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(54) **Refrigerator apparatus**

(57) Refrigerator apparatus comprising at least one insulated enclosure (2), at least one container (5) that is housed in said enclosure (2), at least one support member (6) fixed to the enclosure (2), in which the container

(5) is attached, and at least one shelf (4) disposed in said enclosure (2), wherein the container (5) is supported on the shelf (4), and comprises at least one fixing member (9) in the rear part (8), which cooperates with the support member (6).

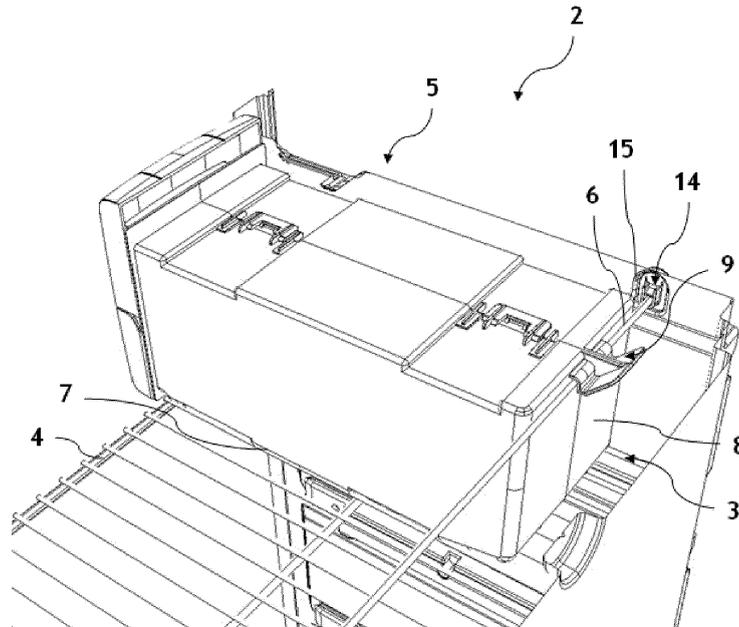


Fig. 2

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Description

TECHNICAL FIELD

[0001] This invention relates to refrigerator apparatuses, in particular fridges and upright freezers housing containers.

PRIOR ART

[0002] There are known refrigerator apparatuses, in particular household-type fridges and upright freezers that comprise at least one insulated enclosure in which is housed at least one container.

[0003] Said apparatuses are commonly disposed with at least one intermediate horizontal shelf in said insulated enclosure, and some apparatuses are also disposed with at least one support member that is fixed to the insulated enclosure or to the shelf and in which the container is attached.

[0004] There are known refrigerator apparatuses in which the support member is connected to the shelf and the container is attached to said support member, being suspended from it and, as a result, also from the shelf.

[0005] WO2007122047 A2 describes a refrigerator apparatus with at least one insulated enclosure that comprises in its interior at least one built-in accessory, preferably an ice-cube-making container. The insulated enclosure is divided into different refrigerator compartments by means of intermediate horizontal shelves, comprising at least one support member fixed to at least one of said refrigerator compartments. Said support member is fixed to the side walls of the refrigerator enclosure and extends along its interior. In order to achieve a more secure fitting of the container to the refrigerator enclosure two support members are preferably disposed in parallel, and the container comprises two elastic connected hooks situated in its top part, which embrace the support members, the container thus being suspended from said support members.

DISCLOSURE OF THE INVENTION

[0006] It is an object of this invention to provide a refrigerator apparatus as defined in the claims.

[0007] Refrigerator apparatuses, in particular household-type fridges and upright freezers are provided with at least one insulated enclosure in which is housed at least one container. Said apparatuses also comprise at least one intermediate horizontal shelf in said insulated enclosure, and are disposed with at least one support member that is fixed to the insulated enclosure.

[0008] The container, which comprises at least one fixing member in its rear part, is housed in the refrigerator enclosure, it being supported on the intermediate horizontal shelf and the fixing member cooperating with the support member.

[0009] As a result, a safe, reliable, aesthetic and lower-

cost housing of the container in the insulated enclosure is obtained, as a single support member is used.

[0010] It is simple for the user to use, given that in order to house the container in the insulated enclosure the user only has to support said container on the shelf and push until the fixing member of the container cooperates with the support member. A safe and reliable connection is thus obtained, given that when the user wishes to access the inside of the container and pulls it, it is retained by the support member, thereby preventing unnecessary and dangerous operations.

[0011] In addition the aesthetics of the composition of the assembly of the container on the shelf are improved, given that when the container cooperates with the support member by means of the fixing member found in the rear part, the same vertical reference of the front part of said container is achieved.

[0012] 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

[0013]

Figure 1 shows a front view of an embodiment of the refrigerator apparatus of the invention.

Figure 2 shows a partial view in perspective of a refrigerator compartment of the refrigerator apparatus of Figure 1, in which is housed a container.

Figure 3 shows a side view of the container of Figure 2.

Figure 4 shows a view in perspective of the support member fixed to the side walls of the insulated enclosure.

Figure 5 shows a view in perspective of the retainer member.

Figure 6 shows a view in perspective of the end of the support member supported on the ramp of the retainer member.

Figure 7 shows a view in perspective of the end of the support member housed in the housing of the retainer member.

Figure 8 shows a view in perspective in detail of the components of the ice-cube-making container.

Figure 9 shows a partial view in perspective of a second embodiment of the fixing member of the container.

Figure 10 shows a lateral view of the container of

Figure 9.

DETAILED DISCLOSURE OF THE INVENTION

[0014] Figure 1 shows a front view of a household-type refrigerator apparatus 1, in particular an upright freezer, with the door open. Said apparatus 1 is provided, in this embodiment, with an insulated enclosure 2, which is divided into different refrigerator compartments 3 by means of intermediate horizontal shelves 4.

[0015] In said refrigerator compartments 3 a single removable container may be disposed, or a front cover that allows access to the inside of the refrigerator compartment, or a number of removable containers 5, 5' of a smaller size disposed in parallel in the same refrigerator compartment 3.

[0016] Figure 2 shows an insulated enclosure 2 with an intermediate horizontal shelf 4 that forms a refrigerator compartment 3, in which said shelf 4 may be a glass tray or a plastic tray or a rack or an evaporator with the rack incorporated into it. In said refrigerator compartment is disposed in this embodiment a support member 6 that is fixed to the insulated enclosure 2, and a container 5 is disposed supported on its base 7 on the surface of the shelf 4. The container 5 comprises in its rear part 8 a fixing member 9 that cooperates with the support member 6.

[0017] The support member 6 is a rod or at least comprises a rod-shaped section where it cooperates with the fixing member 9 of the container 5, and said fixing member 9 comprises a piece that allows cooperation with the support member 6, it being connected to its rod-shaped section.

[0018] The fixing member 9 of a first embodiment is a piece with the general shape of a hook, which comprises two parts, as may be seen in Figures 2 and 3, a first part 10 that is L-shaped with one of its ends connected to the rear part 8 of the container 5 and the other end directed downwards, forming a hook, and a second part 11 that emerges from the end of the L not connected to the container 5, forming a ramp that is inclined upwards.

[0019] In a second embodiment, the fixing member 9 is also a piece with the general shape of a hook, which comprises two parts, as may be seen in Figures 9 and 10, a first part 10 that is L-shaped with one of its ends connected to the rear part 8 of the container 5 and the other end directed upwards, and a second part 11 that emerges from the end of the L not connected to the container 5, forming a ramp that is inclined downwards. The slope of said second part 29 is between approximately 30° and approximately 60°.

[0020] As mentioned above, the support member 6 is a rod fixed to the insulated enclosure 2. As shown in Figure 4, the support member 6 is fixed to the insulated enclosure 2, its ends 12 being connected to the side walls 13 of said enclosure 2 by means of a retainer member 14.

[0021] The slope of said second part 11 is between approximately 30° and approximately 60°.

[0022] Figure 5 shows the retainer member 14 that allows the connection of each of the ends 12 of the support member 6 to the side walls 13 of the enclosure 2. It is a piece housed in a housing 15 of said side walls 13. Said retainer member 14 comprises, in this embodiment, a base 16 housed in said housing 15, an elastic and floating wall 17 that emerges from a gap 18 of the base 16, which is U-shaped and projects out by a height from the base 16, and a ramp 20 that is found in the inner part of the U-shaped wall 17, which starts in the open part of said U at the same height of the base 16 up to a distance of the closed part of the U of at least the thickness of the support member 6 and without projecting out of the height of the wall 17, creating a housing 22 of the ends 12 of the support member 6 in said wall 17.

[0023] Figures 6 and 7 show a sequence of how the support member 6 is fixed at its ends 12 to the retainer members 14. Figure 6 shows how said ends 12 are supported first of all on the ramps 20 of the retainer members 14, and then, as shown in Figure 7, the support member 6 is pressed downwards in order to slide its ends 12 along said ramps 20 until they are housed in the housing 22 of the retainer member 14. The sliding of the ends 12 of the retainer member 14 on the ramp 20 is achieved when, as said ends 12 are pressed on the ramp 20 and as it is connected to the elastic and floating wall 17 on the base 16, it gives way until, as a result of the pressure, the ends 12 are housed in the housing 22. Once the ends 12 of the support member 6 are housed, it is subjected to axial pressure in its longitudinal axis due to the effect of the elasticity of the walls 17 and is firmly fixed to the side walls 13 of the insulated enclosure 2.

[0024] The smaller removable containers 5, 5' that are disposed in parallel in the same refrigerator compartment 3 may be of the ice-cubes-making container type or of the food-storage drawer type.

[0025] As shown in Figure 8, the ice-cube-making container 23 is a container 5 also known as a twist-ice or ice-maker, which is essentially a drawer that when operated manually comprises a receptacle 25, an ice-cube-making device 26 that may be removed from the receptacle 25 and a drawer holding ice cubes 27 that may also be removed from the receptacle 25 and disposed beneath the ice-cube-making device 26. The drawer holding ice cubes 27 may be removed in two positions: an intermediate position for removing the ice cubes that have been deposited in said drawer 27 from the ice-cube-making device 26, when they have formed in it and the user wants to use them; and a final position in which the drawer 27 may be taken out of the receptacle 25 for its cleaning, for example. The ice-cube-making device 26 may be taken out of the receptacle 25 in order to fill its water tanks and its subsequent making of ice cubes, and also for its cleaning. The front of the ice-cube-making container 23, with the ice-cube-making device 26 and the drawer holding ice cubes 27 withdrawn in the inside of the receptacle 25, is found on the same vertical plane.

[0026] The food-storage drawer is a container 5' of a

single piece with a front with a handle that allows it to be removed from the refrigerator compartment 3, or it is a container 5' with at least two pieces, one of which is a food-storage receptacle and the other is a front cover that may be removed from the receptacle.

[0027] As a result, a number of containers 5, 5' of the type mentioned above are housed disposed in parallel in the same refrigerator compartment 3, are supported on their bases 7 on a shelf 4 disposed in said compartment 3, and each container 5, 5' is attached independently by means of the fixing member 9 disposed in its rear part 8 to the support member 6 disposed in said refrigerator compartment 3, and fixed to the side walls 13 of the refrigerated enclosure 2.

[0028] In order to house each container 5, 5' in the refrigerator compartment 3 and achieve a secure and reliable connection with the support member 6, the fixing member 9 of each container 5, 5' is connected to the rear part 8 of it at a height that is such that when the container 5 is inserted in the refrigerator compartment 3 supported on the shelf 4, the second part 11 of the fixing member 9 with the shape of a sloping ramp impacts against the support member 6, and as it continues pushing the container 5, 5' the second part 11 with the shape of a sloping ramp slides on the support member 6 until the first part 10 of the fixing member 9 with the shape of a hook is attached on the support member 6. As a result, a secure and reliable housing of the container 5, 5' inside the refrigerator compartment 3 of the insulated enclosure 2 is obtained.

[0029] It is simple for the user to use, given that in order to house a number of containers 5, 5' in a refrigerator compartment 3 of an insulated enclosure 2, said containers 5, 5' are attached independently to the support member 6 and when the user wishes to access the inside of the container 5, 5' for its use, they pull the handle of the front cover of inner drawer of the container 5, 5' for its removal, with the result that said drawer is removed and the receptacle of the container 5, 5' remains firmly held inside the refrigerator compartment 3. When the container 5, 5' is not disposed with a removable drawer or when the container 5, 5' is merely to be removed from the refrigerator compartment 3, the user uses their hands to detach the fixing member 9 of the container 5, 5' from the support member 6 in a simple manner and may then remove the container 5.

[0030] At the same time an aesthetic composition of the containers 5, 5' on the shelf 4 in its housing in the refrigerator compartment 3 is obtained, given that as the containers 5, 5' cooperate with the support member 6 by means of the fixing member 9 that is found in the rear part 8, the same vertical reference of the rear part 8 of the containers 5, 5' is always achieved, and as a result the same vertical reference may be obtained with the front of said containers 5, 5'.

[0031] The referenced and reliably connected housing of the containers 5, 5' in the refrigerator compartment 3 of the insulated enclosure 2 is obtained at a lower cost

than other systems used and known in the prior art, as it is obtained by means of a fixing member 9 that is preferably made of plastic, in a single piece with the container 5, 5' and in the same injection-moulding process, and is connected to a single support member 6 that may be a plastic or metal rod, connected at the same time to the side walls 13 of the insulated enclosure 2 by means of retainer members 14 that are preferably made of plastic obtained in an injection-moulding process.

[0032] The user may decide at any time to remove the support member 6 from the refrigerator compartment 3, either because of a change in season (winter-summer) or for another reason.

Claims

1. Refrigerator apparatus, comprising at least one insulated enclosure (2), at least one container (5) that is housed in said enclosure (2), at least one support member (6) fixed to the enclosure (2), in which the container (5) is attached, and at least one shelf (4) disposed in said enclosure (2), **characterised in that** the container (5) is supported on the shelf (4), and comprises at least one fixing member (9) in the rear part (8), which cooperates with the support member (6).
2. Refrigerator apparatus according to claim 1, wherein the support member (6) comprises at least one rod-shaped section and the fixing member (9) comprises at least one piece that is attached to said section.
3. Refrigerator apparatus according to claims 1 or 2, wherein the fixing member (9) is a piece with a shape that comprises two parts: a first part (10) that is L-shaped and with one end connected to the container (5), forming a hook where the rod-shaped section of the support member (6) is attached, and a ramp-shaped second part (11) that emerges from the end of the L not connected to the container (5).
4. Refrigerator apparatus according to the preceding claim, wherein the end of the first part (10) not connected to the container (5) is directed downwards, and the second part (11) is inclined upwards.
5. Refrigerator apparatus according to claim 3, wherein the end of the first part (10) not connected to the container (5) is directed upwards, and the second part (11) is inclined downwards.
6. Refrigerator apparatus according to claims 3 to 5, wherein the second part (11) has a slope of between approximately 30° and approximately 60°.
7. Refrigerator apparatus according to any of the preceding claims, wherein the support member (6) is a

rod connected at its ends (12) to the side walls (13) of the insulated enclosure (2) by means of a retainer member (14).

erator with the rack incorporated into it.

8. Refrigerator apparatus according to the preceding claim, wherein each retainer member (14) is housed in a housing (15) of the side wall (13) of the insulated enclosure (2), and comprises a base (16) housed in said housing (15), an elastic and floating wall (17) on the base (16), which is U-shaped and projects out of the base (16) by a height, and a ramp (20) in the inner part of the wall (17), which starts in the open part of said U at the height of the base (16) up to a distance of the closed part of the U of at least the thickness of the support member (6) and without projecting out of the height of the wall (17), creating a housing (22) of the ends (12) of the support member (6) in said wall (17). 5
10
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9. Refrigerator apparatus according to any of the preceding claims, wherein the container (5) is an ice-cube-making container (23). 20
10. Refrigerator apparatus according to the preceding claim, wherein the ice-cube-making container (23) comprises a receptacle (25), an ice-cube-making device (26) and a drawer holding ice cubes (27). 25
11. Refrigerator apparatus according to the preceding claim, wherein the drawer holding ice cubes (27) can be removed in two positions: an intermediate position for removing the ice cubes, and an end position in which the drawer (27) may be taken out of the receptacle (25). 30
35
12. Refrigerator apparatus according to any of the preceding claims, comprising at least one second container (5'), wherein the second container (5') is a food-storage drawer, said food-storage drawer comprising a removable front cover. 40
13. Refrigerator apparatus according to any of the preceding claims, wherein the insulated enclosure (2) is divided into different refrigerator compartments (3) by means of intermediate horizontal shelves (4), and in at least one of said refrigerator compartments (3) is disposed the support member (6). 45
14. Refrigerator apparatus according to the preceding claim, wherein the containers (5,5') are disposed in parallel in the same refrigerator compartment (3), attached to the support member (6) independently, and the front of said containers (5,5') is found in the same vertical. 50
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15. Refrigerator apparatus according to any of the preceding claims, wherein the horizontal shelf (4) may be a glass tray or a plastic tray or a rack or an evap-

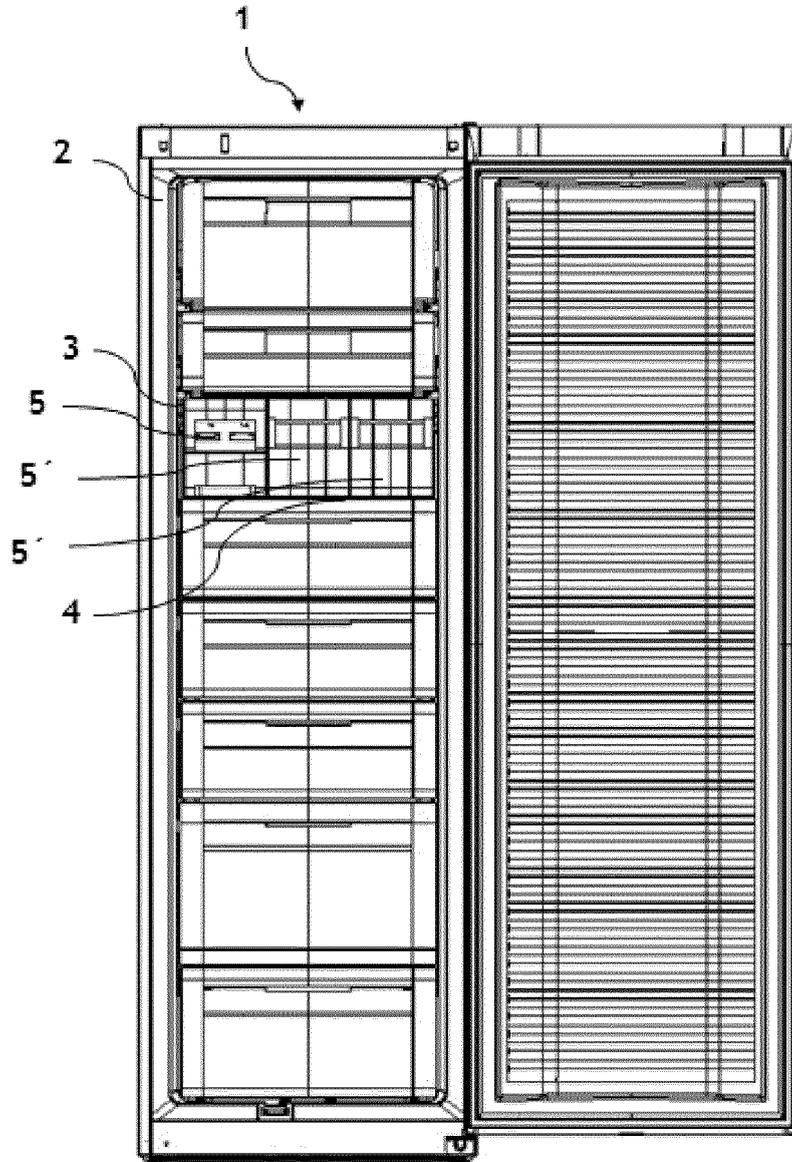


Fig. 1

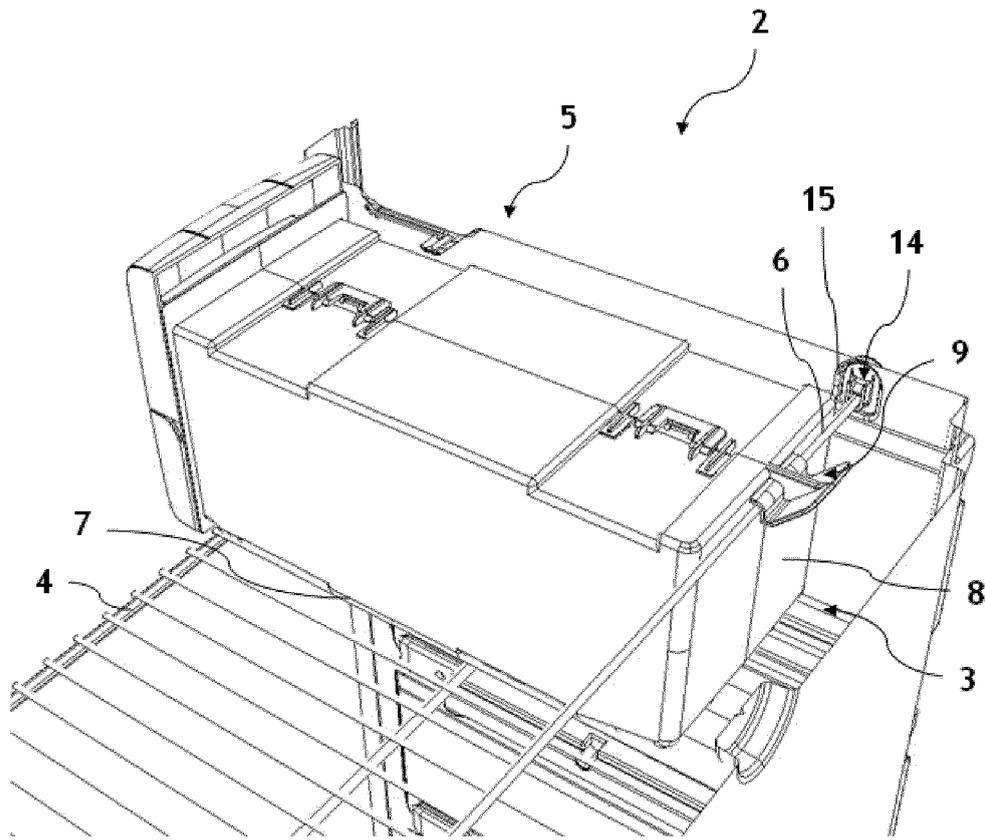


Fig. 2

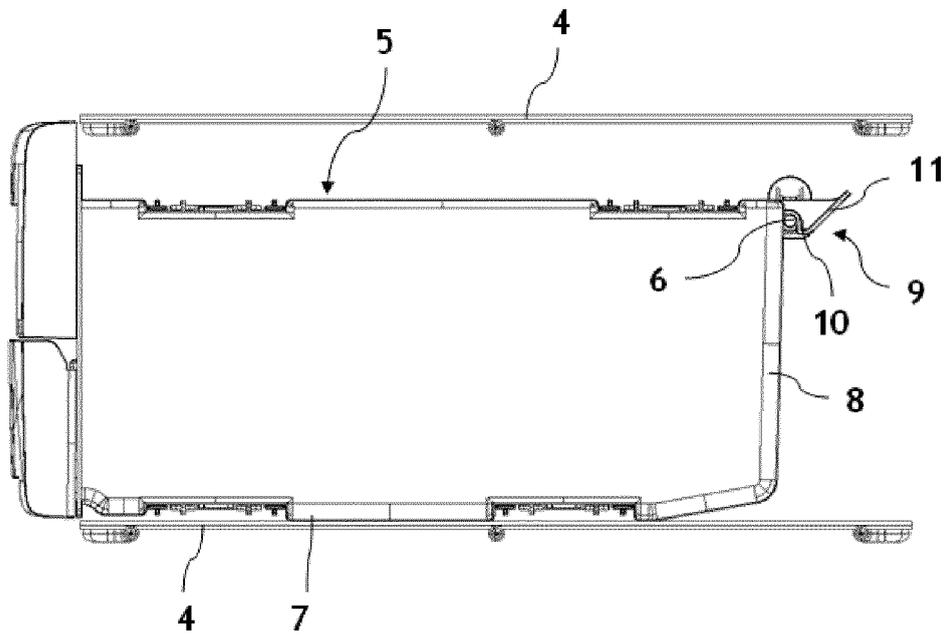


Fig. 3

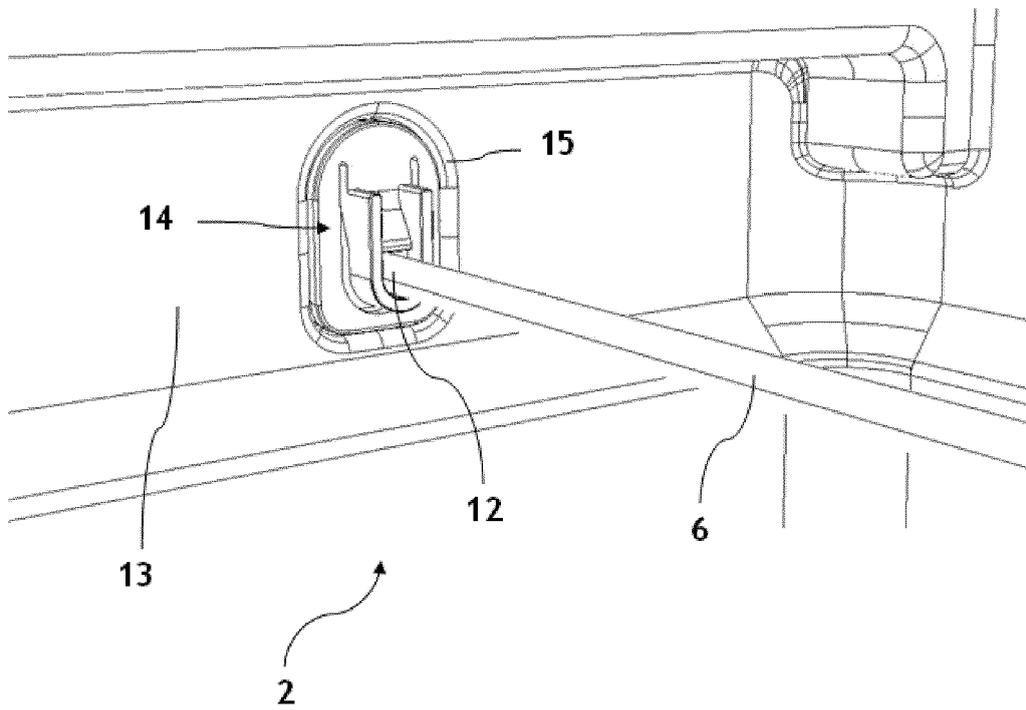


Fig. 4

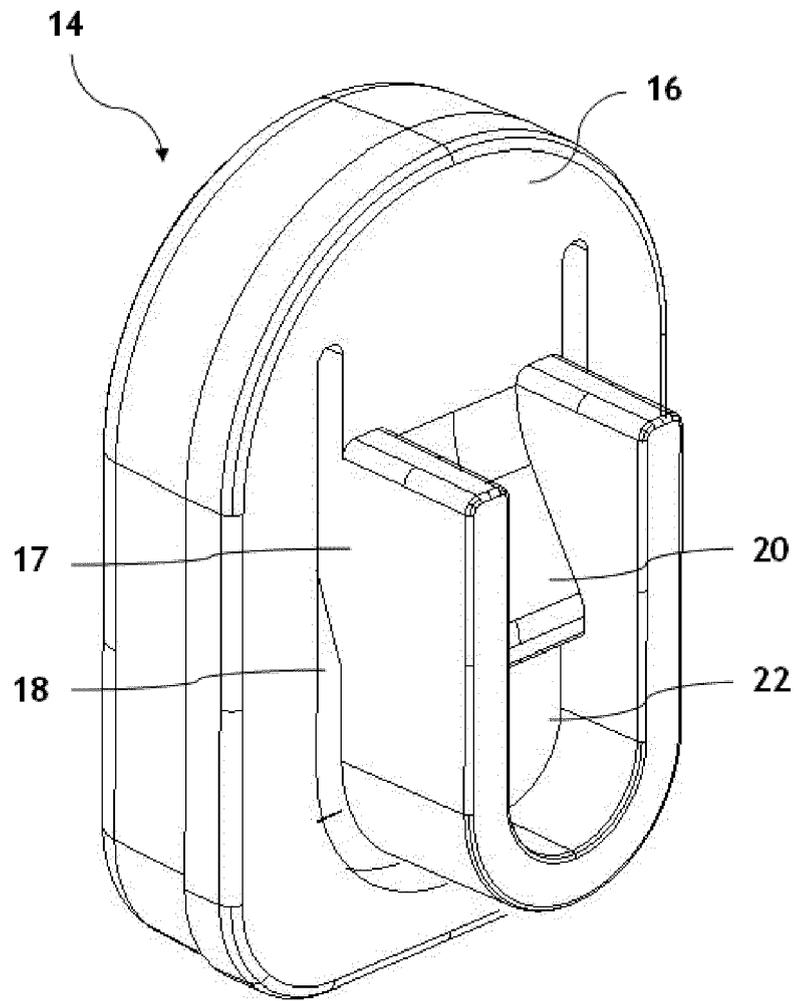


Fig. 5

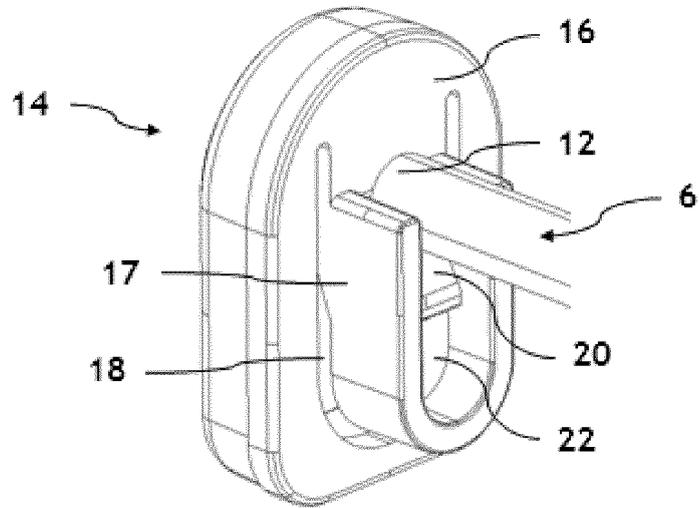


Fig. 6

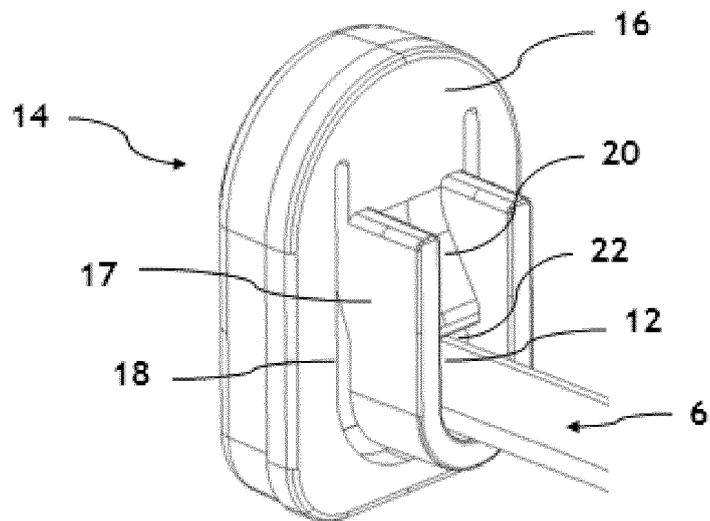


Fig. 7

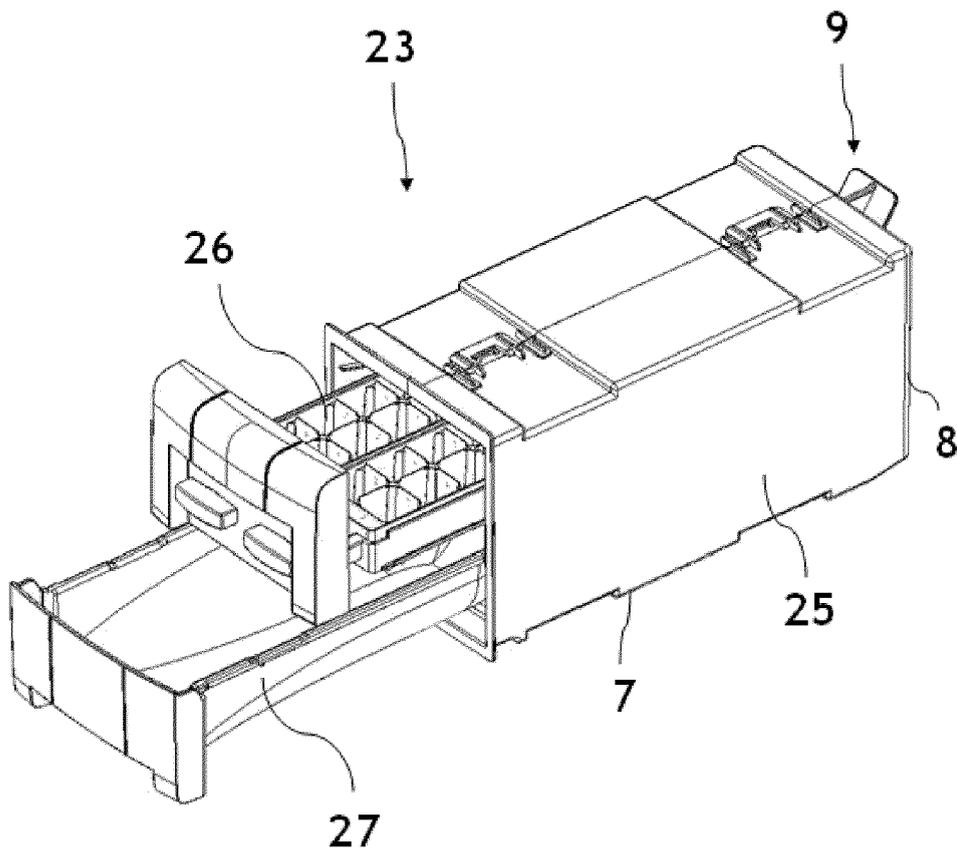


Fig. 8

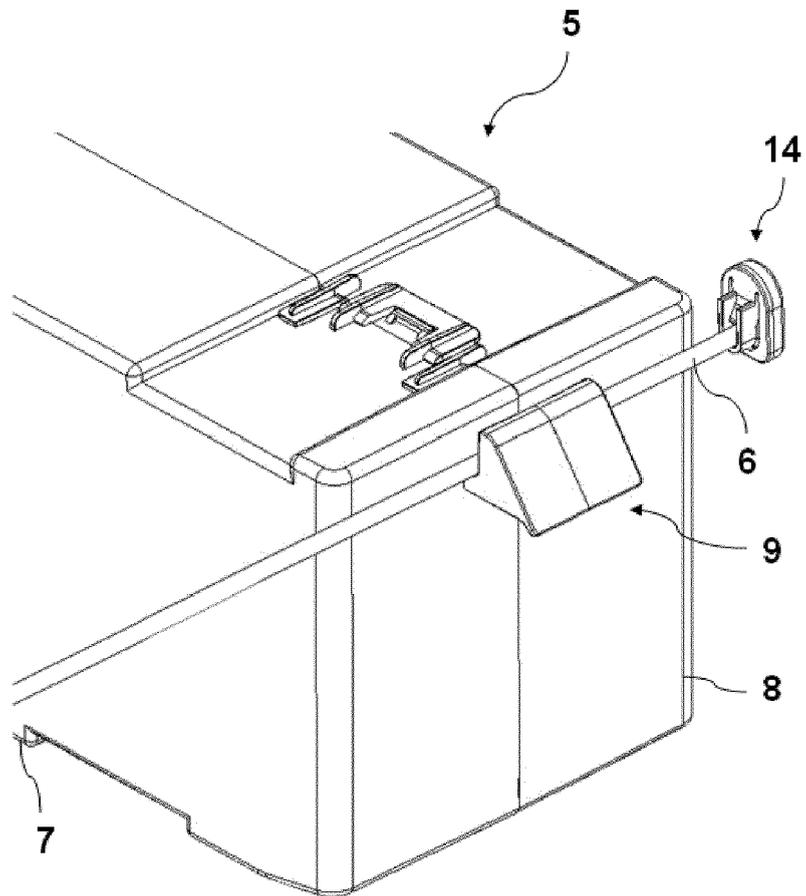


Fig. 9

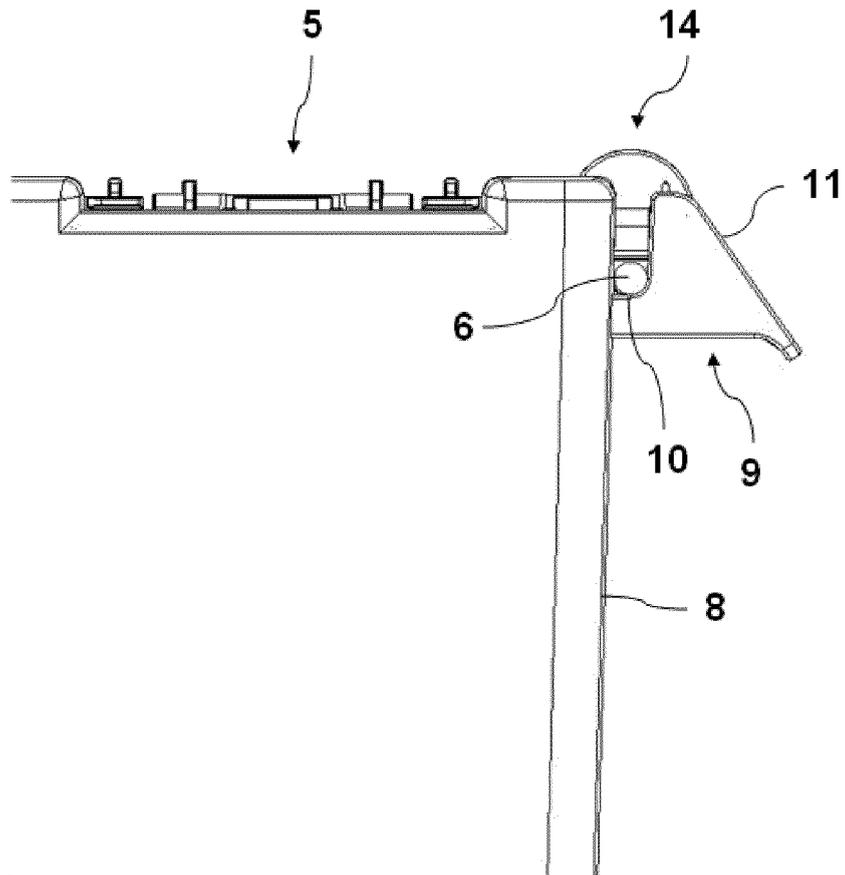


Fig. 10

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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