



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
07.09.2016 Bulletin 2016/36

(51) Int Cl.:
F25D 23/04 ^(2006.01)

(21) Application number: **16155790.5**

(22) Date of filing: **16.02.2016**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
MA MD

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(30) Priority: **06.03.2015 SI 201500055**

(54) **HOUSEHOLD APPARATUS HAVING A DEPOSIT CONTAINER ADJUSTABLE IN THE HEIGHT OF A DOOR**

(57) The present invention refers to a household apparatus having a deposit container adjustable in the height of a door, and particularly to a cooling and/or freezing apparatus, comprising a body with a compartment to accommodate goods to be cooled, a door for opening and closing said compartment having at least one deposit container, said door comprising on the inner wall thereof

at least one fastening rib for fixing said deposit container. It is provided for according to the present invention that a deposit container (6) is formed in each corner area thereof which lies in the vicinity of the inner wall (2) with a holding device (14) configuring to cooperate with the fastening rib (5), said holding device (14) being preferably integral with the container (6).

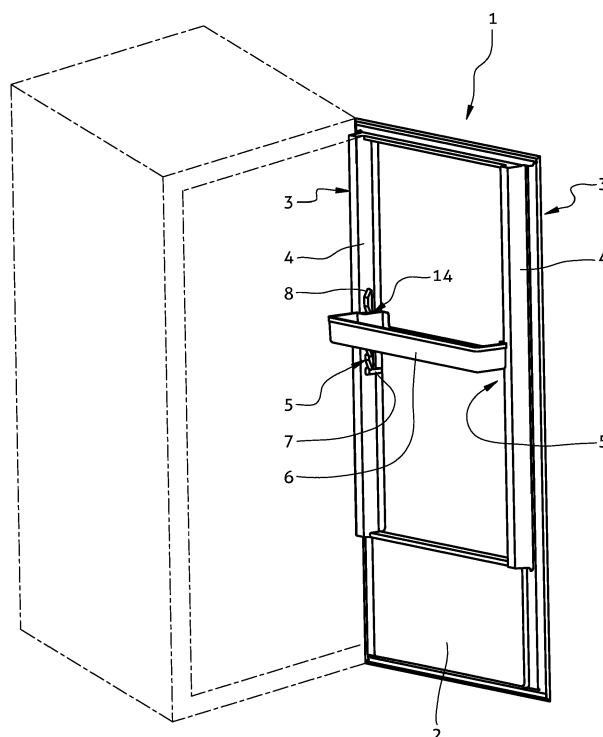


FIG. 1

Description

[0001] The present invention refers to a household apparatus having a deposit container adjustable in the height of a door, and particularly to a cooling and/or freezing apparatus, comprising a body with a compartment to accommodate goods to be cooled, a door for opening and closing said compartment having at least one deposit container, said door comprising on the inner wall thereof at least one fastening rib for fixing said deposit container.

[0002] It is well known that said goods may be packed in packaging of different size. In case when beverage is stored in bottles, the deposit container is to be adjusted to various vertical positions. It is also possible that the height of the bottle to be stored in the cooling apparatus exceeds the available space between the two deposit containers. Particularly convenient is a possibility to adjust the deposit containers in the height by one hand only and to use the other hand for holding simultaneously goods to be stored.

[0003] A solution of such a system for a cooling apparatus where it is enabled to adjust deposit containers in height has been disclosed in a publication of a patent application No. EP 2 664 878 A2, for instance.

[0004] A solution is disclosed in said patent document where guiding ribs are provided in each vertical side of an inner wall of the door of the cooling apparatus, deposit containers being arranged between said ribs. On and, respectively, between the guiding ribs there are formed locking means and counter-locking means in order to fix the containers in various heights. A common characteristic of the proposed system according to said patent document is the counter-locking means at the side of the containers being provided with triggering means configured to disengage the counter-locking means from the locking means, therefore, enabling relocation of the deposit container to a new position. Thus, it is enabled that the opposite locking means release during the movement of the deposit container upwards without additional manual activation of the triggering means, merely by pushing the deposit container upwardly. When however moving the deposit container downwardly, it is necessary to act upon the triggering mechanism which separates the counter-locking means from the locking means. The counter-locking means are non-integral parts arranged on the deposit containers either together with the triggering means. The object of the present invention is to create a cooling apparatus, in particularly a cooling and/or freezing apparatus where a deposit container is adjustable in the height of the door of a household appliance in a manner that is user friendly and reliable and, simultaneously, convenient for production and maintenance.

[0005] The object as set above is solved by features set forth in the characterizing clause of claim 1. Details of the invention are disclosed in subclaims. It is provided for according to the present invention that a deposit container comprises at least one counter-locking means that cooperates in a snap-in manner with locking means

formed on both vertical sides of the inner wall of the door of the cooling apparatus. At least one resilient means is provided in order to achieve an efficient contact between the locking means and the counter-locking means. When the deposit container is to be displaced in the height of the door, there is at least one triggering means provided in order for the locking means and the counter-locking means to be mutually spaced apart. According to the preferred embodiment, it is provided for that the counter-locking means, the resilient means and the triggering means are integral with the deposit container.

[0006] The invention is further described in detail by way of non-limiting embodiment, and with a reference to the accompanying drawings, where

Fig. 1 shows a three-dimensional view of a cooling apparatus;

Fig. 2 shows an enlarged three-dimensional view of a deposit container mounted in the cooling apparatus;

Fig. 3 shows a vertical section through a deposit container and locking means according to the invention.

[0007] A system for adjusting a deposit container in the height of a door of a household apparatus, preferably cooling and/or freezing apparatus, is provided on the side of the door 1 facing the interior of the household apparatus. Said door 1 comprises at the side facing the interior of the cooling and/or freezing apparatus an inner wall 2 which is formed in each vertical marginal area 3 thereof with a rail shaped projection 4 extending essentially over the entire height of the door 1. Each said projection 4 comprises at the side facing the opposite projection a symmetrically arranged fastening rib 5 in order to vertically fix a deposit container 6. Said fastening rib 5 is arranged on each projection 4 spaced from said inner wall 2, in the present preferred embodiment it is arranged in the central area between the association of each projection 4 with the inner wall 2 and the free end of each projection 4. In the present embodiment said inner wall 2 is made of plastic material with each said fastening rib 5 being formed by means of a blow moulding. In the lowermost and in the uppermost portions of each fastening rib 5 is formed in a similar manner as said fastening rib 5 an end stop 7, 8 preventing positioning the deposit container 6 to close to the lower edge or the upper edge of the door 1. It is provided for according to the present invention that each fastening rib 5 is formed essentially over the entire length thereof with locking means 9. With the present embodiment, said locking means 9 are formed on each fastening rib 5 at the side facing away from said inner wall 2 of the door 1. Further, an embodiment is possible where said locking means 9 are formed on each fastening rib 5 at the side facing each other. Furthermore, with the present embodiment said locking means 9 are formed in a manner of a rack with a mutually equidistant spaced peaks and troughs. Obviously, alternative embodiments are possible such as the fastening

ribs having recesses, raises and similar spaced more or less equidistantly in height. According to the invention, said fastening rib 5 is preferably integral with said inner wall 2 of said door 1, preferably by means of a blow moulding. Additionally, each said fastening rib 5 is provided at the top free end thereof with a convenient chamfer which facilitates accommodation of the deposit container 6 on the fastening ribs 5.

[0008] Longitudinally, said deposit container 6 is formed specular symmetrically with respect to the door 1 vertical and accommodated on said door 1 in a longitudinal area between said rail-shaped projections 4 and the fastening ribs 5, respectively. The container 6 comprises a front wall 10, side walls 11 arranged approximately perpendicular to the front wall 10, a back wall 12 facing the inner wall 2 of the door 1, and the bottom 13. The container 6 is formed in each corner area thereof which lies in the vicinity of the inner wall 2, i.e. approximately in the junction area of each side wall 11 with the back wall 12, with a holding device 14 allowing cooperation with the fastening rib 5. Said holding device 14 expands approximately in the extension with the side wall 11 and approximately in parallel therewith. Preferably, in the longitudinal direction of the container 6 the holding devices 14 are arranged closer to each other than to the side wall 11. The holding device 14 is preferably integral with the container 6.

[0009] Each holding device 14 comprises at the upper side thereof which is averted from the bottom 13 an approximately horizontally extending reinforcing wall 15 which extends approximately from the area of the back wall 12 and approximately to the connection of the holding device 14 with the side wall 11. Said reinforcing wall 15 is formed in the area where the holding device 14 cooperates with the fastening rib 5 with an adequate evasion recess 16. A resilient means extends out of the reinforcing wall 15 and approximately vertically downwards i.e. in the direction toward the bottom 13 of the container 6, said resilient means being selected in the present embodiment as a tongue 17 which is formed in a manner of a leaf spring and unilaterally attached to the reinforcing wall 15. Said resilient means 17 comprises at the free end thereof a counter-locking means 18 intended to cooperate with a locking means 9 of the fastening rib 5, and a triggering means 19 by means of which said cooperation of the locking means 9 and the counter-locking means 18 is either established or terminated. It is particularly favourable if at least part of the resilient means 17, and optionally also a part of the triggering means 19, is produced of material the elastic properties thereof are better than the elastic properties of the rest of the material the deposit container 6 is made of. Such an embodiment of the container 6 is possible during the production thereof by means of a two component blow moulding.

[0010] In the present embodiment, the lowest point of said triggering means 19, when observing in vertical direction of the door 1, can lie above the plane of the lower surface of the bottom 13 of the container 6. Thus, when

the container 6 is removed from the door 1, it can be safely and firmly placed on the deposit surface. In the vicinity of the connection of the side wall 11, the bottom 13 and the holding device 14 the triggering means 19 partially extends into the area of the bottom 13. Therefore, an evading recess 20 is formed in said bottom 13 in which the triggering means 19 can retreat during an action upon it and can allow for the counter-locking means 18 to be released from the engagement with the locking means 9 on the fastening rib 5. Said evading recess 20 which simultaneously serves as a limit stop for the triggering means 19 can be formed as a cut-out in the bottom 13 or as a depression in the bottom 13 of the container 6. Said triggering means 19 may comprise an ergonomically concave shape. Furthermore, the triggering means 19 can be coated at least partially with a coat of material which differs from the rest of material of the deposit container, thereby, a favourable ergonomic, aesthetic and/or communicating effect is allocated to the triggering means 19.

[0011] Said deposit container 6 is placed on the inside of said door 1 of the cooling and/or freezing apparatus from the top side of the fastening ribs 5, therefore, each holding device seats with said evading recess 16 of the container and by means of a loose fit onto the corresponding fastening rib 5. Each triggering means 19 is pushed by a user in the upward direction. At this moment, an elastic deformation of the resilient means 17 takes place and, as a result, each counter-locking means 18 disengages the locking means 9 of the fastening ribs 5. Thus, it is enabled a downward displacement of said deposit container 6. Upon reaching of desired position of the deposit container 6 in height, the user ceases to push said triggering means 19, thereby, each resilient means 17 returns the counter-locking means 18 into engagement with the locking means 9 on the fastening rib 5. In this manner, fixing of the deposit container 6 is achieved. In order to displace the container 6 into a higher position, the container is merely pushed toward the door 1 and upwards, whereby each counter-locking means 18 in a manner of a ratchet skips each locking means 9 on the fastening rib 5.

Claims

1. A household apparatus having a deposit container adjustable in the height of a door, and particularly a cooling and/or freezing apparatus, comprising a body with a compartment to accommodate goods to be cooled, a door (1) for opening and closing said compartment having at least one deposit container (6), said door (1) comprising on the inner wall (2) thereof at least one fastening rib (5) for fixing said deposit container, **characterized in that** a deposit container (6) is formed in each corner area thereof which lies in the vicinity of the inner wall (2) with a holding device (14) configuring to cooperate with the

fastening rib (5), said holding device (14) being preferably integral with the container (6).

2. A household apparatus according to claim 1, **characterized in that** each holding device (14) comprises at the upper side thereof which is averted from the bottom (13) of the container (6) an approximately horizontally extending reinforcing wall (15) which is formed in the area where the holding device (14) cooperates with the fastening rib (5) with an adequate evasion recess (16), a resilient means (17) extends out of the reinforcing wall (15) and approximately vertically downwards toward the bottom (13) of the container (6), said means (17) comprises at the free end thereof a counter-locking means (18) intended to cooperate with a locking means (9) of the fastening rib (5), and a triggering means (19) by means of which said cooperation of the locking means (9) and the counter-locking means (18) is either established or terminated.

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3. A household apparatus according to claim 1 and 2, **characterized in that** the counter-locking means (18), the resilient means (17) and the triggering means (19) are formed integrally with the deposit container (6).

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4. A household apparatus according to claim 1 to 3, **characterized in that** the resilient means (17) is formed as a tongue unilaterally attached to the reinforcing wall (15).

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5. A household apparatus according to claim 1 to 3, **characterized in that** at least a part of the resilient means (17) and/or at least a part of the triggering means (19) is produced of material the elastic properties thereof are better than the elastic properties of the rest of the material the deposit container (6) is made of.

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6. A household apparatus according to any of the preceding claims, **characterized in that** the lowest point of said triggering means (19), when observing in a vertical direction of the door (1) lies above the plane of the lower surface of the bottom (13) of the container (6).

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7. A household apparatus according to any of the preceding claims, **characterized in that** in the vicinity of the connection of the side wall (11), the bottom (13) and the holding device (14) the triggering means (19) partially extends into the area of the bottom (13).

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8. A household apparatus according to claim 7, **characterized in that** the bottom (13) of the container (6) is formed with an evading recess (20) into which the triggering means (19) can retreated allowing for the counter-locking means (18) to be released from

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the engagement with the locking means (9) on the fastening rib (5).

9. A household apparatus according to claims 7 and 8, **characterized in that** said evading recess (20) can be formed as a cut-out in the bottom (13) or as a depression in the bottom (13) of the container (6).
10. A household apparatus according to any of the preceding claims, **characterized in that** said triggering means (19) comprises an ergonomically concave shape.
11. A household apparatus according to any of the preceding claims, **characterized in that** the triggering means (19) is at least partially coated with a coat of material which differs from the rest of material of the deposit container.

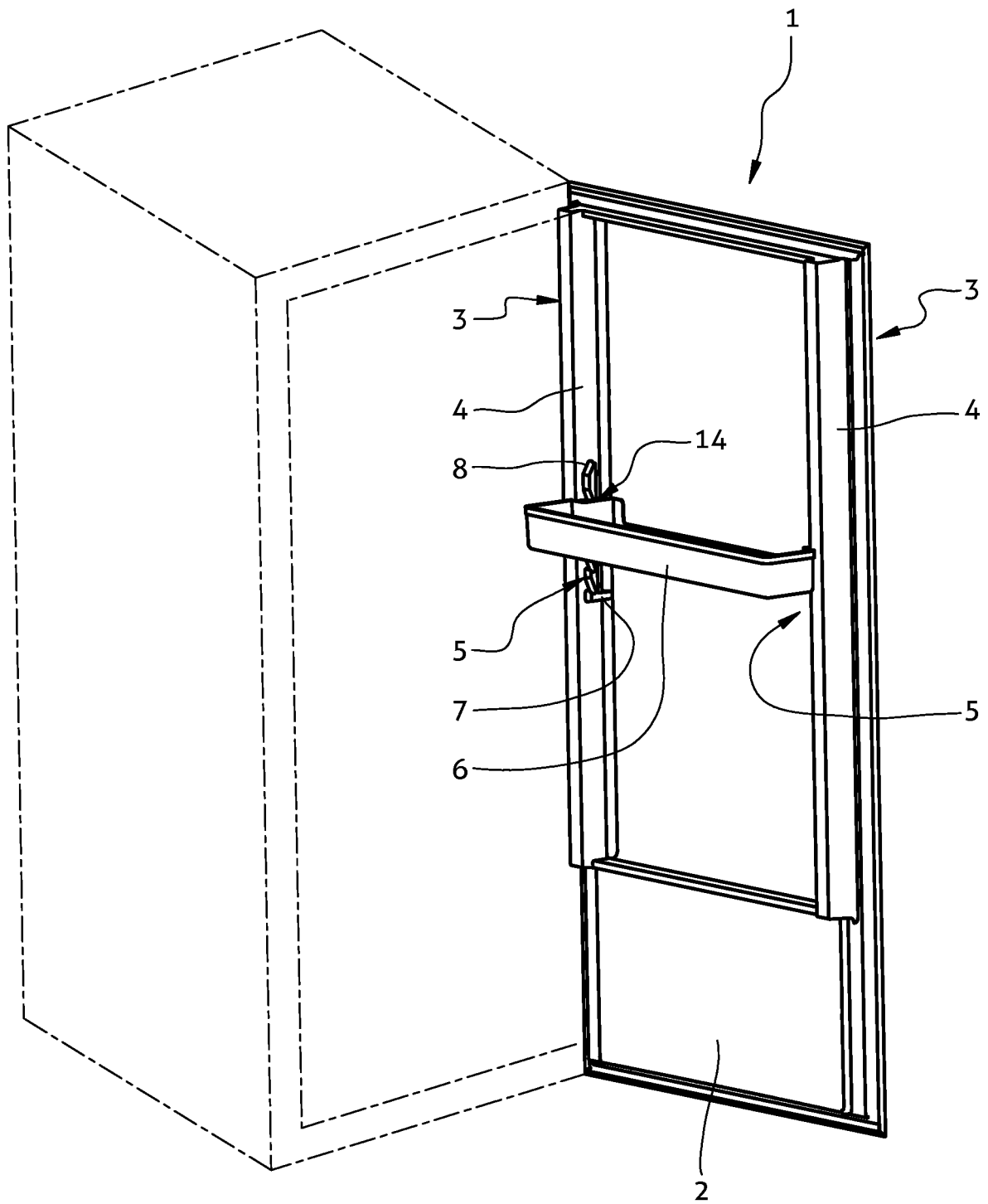
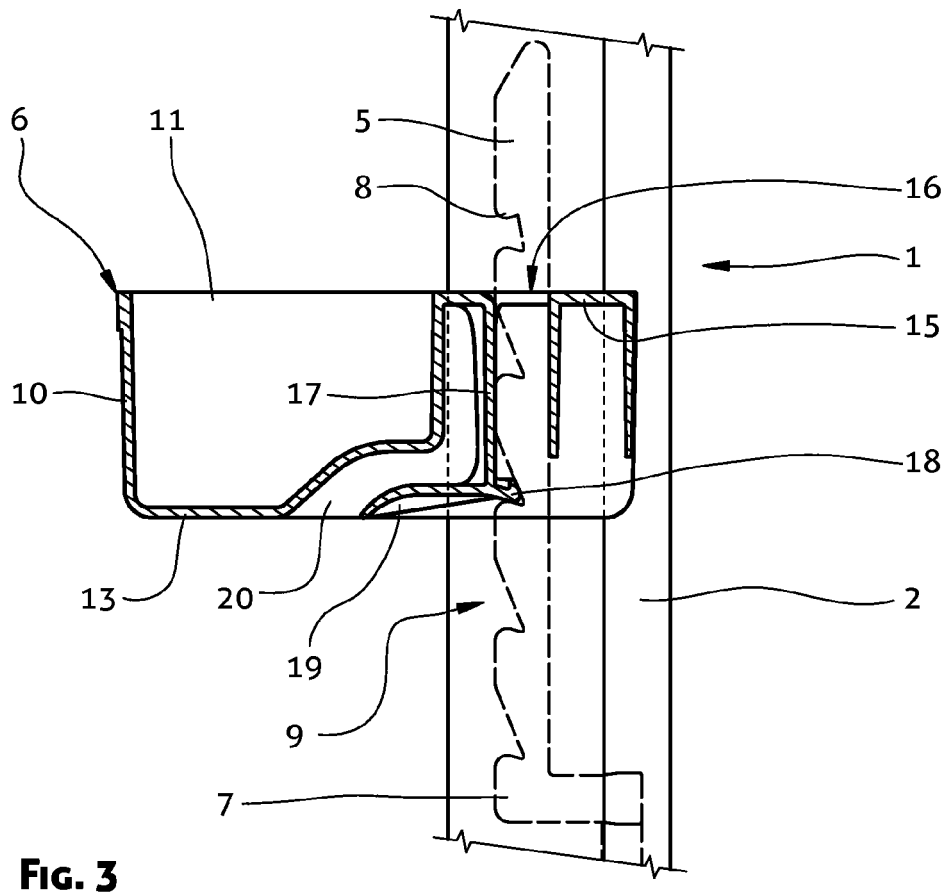
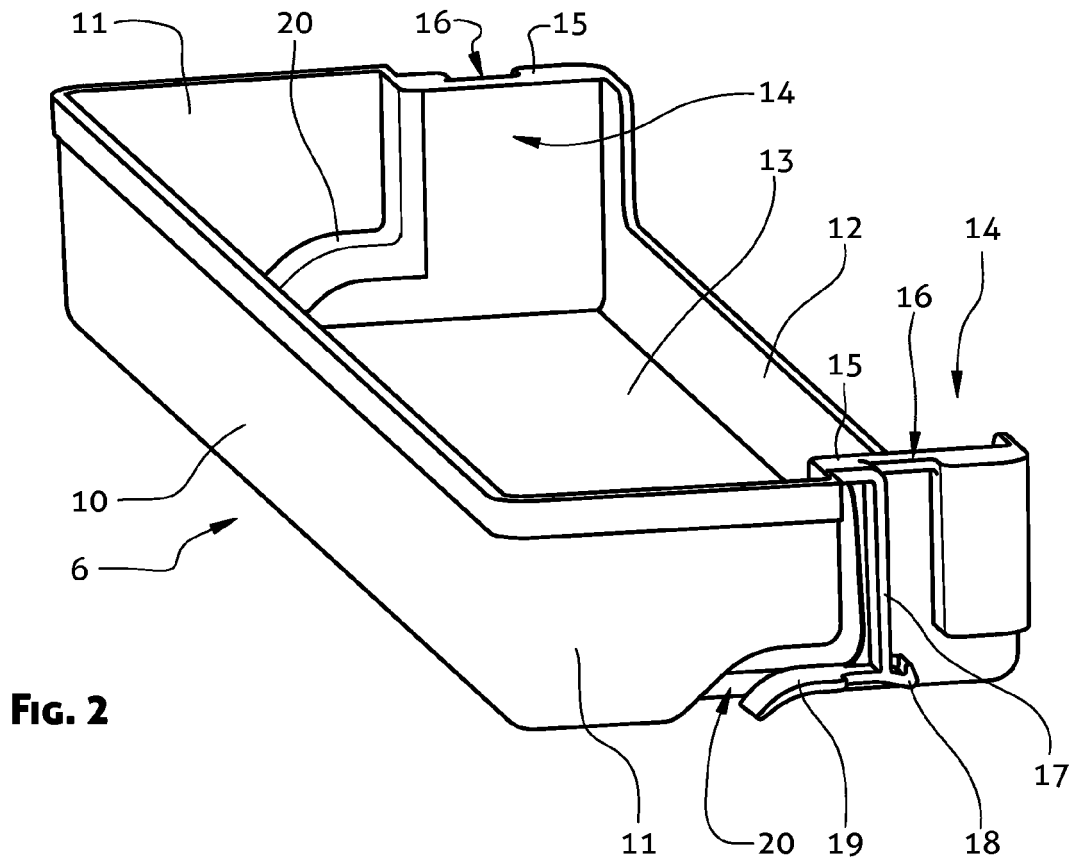


FIG. 1





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