

(19)



(11)

EP 2 604 959 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

19.06.2013 Bulletin 2013/25

(51) Int Cl.:

F25D 23/06 (2006.01)

F25C 1/04 (2006.01)

(21) Application number: **12183711.6**

(22) Date of filing: **10.09.2012**

(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

(30) Priority: **13.12.2011 TR 201112359**

(71) Applicant: **Indesit Company Beyaz Esya Sanayi ve
Ticaret Anonim Sirketi
Manisa (TR)**

(72) Inventors:

- **Kahraman, Volkan
IZMIR (TR)**
- **Devrim, Bora
IZMIR (TR)**

(74) Representative: **Iskender, Ibrahim**

**Destek Patent, Inc.
Lefkose Cad. NM Ofis Park
B Block No: 36/5 Besevler
16110 Bursa (TR)**

(54) **Modular ice maker structure for coolers**

(57) The present invention relates to ice maker structure providing ice production in the freezer sections of the coolers used in living spaces such as houses, hotels,

etc., increasing the utilization efficiency of the freezer of the respective cooler by being easily used and occupying less space and creating space by being demounted when ice is not needed, thanks to the modularity thereof.

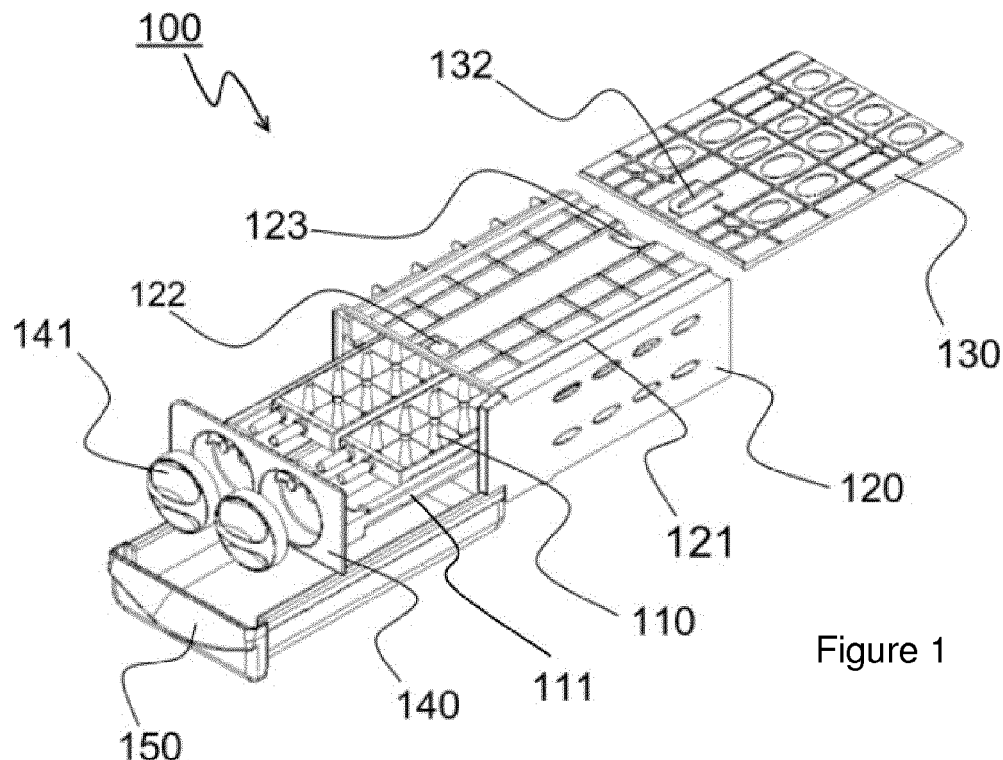


Figure 1

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Description

Field of the Invention

[0001] The present invention relates to ice maker structure providing ice production in the freezer sections of the coolers used in living spaces such as houses, hotels, etc., increasing the utilization efficiency of the freezer of the respective cooler by being easily used and occupying less space and creating space by being demounted when ice is not needed, thanks to the modularity thereof.

State of the Art

[0002] Today, coolers are used in living spaces such as houses, hotels, etc. for preventing food spoilage and providing food storage. Structure of said coolers comprises cooling section and freezer section. In said freezer section, ice makers are provided to be used for production of ice, when required. Said ice makers are provided in the freezer of respective coolers either as a single piece or a fixedly mounted part that cannot be demounted. Said ice makers mounted in the freezers as such have some flaws and disadvantages.

[0003] One of the disadvantages of the ice makers used in the current state of the art is the large volume due to large size thereof. Thus, said ice makers mounted in the freezers of the coolers occupy a large space. This situation gives rise to unnecessary space occupation in the internal volume of the freezers provided with ice makers. This, in turn, spells inefficient use of the internal volume of the freezer. In addition, the food items that should be kept in the freezer remain out of the cooler and face spoilage problem, due to large space occupation of said ice makers.

[0004] Another disadvantage of the ice makers used in the state of the art is that they are provided as fixed in the freezers of respective coolers and they do not provide modularity. In other words, current state of the art ice makers fill internal volume of the respective freezer unnecessarily as they remain in the mounted area, regardless of being used or not being used. This, in turn, results in reduction of the internal volume of the freezer. Thus, less food, not proportional to the freezer volume, can be stored in the respective freezer.

[0005] Another disadvantage of the ice makers used in the state of the art is that they decrease the internal volume utilization efficiency of the freezer provided with said ice makers, as well as giving rise to increased power consumption for cooling of the respective freezer. Use of more power for the freezer primarily results in additional operation of motor of the respective cooler and relevant elements thereof. This, in turn, spells straining and wearing of respective motor and elements thereof. Subsequently, electrical energy used to run the respective cooler increases due to use of more power. This, in turn, leads to an increase in the utilization cost of the respective cooler.

[0006] Another disadvantage of the ice makers used in the state of the art is that cleaning of the ice maker and the area provided therewith is extremely difficult due to fixed nature of said ice makers.

5 [0007] In the prior art, ice maker structures that can be mounted modularly on the coolers are also available. The greatest drawback of said structures is that they can only be used on the respective cooler, because mounting elements formed on said structures are only compatible with the mounting elements formed on the coolers of the same manufacturer.

10 [0008] Another drawback of said structures is that the structure cannot be fully fixed after being mounted to the cooler. Connection between the structure and the cooler loosens over time and it becomes difficult to keep the structure fixedly in place. The structure can vibrate and create noise pollution depending on the operation of the cooler as it is not fixed.

15 [0009] In conclusion, the need for the ice maker structure eliminating the disadvantages mentioned above and functioning in such a manner, thanks to the modularity thereof, so as to provide space by being demounted when ice is not needed and insufficiency of the solutions provided in current state of the art have made a development in the respective technical field necessary.

Brief Description of the Invention

20 [0010] The invention is developed by being inspired from existing situations and seeks to solve the above mentioned drawbacks.

25 [0011] The object of the present invention is to provide ice maker structure providing ice production in the freezer sections of the coolers used in places such as houses, hotels, etc., increasing the utilization efficiency of the freezer of the respective cooler by occupying less space and creating space by being demounted when ice is not needed thanks to the modularity thereof.

30 [0012] Another object of the present invention is to provide demountability feature, thanks to being modular by means of the fixed part and elements thereof and carrier body and elements thereof provided therein. Thus, thanks to said feature, said structure can be easily demounted when it is not required in the respective freezer.

35 40 45 Another object of the present invention is to provide utilization thereof in any cooler by means of the said fixed part.

[0013] The present invention aims to maintain fixedness thereof, thanks to the fixing element provided therein, even if the mounting elements connecting the structure and the cooler loosen over time. Another object of the present invention is to provide a structure having a relatively small size and low volume owing to the designs of the ice receptacle, carrier body and elements thereof.

50 55 Thus, said structure, even if it is used, does not occupy much space in the internal volume of the respective freezer.

[0014] Another object of the present invention is the

possibility to provide space in the internal volume of the respective freezer thanks to being modular as well as having low volume; and thus, said internal volume is utilized more efficiently.

[0015] Another object of the present invention is to provide easy and complete cleaning of the structure itself as well as the area in the freezer provided therewith, thanks to the modularity and demountability thereof.

[0016] Another object of the present invention is to eliminate additional power requirement for cooling the freezer, thanks to the less space occupation thereof in the respective freezer. Thus, straining of the motor and elements thereof performing the cooling operation is prevented. In addition, energy costs that will arise from additional power requirement are also minimized.

[0017] Another object of the present invention is to provide functionality thanks to the modular structure thereof. Thus, interior volume of the respective freezer can be arranged as desired by the user. This, in turn, increases user satisfaction.

[0018] The structural and the characteristic features and all advantages of the present invention will be understood more clearly with the detailed description written by referring to the following figures; therefore, the evaluation needs to be done by taking these figures and the detailed description into consideration.

Figures for a Better Understanding of the Invention

[0019]

Figure 1 is perspective view of the disassembled ice maker structure according to the present invention. Figure 2 is perspective view of the disassembled fixed part and carrier body of the ice maker structure according to the present invention.

Figure 3 is perspective view showing mounting of the ice maker structure according to the present invention on the respective cooler.

Figure 4 is perspective view of the fixed part and carrier body of the ice maker structure according to the present invention, mounted on the cooler.

Figure 5 is perspective view of the ice maker structure according to the present invention, mounted on the cooler.

[0020] The drawings do not necessarily need to be scaled and details which are not needed for understanding the present invention can be neglected. Furthermore, the elements which are at least substantially identical or have at least substantially identical functions are indicated with the same number.

Description of Part References

[0021]

100. Ice maker structure

110. Ice receptacle

111. Receptacle edge

120. Carrier body

5 121. Lower mounting element

122. Fixing element slot

123. Angled surface

124. Body channels

10 130. Fixed part

131. Upper mounting element

132. Fixing element

133. Mounting element slot

15 140. Ice tray holder

141. Ice dropping element

150. Ice container

20 200. Cooler

Detailed Description of the Invention

[0022] The present invention relates to the ice maker structure (100) provided in coolers (200), enabling ice production from the liquid provided therein by means of at least one ice receptacle (110) and comprising carrier body (120) provided with ice receptacle (110) and at least one lower mounting element (121) formed on said carrier body (120) so as to enable demounting of the structure (100) from the cooler (200) when it will not be used and providing modular mounting of the carrier body (120) to the cooler (200) (Figure 1).

[0023] The present invention is characterized by comprising the following:

- at least one fixed part (130) fixed to the cooler (200) and comprising thereon at least one upper mounting element (131) providing modular mounting of said carrier body lower mounting element (121);
- at least one fixing element (132) enabling fixing of the carrier body (120) after being mounted to the fixed part (130) and formed on one (130) of these two elements; and
- at least one fixing element slot (122) formed on the other element (120) so as to correspond to said element (132) (Figure 2).

Preferred Embodiments of the Invention

[0024] In this detailed description, preferred embodiments of the ice maker structure (100) according to the present invention are described only for a better understanding of the subject, without constituting any restrictive effect.

[0025] Accordingly, the present invention provides fixing thereof to the respective cooler (200) by means of the fixed part (130) provided thereon with mounting ele-

ment slots (133). Preferably, two upper mounting elements (131) in the form of slider and fixing element (132) in the form of tongue are provided on said part. Accordingly, the present invention comprises lower mounting element (121) mounted to said slider and comprising two channels, fixing element slot (122) enabling fixing of the structure by fitting of said fixing element (132) therein, angled surface (123), and carrier body (120) comprising body channels (124). Ice receptacle (110) provided by the present invention can move back and forth within said body (120) by means of the receptacle edges (111). Ice tray holder (140) provided with ice dropping element (141) thereon carries said receptacle (110) according to the present invention. Lastly, at least one ice container (150) enabling the retention of the ice dropped from the receptacles (110) thereof and removal of said ice from the ice maker and positioned below the ice receptacle (110) is provided.

[0026] In Figure 1, perspective views of the disassembled ice maker structure (100) according to the present invention are given. According to the figures, fixed part (130) provides mounting of the ice maker structure (100) according to the present invention to the respective cooler (200). Fixed part also provides demounting of the ice maker structure (100) from the respective cooler (200) when said ice maker structure (100) will not be used. Upper mounting element (131), fixing element (132) and mounting element slots (133) are comprised in the structure of the fixed part (130). Mounting element slots (133) are formed in sufficient amount on the appropriate places on the fixed part (130) surface and they provide mounting and fixing of said part (130) on the surface of the respective cooler (200) by means of appropriate mounting elements (screws, etc.). Fixing element (132) is formed in the form of flexible tab in the middle of the end portion of the fixed part (130) lower surface facing outwards. The function of said tab is, upon connection of the fixed part (130) and the carrier body (120), to lock the two elements (120, 130) by entering into the fixing element slot (122) provided on the upper surface of the carrier body (120) and in a position corresponding to said tab. Upper mounting element (131) is formed on the portions closer to the edge of the fixed part (130) lower surface, perpendicular to the front surface, preferably in the form of channels. The function of said element (131) is to connect the fixed part (130) and the carrier body (120). Said connection is realized by the introduction of the lower mounting element (121) provided, in a position corresponding to the element (131), on the upper surface of the carrier body (120) into the upper mounting element (131) and by back and forth sliding movement. Carrier body (120) becomes modular on the fixed part (130) thanks to said connection. Thus, demounting of the carrier body (120) and the elements of the ice maker structure (100) carried thereon is allowed, when required.

[0027] Carrier body (120) is the main part mounted to the fixed part (130) and carrying the other elements of the ice maker structure (100) thereon. Lower mounting

element (121), fixing element slot (122), angled surface (123) and body channels (124) are provided on said body (120). Body channels (124) are formed across the middle of the inner portion of the two lateral surfaces of said body (120). Said channels (124) allow for sliding movement by containing the receptacle edges (111) therein. Thus, they provide placement of the ice receptacle (110) into the carrier body (120). Angled surface (123) is formed exactly in the middle of the side of the carrier body (120) upper surface facing rear portion of the cooler so as to correspond to the fixing element (132). Said surface (123), in the course of the sliding movement performed during installation of the ice maker structure (100) according to the present invention to the cooler (200), prevents the fixing element (132) provided in the middle of the fixed part (130) lower surface from being stuck to the carrier body (120). Fixing element slot (122) is formed as a cavity so as to correspond to the fixing element (132) in the middle portion of the upper surface of the carrier body (120). Function of said slot (122) is to provide locking of the carrier body (120) on the fixed part (130) by corresponding to the fixing element (132). Lower mounting element (121) is in the form of sliding protrusion formed longitudinally in the portions closer to the two edges of the carrier body (120) upper surface so as to correspond to the upper mounting element (131) provided on the fixed part (130). Back and forth sliding movement is provided by introduction of the lower mounting element (121) into the upper mounting element (131). Carrier body (120) provided with said mounting element thereon is mounted to the fixed part (130) from below thanks to said sliding movement. Thus, carrier body (120) can move back and forth over the fixed part (130). Carrier body (120) can be separated from the fixed part (130) thanks to said movement. Thus, modularity feature is provided. Figure 2 shows mounting and demounting of the carrier body (120) to and from the fixed part (130).

[0028] Ice receptacle (110) is the element providing optional ice production within the cooler (200). Surface of said receptacle (110) is recessed so as to hold the liquid used in ice formation and the receptacle (110) is preferably designed as two identical pieces. Ice receptacle (110) is placed into the interior space of the carrier body (120). In said placement, receptacle edges (111) provided outside the two lateral surfaces of the ice receptacle (110) enter into the body channels (124) provided inside the two lateral surfaces of the carrier body (120). Thus, ice receptacle (110) is enabled to realize back and forth sliding movement on the carrier body (120). In addition, ice receptacle (110) can be completely demounted from said body (120), if required. Ice dropping element (141) is provided on the outward facing end of the ice tray holder (140) carrying the ice receptacle (110). Ice tray holder (140) provides housing and fixing of the ice receptacle (110). Ice dropping element (141) is positioned over the ice tray holder (140) and provides dropping of the ice formed in the receptacle (110) by rotating the ice receptacle (110) and preferably two pieces of said

dropping element, each of which corresponds to each of the ice receptacles (110) are provided. Ice container (150) is also mounted to said body (120) so as to completely cover the bottom of the carrier body (120) and positioned exactly below the ice receptacle (110). The function of said container is to allow the retention and receiving of the ice dropped from the ice receptacle (110).

[0029] Mounting and demounting processes of the ice maker structure (100) according to the present invention, elements and functions of which are described above, to and from the respective cooler are performed as follows:

- In the mounting, first, fixed part (130) is fixed to the respective compartment of the cooler (200) through the mounting element slots (133) by means of appropriate mounting elements, preferably screws.

- Then, carrier body (120) and the fixed part (130) are joined by the introduction of the lower mounting element (121) into the upper mounting element (131) and the forward pushing of said body by the sliding movement.

- Afterwards, carrier body (120) and the fixed part (130) are interlocked by the introduction of the fixing element (132) provided on the fixed part (130) into the fixing element slot (122) provided on the upper surface of the carrier body (120).

- Then, ice tray holder (140), ice receptacle (110) and ice dropping element (141), all of which are used together as a group, are placed into the carrier body (120).

- Lastly, ice container (150) is placed into the carrier body (120).

- Thus, mounting is completed. Perspective views of the mounting of the ice maker structure (100) according to the present invention are given in Figures 3, 4 and 5.

[0030] In the demounting, first, ice container (150) and subsequently, ice tray holder (140), ice dropping element (141) and ice receptacles (110), three of which are provided as a group, are removed from the carrier body (120). Then, fixing element (132) provided on the fixed part (130) is pushed with the finger and released from the fixing element slot (122) and locking of the carrier body (120) and the fixed part (130) is terminated. Subsequently, release of the carrier body (120) from the fixed part (130) is provided by pulling the lower mounting element (121) backward in the upper mounting element (131) by means of the sliding movement. Thus, demounting is provided.

Claims

1. Ice maker structure (100) provided in coolers (200), enabling ice production from the liquid provided therein by means of at least one ice receptacle (110) and comprising carrier body (120) provided with ice receptacle (110) and at least one lower mounting element (121) formed on said carrier body (120) so as to enable demounting of the structure (100) from the cooler (200) when said structure will not be used and providing modular mounting of the carrier body (120) to the cooler (200), **characterised in that** it comprises the following:

- at least one fixed part (130) fixed to the cooler (200) and comprising thereon at least one upper mounting element (131) providing modular mounting of said carrier body lower mounting element (121);

- at least one fixing element (132) enabling fixing of the carrier body (120) after being mounted to the fixed part (130) and formed on one (130) of these two elements; and

- at least one fixing element slot (122) formed on the other element (120) so as to correspond to said element (132).

2. Ice maker structure (100) according to claim 1, **characterised in that**; said lower and upper mounting elements (121, 131) provided on the carrier body (120) and the fixed part (130) are at least one channel and at least one sliding protrusion mounted through introduction thereof into said channel, respectively.

3. Ice maker structure (100) according to claim 1, **characterised in that**; said fixing element (132) is at least one flexible tab and fixing element slot (122) is a cavity suitable for said tab.

4. Ice maker structure (100) according to claim 1, **characterised in that**; it comprises at least one mounting element enabling fixing of said fixed part (130) to the cooler (200), preferably at least one screw.

5. Ice maker structure (100) according to claim 4, **characterised in that**; it comprises at least one mounting element slot (133) formed on the fixed part (130) and to be provided with said mounting element.

6. Ice maker structure (100) according to claim 2, **characterised in that**; it comprises at least one angled surface (123) formed on said body (120) so as to correspond to the fixing element (132) for preventing the fixing element (132) from being stuck to the carrier body (120) during said sliding operation.

7. Ice maker structure (100) according to claim 1, **characterised in that**; it comprises ice tray holder (140)

holding said ice receptacle (110).

8. Ice maker structure (100) according to claim 7, **characterised in that**; it comprises at least one ice dropping element (141) positioned over the ice tray holder (140) and enabling dropping of the ice by rotating the ice receptacle (110). 5
9. Ice maker structure (100) according to claim 8, **characterised in that**; it comprises at least one ice container (150) enabling the retention of the dropped ice and removal of said ice from the ice maker and positioned below the ice receptacle (110). 10

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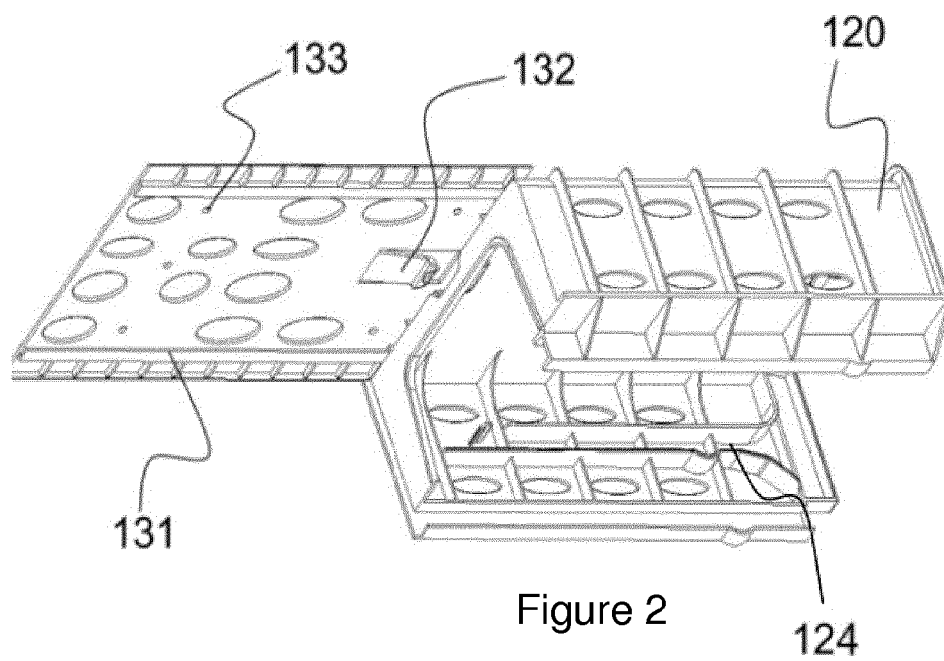
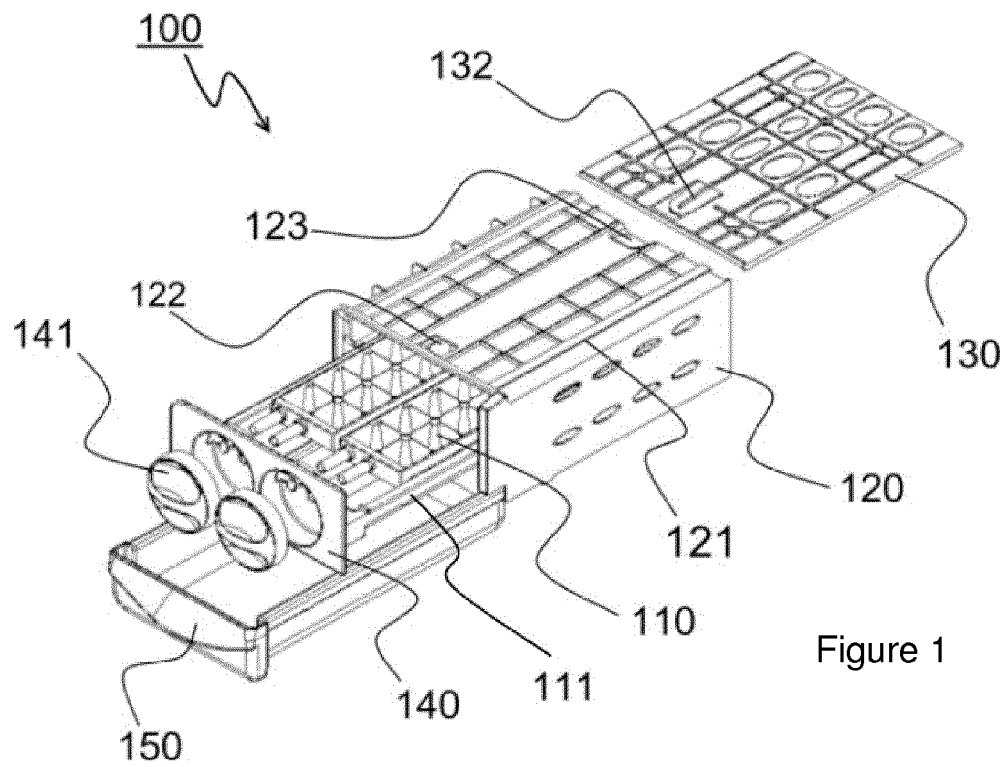
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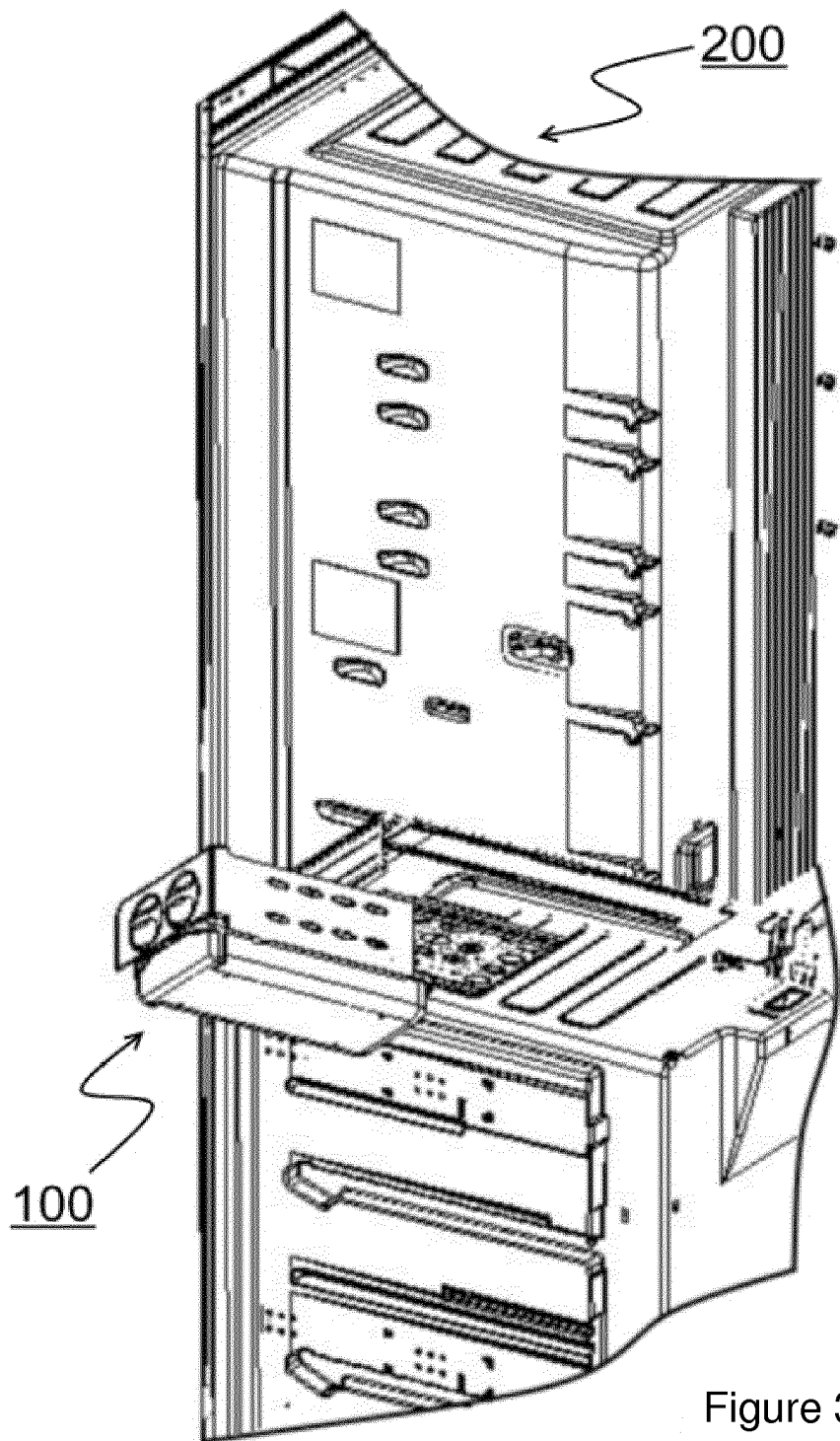


Figure 3

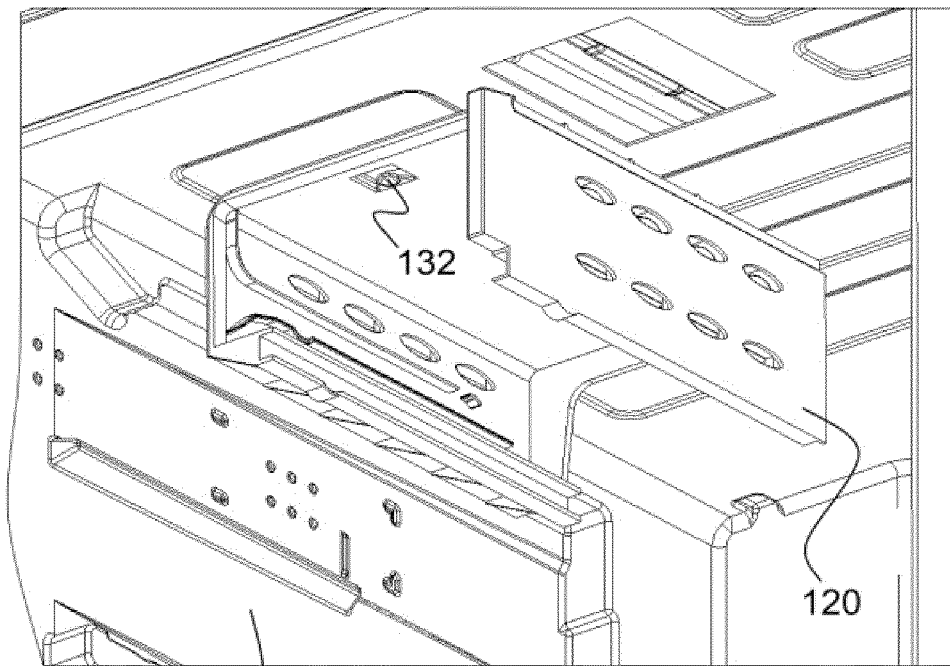


Figure 4

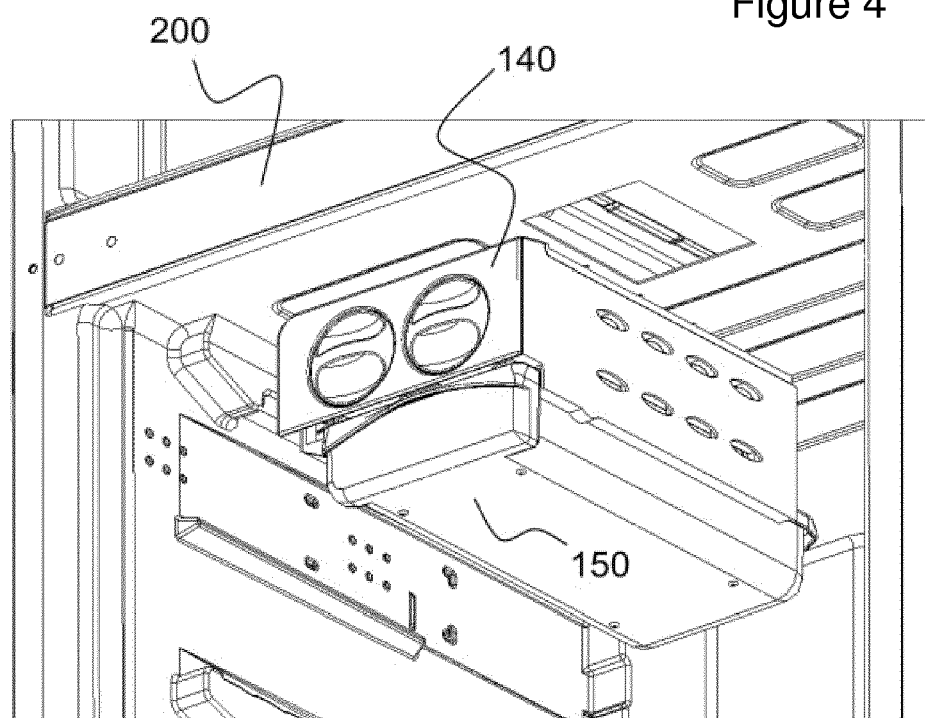


Figure 5