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(54) **Hinge for a door of a cooling appliance**

(57) Hinge that comprises a base (2) suitable for being connected with connection means to the cooling appliance, and a bolt (3). Said bolt is connected in a fixed manner to the base (2) and comprises a bolt channel. The bolt (3) is housed in the door of the cooling appliance. The hinge is suitable for passing a supply cable from the cooling appliance to the door through said bolt channel. The base (2) also comprises on its lower face (9) a main channel (7) suitable for housing part of the supply cable. Said main channel (7) and the bolt channel (4) are connected in such a way that the supply cable is located in the lower part of the hinge (1).

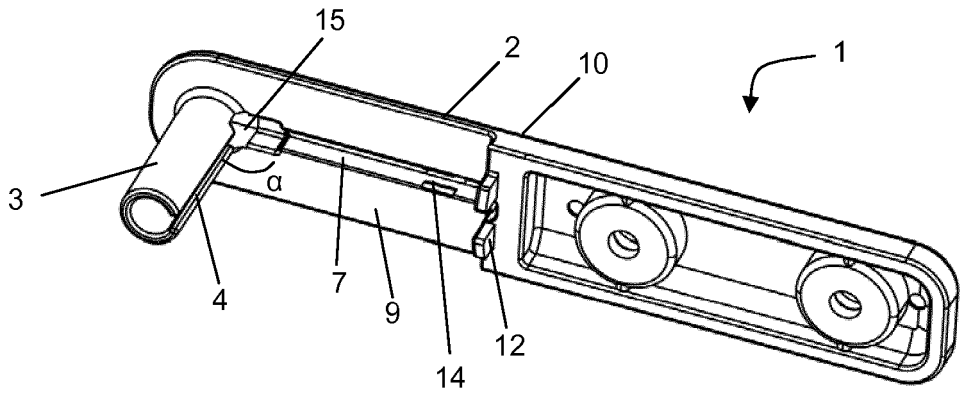

FIG .3

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Description

TECHNICAL FIELD

[0001] This invention relates to hinges for doors and more specifically for doors of cooling appliances where the hinges enable the rotation of the door.

PRIOR ART

[0002] There are known cooling appliances that comprise hinges both in the upper part and in the lower part of the door of the cooling appliance to enable the rotation of said door during the opening and closure movement. There are also known cooling appliances that include a control panel in the door, the control unit of said control panel being located in the main body of the cooling appliance. It is common practice to pass the cables from said control unit to the control panel through the upper or lower hinge.

[0003] WO 2004/048730 A1 thus discloses a cooling appliance that has a hinge in the upper right part of the main body, which enables the rotation of the door. Said hinge comprises a base that has a bolt with an opening in a longitudinal direction on the outer face to enable the passage of the cable from the main body to the door. Said refrigeration appliance also comprises a cover that covers the cable that projects out of the cooling appliance.

DISCLOSURE OF THE INVENTION

[0004] It is an object of the invention to provide a hinge as described in the claims.

[0005] The hinge of the invention comprises a base suitable for being connected with connection means to a cooling appliance, and a bolt. Said bolt is connected in a fixed manner to the base and comprises a bolt channel. Said bolt is housed in the door of the cooling appliance. The hinge is also suitable for passing a supply cable from the cooling appliance to the door through said bolt channel.

[0006] The base also comprises on its lower face a main channel suitable for housing part of the supply cable. Said main channel and the bolt channel are connected in such a way that the supply cable is located in the lower part of the hinge.

[0007] With the hinge of the invention the maximum height of the cooling appliance is reduced due to the fact that the distance by which said hinge projects out of the cooling appliance is considerably reduced, with the hinge being flush with the cooling appliance in some cases. The operations involved in fitting the hinge are also made easier.

[0008] These and other advantages and characteristics of the invention will be made evident in the light of the drawings and the detailed description thereof.

DESCRIPTION OF THE DRAWINGS

[0009]

Figure 1 shows a first perspective view of a cooling appliance.

Figure 2 shows a second perspective view of the cooling appliance of Figure 1, the upper door being open.

Figure 3 shows a first perspective view of an embodiment of the hinge according to the invention.

Figure 4 shows a second perspective view of the hinge of Figure 3 with the supply cable.

DETAILED DISCLOSURE OF THE INVENTION

[0010] Figures 1 and 2 show an example of a cooling appliance 100 that comprises a main body 5 that is divided into two compartments. Each compartment comprises a door 8 that rotates on a vertical axis of rotation 13, located in this case on the right end of the cooling appliance 100. The position of said axis of rotation 13 is not relevant to the invention, the solution of the invention being valid for a cooling appliance with the axis of rotation on the left end.

[0011] The cooling appliance 100 comprises a control panel 11 located on the front part of the door 8, while the control unit, not shown in the figures, which manages said control panel 11 is located in the main body 5, it being necessary to supply the control panel 11 electronically from the control unit through a supply cable 6 that must pass from the main body 5 to the door 8. Said supply cable, in the preferred embodiment of the invention, comprises a plurality of electrical cables covered with cable cord.

[0012] Each door 8 of the cooling appliance 100 comprises an upper hinge and a lower hinge that enable the door 8 to rotate on the axis of rotation 13. In the preferred embodiment, the hinge 1 of the invention corresponds with the upper hinge of the cooling appliance 100, where the supply cable 6 passes through said hinge 1 from the main body 5 of the cooling appliance 100 to the upper door 8, which comprises the control panel 11.

[0013] To enable the assembly, the supply cable 6 is divided into two parts. One end of the first part is connected directly to the control unit, which is located close to the hinge 1, and the other end runs to the upper area of the door 8 through the hinge 1. The second part of the supply cable 6 runs from the upper area of the door 8 to the control panel 11.

[0014] If the control unit is located far from the hinge 1, the supply cable 6 may be divided, for example, into three parts. The first part would run from the control unit to the upper part of the main body 5, the second part from the upper area of the door 8 to the control panel 11 and

the third would connect the two previous parts, with the supply cable 6 passing through the hinge 1.

[0015] To make the connection between the parts of the supply cable 6 easier, each part comprises on its ends a connection member, not shown in the figures, such as a connector or a strip, for example.

[0016] The hinge 1 of the invention, as shown in Figures 3 and 4, comprises a base 2 suitable for being connected with connection means, not shown in the figures, to the main body 5 of the cooling appliance 100. It also comprises an axial bolt 3 that is connected in a fixed manner to the base 2 and which also comprises a bolt channel 4. In a preferred embodiment of the invention the base 2 and the bolt 3 form a single piece.

[0017] In addition, the base 2 comprises on its lower face 9 a main channel 7 suitable for housing part of the supply cable 6. Said main channel 7 is connected with the bolt channel 4 of the bolt 3.

[0018] With the hinge 1 of the invention, the maximum height of the cooling appliance 100 is reduced due to the fact that the distance by which the hinge 1 projects out of the main body 5 of the cooling appliance is considerably reduced, with the hinge 1 being flush with the main body 5 in some cases. The operations involved in fitting the hinge 1 are also made easier 1, achieving more ergonomic workstations.

[0019] In the preferred embodiment of the invention, the bolt channel 4 comprises a longitudinal groove, formed in a radial direction and located on one end of the bolt 3. The main channel 7 also comprises a longitudinal groove, wherein the width of said groove is slightly larger than the diameter of the supply cable 6 in order to make its insertion easier. Nevertheless, to ensure than the supply cable 6 does not come out of the main channel 7 by itself once it has been housed in it, said main channel 7 comprises a choked area 14 with a width that is slightly smaller than the diameter of the supply cable 6. Other embodiments consider the possibility that the main channel 7 comprises more than one choked area, for example two, each one close to each end of the main channel 7.

[0020] The bolt channel 4 of the bolt 3 is oriented towards the centre of the hinge 1, in such a way that said bolt channel 4 and the main channel 7 of the base 2 are connected and form an angle α, preferably 90°, thereby defining a shared channel along which the supply cable 6 passes, the supply cable 6 thus being disposed in the lower part of the hinge 1.

[0021] In a second embodiment, in order to make the manufacture of the hinge 1 and the assembly of the supply cable 6 easier, the hinge 1 comprises a connection area 15 between the main channel 7 and the bolt channel 4 where the corresponding channels are enlarged. As a result, the supply cable 6 may easily be adapted to the shape of the shared channel formed by the main channel 7 and the bolt channel 4, as it is difficult to bend the supply cable 6 to an angle close to 90° in short distances where the connection radius is small.

[0022] In a third embodiment of the invention, the hinge 1 comprises a cover, not shown in the figures, on the upper face 10 of the base 2. Said cover is detachable and has approximately the same surface finish as the visible face of the cooling appliance 100 corresponding to the visible parts of the main body 5 and/or of the door 8. It may be possible to configure both the hinge 1 and the cover in different colours to give the cooling appliance 100 a distinctive appearance. In the preferred embodiment, the base 2 and said cover form a single piece, thereby reducing the manufacturing costs.

[0023] In the preferred embodiment of the invention, the base 2 comprises on the lower face 9 guiding ribs 12, as shown in Figure 3, which help keep the supply cable 6 housed in the main channel 7, mainly during the fitting of the hinge 1 on the main body 5 of the cooling appliance 100. Said guiding ribs 12 also help to guide and house the hinge 1 in said main body 5.

[0024] In the preferred embodiment, the hinge 1 is metallic, and metals such as iron, aluminium or zamak can be used. Preferably, the hinge 1 is made of zamak but in other embodiments, the hinge 1 may be made of an elastic material such as plastic.

Claims

1. Hinge for a door of a cooling appliance that comprises
   a base (2) suitable for being connected with connection means to the cooling appliance (100), and
   a bolt (3) connected in a fixed manner to the base (2) and which comprises a bolt channel (4), said bolt (3) being housed in the door (8) of the cooling appliance (100),
   said hinge (1) being suitable for passing a supply cable (6) from the cooling appliance (100) to the door (8) through said bolt channel (4),
   characterised in that said base (2) comprises on the lower face (9) a main channel (7) suitable for housing part of the supply cable (6), said main channel (7) being connected with the bolt channel (4) of the bolt (3).

2. Hinge according to claim 1, wherein said main channel (7) comprises a longitudinal groove.

3. Hinge according to claim 2, wherein said groove of the main channel (7) has a width that is slightly larger than the diameter of the supply cable (6).

4. Hinge according to any of the preceding claims, wherein the main channel (7) comprises at least one choked area (14) where the width is slightly smaller than the diameter of the supply cable (6).

5. Hinge according to any of the preceding claims, wherein the bolt channel (4) comprises a longitudinal groove.

6. Hinge according to any of the preceding claims, wherein the bolt channel (4) of the bolt (3) is oriented towards the centre of the hinge (1).

7. Hinge according to any of the preceding claims, wherein the bolt channel (4) of the bolt (3) and the main channel (7) of the base (2) form an angle (α) and define a shared channel along which passes the supply cable (6), said angle (α) being preferably close to 90°.

8. Hinge according to any of the preceding claims, wherein the main channel (7) and the bolt channel (4) comprise a connection area (15) where the corresponding channels are enlarged to make the fitting of the supply cable (6) in the hinge (1) easier.

9. Hinge according to any of the preceding claims, wherein the base (2) and the bolt (3) form a single piece.

10. Hinge according to any of the preceding claims, wherein the base (2) comprises on its upper face (10) a cover with a surface finish similar to that of the cooling appliance (100) or the door (8).

11. Hinge according to any of claims 1 to 9, wherein the base (2) comprises on its upper face (10) a cover that forms a single piece with the base (2).

12. Hinge according to any of the preceding claims, wherein the base (2) comprises on the lower face (9) guiding ribs (12) that help keep the supply cable (6) housed in the main channel (7), these also helping to guide and house the hinge (1) in the main body (5).

13. Hinge according to any of the preceding claims, wherein the hinge (1) is metallic, preferably made of zamak.

14. Hinge according to any of claims 1 to 12, wherein the hinge (1) is made of an elastic material, preferably plastic.

15. Cooling appliance that comprises a hinge (1) according to any of the preceding claims.

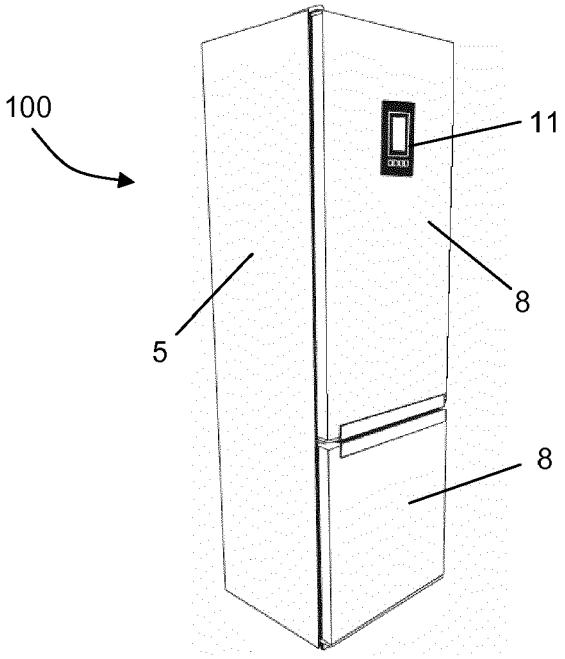

FIG .1

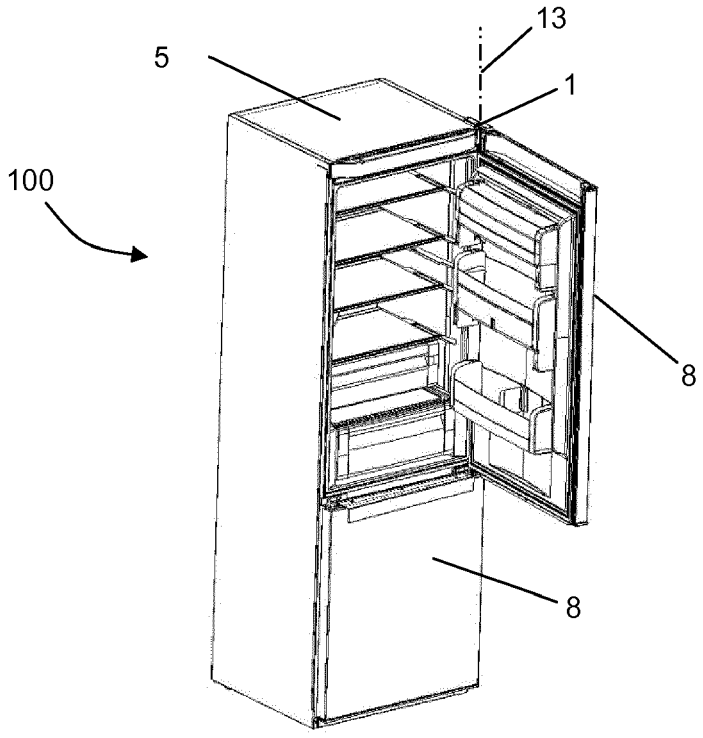

FIG .2

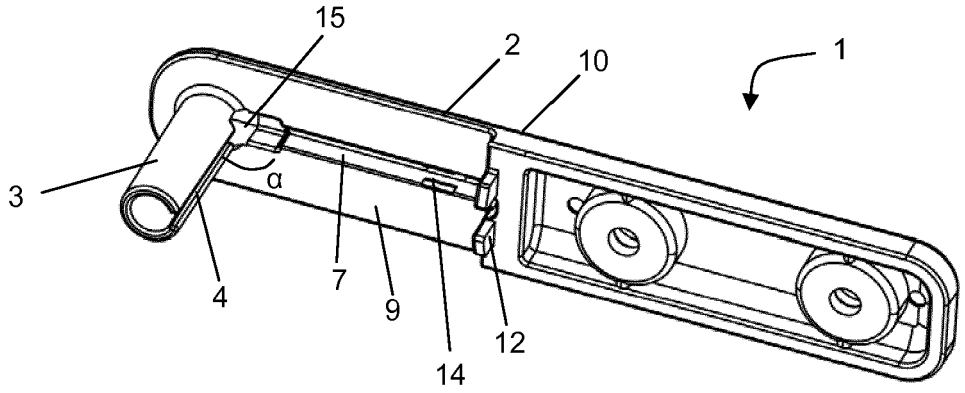

FIG .3

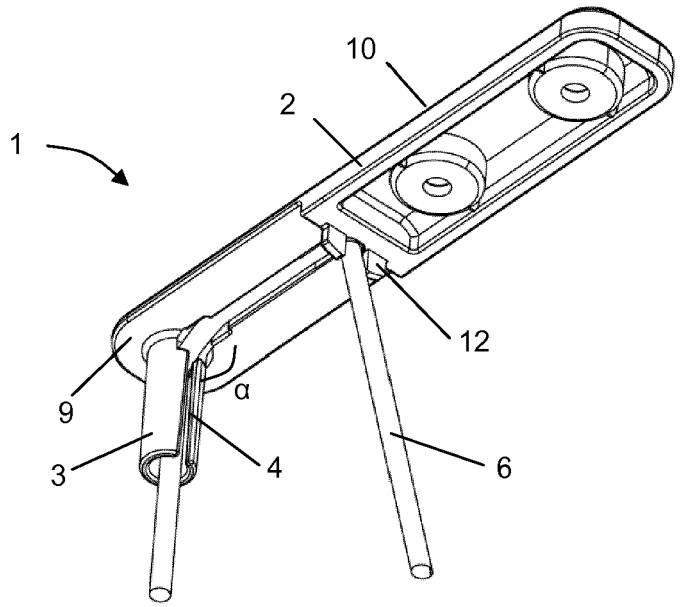

FIG .4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2004048730 A1 **[0003]**