced apart on the handle by a distance. The elements are used to attach the handle onto the door. Use of two elements provides a rigid and strong attachment between the handle and the door.

[0014] In an embodiment of the invention, the hole has a stepped structure and the fixing part has corresponding shape such that the fixing part upon being placed inside the hole forms a flush surface with the handle.

[0015] In an embodiment of the invention, the fixing part comprises a protrusion. The shape of the protrusion is configured to match the shape of a first cutout provided on the hole. The protrusion and the first cutout provide easy assembly during the insertion of the fixing part into the hole.

[0016] In an embodiment of the invention, the protrusion has an inclined surface providing ease of assembly upon inserting the fixing part into the counterpart connector.

[0017] In an embodiment of the invention, the counterpart connector comprises a second cutout wherein the second cutout matches the shape of the protrusion. The second cutout helps guide the movement of the fixing part.

[0018] By means of the present invention, easy assembly of the handle onto the door is achieved.

[0019] Another advantageous effect provided by means of the handle having easy assembly is that the assembly line workers do not need to use pressurized air which in turn decreases energy related costs.

[0020] Another advantageous effect provided by

means of the handle having easy assembly is that the users themselves may easily change the position of the handle thereby change the swing direction of the door so as to meet their need. This helps reduce maintenance related costs.

[0021] The drawings are not meant to delimit the scope of protection as identified in the claims nor should they be referred to alone in an effort to interpret the scope identified in the claims without recourse to the technical disclosure in the description of the present invention.

Figure 1 - is a front view of the cooling appliance
 Figure 2 - is an enlarged view of dashed A-A lines in Figure 1
 Figure 3 - is an exploded view of the handle
 Figure 4 - is an enlarged view of dashed B-B lines in Figure 3
 Figure 5 - is an isolated view of the counterpart connector and the fixing part

[0022] The following numerals are assigned to different parts demonstrated in the drawings and referred to in the present detailed description of the invention:

1. Cooling appliance
2. Body
3. Door
4. Connector
5. Counterpart connector
6. Handle
7. Element
8. Slot
9. Fixing part
10. Protrusion

[0023] The present invention relates to a cooling appliance (1) comprising; a body (2) wherein the articles to be cooled are placed; a door (3) pivotable attached onto the body (2) comprising a pair of slots; a connector (4) placed inside the slot; a counterpart connector (5) placed inside the connector (4); a handle (6) having an element (7) extending in between the body (2) and the handle (6) wherein the element (7) comprises a hole (8); The present invention further relates to a fixing part (9) releasable fixing the handle (6) onto the door (3) wherein the fixing part (9) is configured to pass through the hole (8) and be inserted inside the counterpart connector (5) upon being rotated. The door (3) comprises a frame having two vertical panels and two perpendicular panels. The perpendicular panels comprise at least a slot wherein the connector (4) is placed. The connector (4) is placed inside the said slots prior to injection of insulation material inside the door (3). Therefore, the connector (4) provides a stable surface whereon the counterpart connector (5) is placed. The handle (6) comprises an element (7) extending in-between the handle (6) and the door (2). The element (7) comprises a hole (8). The fixing part (9) releasable fixes the handle (6) onto the door (3). The fixing part

(9) passes through the hole (8) provided on the element (7) and is inserted inside the counterpart connector (5) upon being rotated. By means of the fixing part (9), the element (7) and therefore the handle (6) is releasable placed onto the door (3). When and if the users need to change the swing direction of the door (3), the hinge is replaced to the other side of the body (2). The door (3) is demounted and is attached to the other side of the body (3). The users then rotate the fixing part (9) releasing the fixing part (9) from the door (3) and the handle (6). Afterwards, the user removes the plugs placed onto the slots on the other side of the door (3), rotates the handle (6) and places the handle onto the slots on the other side of the door (3). Lastly, the user fixes the handle (6) onto the door (3) by inserting the fixing part (9) through the hole (8) provided on the element (7). By use of the fixing part (9), the users are provided with a handle (6) having ease of assembly and disassembly.

[0024] The present invention relates to a cooling appliance comprising two elements (7) distanced apart from one another on the handle (6). The handle (6) is in the form of a bar with the elements (7) provided at each end. Use of multiple elements (7) provides rigidity for the handle (6).

[0025] The present invention relates to a cooling appliance comprising the hole (8) wherein the hole (8) has a stepped structure and that the fixing part (9) forms a flush surface with the element (7) upon being seated inside the hole (8). The hole (8) has a stepped structure into which the fixing part (9) is seated in a flushly manner. Therefore, the fixing part (9) does not form a protrusion which negatively affects the quality perception of the cooling appliance (1).

[0026] In an embodiment of the invention, the fixing part (9) comprises a protrusion (10) on a circumferential surface thereof and that the element (7) comprises a first cutout configured to match the shape of the protrusion (10). The protrusion (10) passes through the cutout provided on the element (7). The protrusion (10) and the cutout provides guidance for the fixing part (9).

[0027] In an embodiment of the invention, the protrusion (10) has an inclined surface. The inclined surface the protrusion (10) has, provides ease of rotation for the fixing part (9) inside the counterpart connector (5).

[0028] In an embodiment of the invention, the counterpart connector (5) comprises a second cutout configured to match the shape of the protrusion (10). A second cutout is provided on the counterpart connector (5) wherein the shape of the second cutout fits the shape of the protrusion (10). As the fixing part (9) is rotated inside the counterpart connector (5), the fixing part (9) locks onto the counterpart connector (5).

[0029] In an embodiment of the invention, the fixing part (9) comprises a slit facilitating the rotation of the fixing part (9) inside the element (7). The slit is configured to match the shape of a tip of a screw.

[0030] By means of fixing the handle (6) onto the body (2) via the fixing part (9), the position of the handle (6)

on the door (3) can be easily changed, providing ease of use for the user.

[0031] Another advantageous effect provided by means of the handle (6) is that the assembly line operator does not need to use pressurized air which normal screws require. As a result, less energy is consumed. 5

Claims

1. A cooling appliance (1) comprising; 10
 - a body (2) wherein the articles to be cooled are placed;
 - a door (3) pivotable attached onto the body (2) comprising a pair of slots; 15
 - a connector (4) placed inside the slot;
 - a counterpart connector (5) placed inside the connector (4);
 - a handle (6) having an element (7) extending in between the body (2) and the handle (6) wherein the element (7) comprises a hole (8); 20

characterized by

 - a fixing part (9) releasable fixing the handle (6) onto the door (3) wherein the fixing part (9) is configured to pass through the hole (8) and be inserted inside the counterpart connector (5) upon being rotated. 25
2. A cooling appliance (1) according to claim 1, **characterized by** two elements (7) distanced apart from one another on the handle (6). 30
3. A cooling appliance (1) according to any preceeding claim, **characterized in that** the hole (8) has a stepped structure and that the fixing part (9) forms a flush surface with the element (7) upon being seated inside the hole (8). 35
4. A cooling appliance (1) according to any preceeding claim, **characterized in that** the fixing part (9) comprises a protrusion (10) on a circumferential surface thereof and that the element (7) comprises a first cutout configured to match the shape of the protrusion (10). 40
5. A cooling appliance (1) according to claim 4, **characterized in that** the protrusion (10) has an inclined surface. 45
6. A cooling appliance (1) according to claim 4 to 5, **characterized in that** the counterpart connector (5) comprises a second cutout configured to match the shape of the protrusion (10). 50
7. A cooling appliance (1) according to any preceeding claim, **characterized in that** the fixing part (9) comprises a slit facilitating the rotation of the fixing part (9) inside the element (7). 55

Figure 1

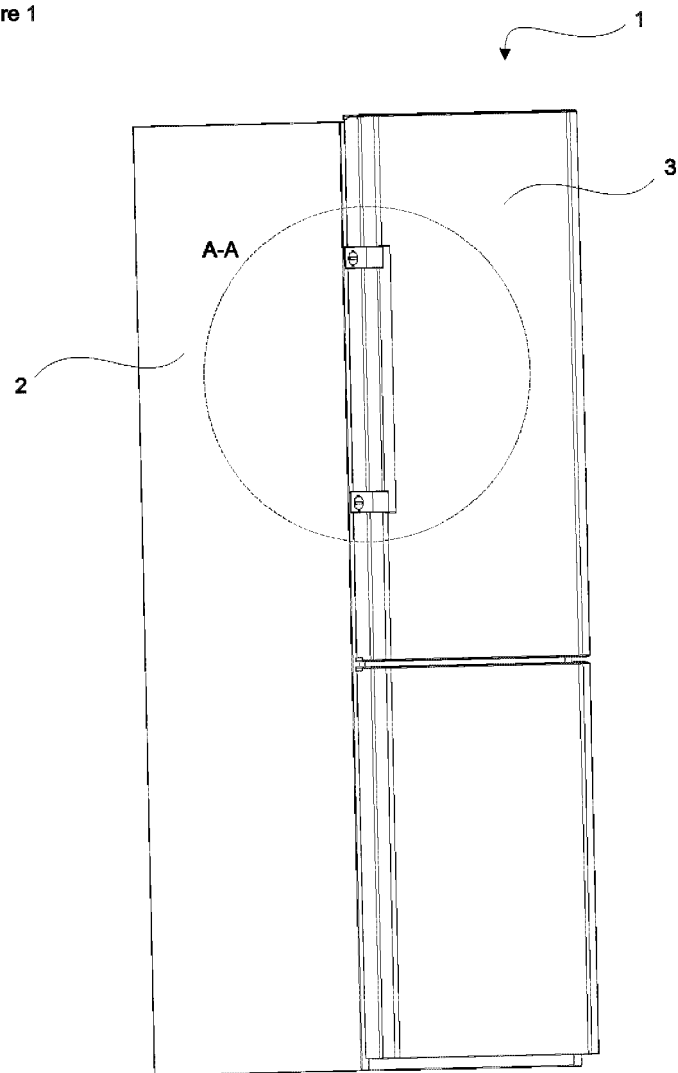


Figure 2

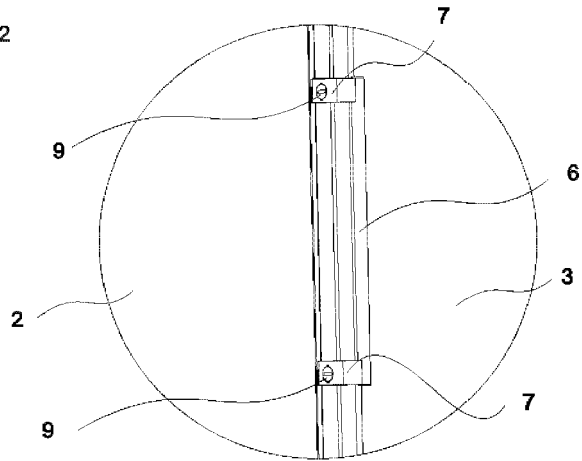


Figure 3

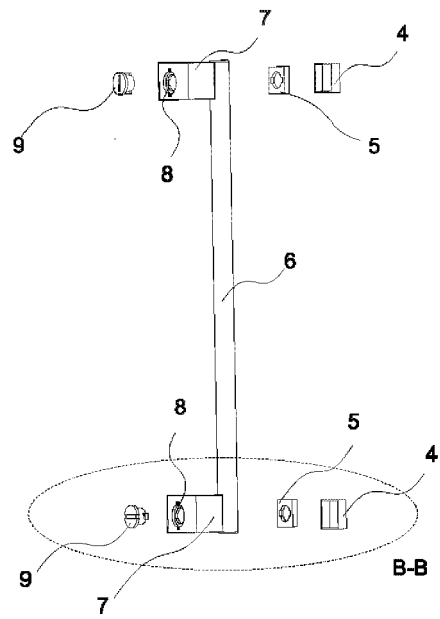


Figure 4

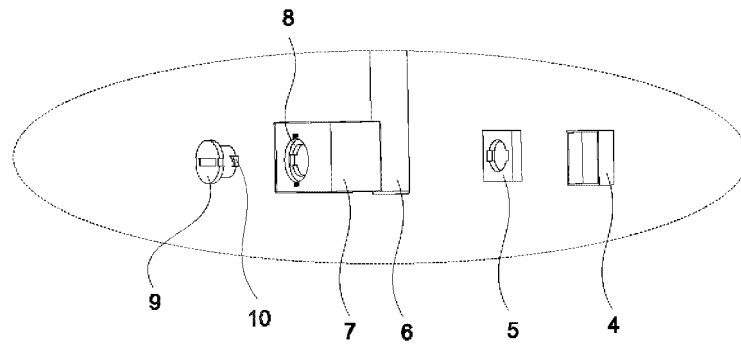
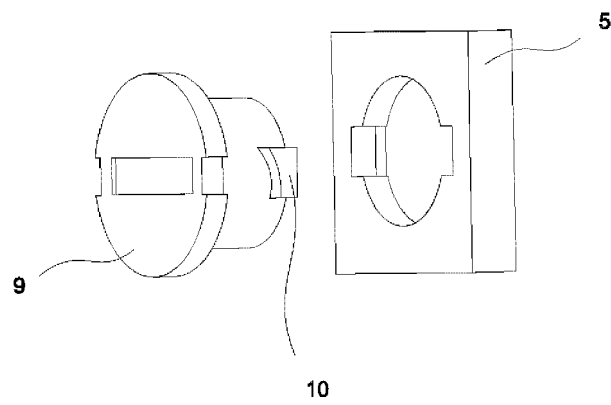


Figure 5





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 EP 21 16 5716

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