(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 530 413 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
05.12.2012 Bulletin 2012/49

(51) Int Cl.:
F25C 1/24 *(2006.01)*

(21) Application number: **12003763.5**

(22) Date of filing: **11.05.2012**

(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: **03.06.2011 KR 20110054052**

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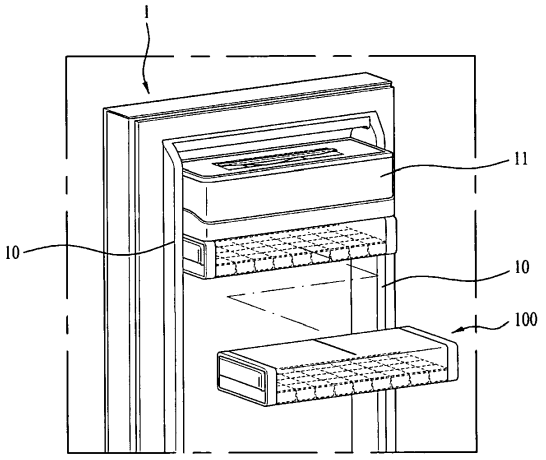
(54) Ice making tray and refrigerator comprising the same

(57) There is disclosed an ice making tray (100) that is able to perform ice-making and ice-ejecting conveniently, especially, that has no concern of ice-making water sparkling when ice-making water is introduced and of ice escaping when ice is ejected, and a refrigerant including the same. The ice making tray includes a case (101) to define an exterior appearance thereof, an ice making part (102) provided in a lower portion of the case, the ice making part comprising ice making spaces partitioned by a plurality of partition walls to accommodate ice-making water, an ice accommodating part (103) provided in an upper portion of the case to accommodate ice ejected to a top of the ice making part, and an opening formed in a predetermined side of the case to introduce the ice-making water into the case or to discharge the ejected ice, and the refrigerator includes the ice making tray.

FIG. 1



EP 2 530 413 A2

Description

BACKGROUND

1. Field

[0001] Embodiments of the invention relates to an ice making tray and a refrigerator including the same, more particularly, to an ice making tray that is able to perform ice-making and ice-ejecting conveniently, especially, that has no concern of ice-making water sparkling when ice-making water is introduced and of ice escaping when ice is ejected, and a refrigerant including the same

2.Background

[0002] Refrigerators are electric appliances used for freezing and refrigerating food stuffs via a refrigerant cycle to preserve the stored stuffs for a relatively long time. Such a refrigerator typically includes a cabinet having a storage compartment and a door rotatably or sliding-movably coupled to the cabinet to open and close the storage compartment.

[0003] Meanwhile, an ice maker is provided in the storage compartment or the door to make ice. A top surface of the ice maker is exposed outside and an internal space of the ice maker is partitioned off into a plurality of ice-making rooms by a plurality of partition walls.

[0004] In a conventional refrigerator, ice-making water is supplied to an ice making tray automatically or supplied to an ice making tray by a user directly. If the ice making tray receiving the ice-making water therein is placed in a door, a freezer compartment or an ice making compartment for a predetermined time period and the ice-making water is frozen into ice.

[0005] When ejecting the ice, it is typical that an auxiliary ice ejector is driven to eject the ice or that the ice making tray is twisted to eject the ice.

[0006] However, when the ice-making water is supplied by the user directly or automatically, the ice-making water might be spattered. Even when the ice is ejected by twisting the ice making tray, the ice might be deviated from a normal ejecting path by the twisting force.

SUMMARY

[0007] Accordingly, the embodiments may be directed to an ice making tray and a refrigerator including the same. To solve the problems, an object of the embodiments may be to provide an ice making tray that is able to prevent ice-making water supplied thereto from being spattered and to prevent ejected ice from being deviated to an unexpected direction suddenly, and a refrigerator including the same.

[0008] To achieve these objects and other advantages and in accordance with the purpose of the embodiments, as embodied and broadly described herein, an ice making tray includes a case to define an exterior appearance thereof; an ice making part provided in a lower portion of the case, the ice making part comprising ice making spaces partitioned by a plurality of partition walls to accommodate ice-making water; an ice accommodating part provided in an upper portion of the case to accommodate ice ejected to a top of the ice making part; and an opening formed in a predetermined side of the case to introduce the ice-making water into the case or to discharge the ejected ice.

[0009] A limit indication line may be marked on the case to indicate a limit point of the ice-making water.

[0010] The limit indication line may be marked on the ice accommodating part.

[0011] The ice-making water may not be overflowing the ice making part, when the ice-making water is introduced to the limit indication line.

[0012] The limit indication line may be marked horizontal with respect to the opening.

[0013] The ice making tray may further include an opening and closing member rotatably provided in a predetermined side of the case to open and close the opening.

[0014] The height of a lower portion of the opening and closing member may be larger than the height of an upper portion of the ice making part.

[0015] The longitudinal length of the opening may be larger than the longitudinal length of the ice making part.

[0016] A volume of the ice accommodating part may be larger than a volume of the ice making part.

[0017] The case may be twistable and when the case is twisted, the ice accommodated in the ice making part may be ejected to the ice accommodating part.

[0018] In another aspect of the invention, a refrigerator includes a cabinet comprising a storage compartment to store storing objects therein; a door coupled to the cabinet to open and close the storage compartment; an ice making tray mounted in the cabinet or the door, wherein the ice making tray comprises a case to define an exterior appearance thereof; an ice making part provided in a lower portion of the case, the ice making part comprising ice making spaces partitioned by a plurality of partition walls to accommodate ice-making water; an ice accommodating part provided in an upper portion of the case to accommodate ice ejected to a top of the ice making part; and an opening formed in a predetermined side of the case to introduce the ice-making water into the case or to discharge the ejected ice.

[0019] The ice making tray may further include an opening and closing member rotatably provided in a predetermined side of the case to open and close the opening.

[0020] The height of a lower portion of the opening and closing member may be larger than the height of an upper portion of the ice making part.

[0021] A limit indication line may be marked on the ice accommodating part.

[0022] The ice-making water may not be overflowing the ice making part, when the ice-making water is intro-

duced to the limit indication line.

[0023] As mentioned above, the embodiments have following advantageous effects. According to the embodiments of the invention, the user may open the opening and closing member to open the opening and he or she may supply the ice-making water to the case. The case includes the airtight closed space and there is no concern of spattered ice-making water, when the ice making water is supplied to the case.

[0024] Especially, if directly pouring a conventional ice making tray to place the ice making tray in a storage compartment, an ice making compartment or a door, the user has to be careful not to overturn the conventional ice making tray. However, the only thing the user has to take care of is closing the opening and closing member before moving the ice making tray and there is no concern of the ice making water overflowing accordingly.

[0025] Meanwhile, when the user desires to twist the ice making tray to eject the ice after the ice making is completed, a top surface of the conventional ice making tray is exposed and there is concern of the ejected ice being deviated in an unexpected direction in the conventional ice making tray. However, in this case, the ejected ice is collided against the inner wall of the case to be collected in the ice accommodating part in the ice making tray according to the embodiment of the invention. Accordingly, the ice making tray according to the embodiment of the invention may have an advantage of efficiently collecting the ejected ice.

[0026] Meanwhile, the limit indication line of the ice making water supply is provided in the case and the user can adjust the amount of the supplied ice making water smoothly.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] Arrangements and embodiments may be described in detail with reference to the following drawings in which like reference numerals refer to like elements and wherein:

FIG. 1 is a perspective view illustrating an ice making tray according to an embodiment that is mounted to a refrigerator according to an embodiment;

FIG. 2(a) is a perspective view illustrating the ice making tray that is located at a home position;

FIG. 2(b) is a perspective view illustrating the ice making tray located at a reverse position;

FIG. 3 is a side view illustrating the ice making tray according to the embodiment of the invention;

FIG. 4 is a perspective view illustrating that ice-making water is supplied to the ice making tray according to the embodiment; and

FIG. 5 is a perspective view illustrating that ice ejected from the ice making tray is dispensed.

DETAILED DESCRIPTION

[0028] An embodiment of the invention will be described in detail in reference to the accompanying drawings as follows.

[0029] As shown in FIG. 1, a refrigerator according to an embodiment of the invention includes a cabinet (not shown) having a storage compartment (not shown) and a door 1 coupled to the cabinet to open and close the storage compartment.

[0030] The storage compartment may be a freezer compartment or an ice-making compartment. The door 1 may be a freezer compartment door or an ice-making compartment door.

[0031] An ice making tray 100 according to an embodiment may be mounted in the storage compartment or the door 1. When it is mounted in the door 1, the ice making tray 100 may be insertedly fitted between door liners 10 provided on both sides of an inner surface of the door 1.

[0032] In this instance, an ice box 11 may be provided adjacent to the ice making tray 100 to store ice ejected after made in the ice making tray 100.

[0033] Front and back portions of the ice making tray 100 are fitted to inner wall surfaces of the door lines, respectively, to realize a stable position of the ice making tray 100. A securing member (not shown) may be provided in each inner wall surface of the door lines 10 such as a fixing piece for fixing the ice making tray 100 to the inner wall surface.

[0034] As shown in FIG. 2, the ice making tray 100 according to the embodiment includes a case 101 formed of a transparent material in a cube shape, specifically, a rectangular parallelepiped shape to define an exterior appearance thereof.

[0035] An ice making part 102 consisting of a plurality of ice making spaces partitioned by a plurality of partition walls may be provided in a lower portion of the case 101. The ice-making water is supplied and received in the ice making part 102 and the ice making tray 100 having the ice making water supplied and received in the ice making part 102 is preserved in a sub-zero space for a predetermined time period. After that, ice may be formed in the shape of the ice making space provided in the ice making part 102.

[0036] It is shown in the drawings that each of the ice making spaces is rectangular-parallelepiped-shaped and the shape according to the embodiment is not limited thereto.

[0037] Meanwhile, an ice accommodating part 103 is provided in an upper portion of the ice making part 102 to accommodate the ice ejected from the ice making part 102.

[0038] A spatial extent of the ice accommodating part 103 may be corresponding to back-and-forth and right-and-left breaths of the ice making part 102.

[0039] Meanwhile, an opening and closing member 110 is rotatably provided in a side of the case 101 and

the opening and closing member 110 is employed to open and close an opening (111, see FIG. 4) formed in the side of the case 101.

[0040] Accordingly, when the ice making water is supplied, the opening (111, see FIG. 4) is employed as an inlet. When the ejected ice is discharged, the opening is employed as an outlet. The opening and closing member 110 is employed to open and close the opening 111 when the ice is made or accommodated, except when the ice making water is supplied or the ice is ejected.

[0041] Meanwhile, a limit indication line 120 is provided on a top surface of the case 101 to display a limit point of ice making water introduction. In other words, the limit indication line 120 may be marked on the ice accommodating part 103 and it may be marked in parallel to the opening 111.

[0042] When a user introduces the ice making water to the limit indication line 120 after erecting the case 101, the amount of the ice making water is enough to fill the ice making part 102. In other words, when supplied to the limit indication line 120, the ice making water may not overflow the ice making part 102.

[0043] When the user erects the case 101, the limit indication line 120 is marked horizontal with respect to a bottom surface of the case 101. Accordingly, as the ice making water is introduced into the case 101, a water level of the ice making water is rising horizontally with respect to the light indication line 120.

[0044] As shown in FIG. 2(b), when the user turns over and twists the case 101, holding right and left sides, after the ice is made, the shape of the case 101 is varied and the ice made in the ice making part 102 is bouncingly ejected.

[0045] Even when the ice cubes are bounced, the ice cubes are collided against an inner wall of the case 101 only to be accommodated by the ice accommodating part 103.

[0046] Accordingly, there is no concern of the ejected ice cubes being bounced outside the case 101.

[0047] As shown in FIG. 3, seen from the side of the ice making tray 100, the height of the upper portion possessed by the ice making part 102 may be smaller than the height of the lower portion possessed by the opening and closing member 110.

[0048] That is because the ice making water should not overflow toward the opening (111, see FIG. 4), when the ice making water is supplied to the ice making tray 100 in a state of the ice making tray 100 being located at the home position (that is, the ice making part 102 is located downside and the ice accommodating part 103 is located upside).

[0049] Meanwhile, the volume of the ice accommodating part 103 may be larger than that of the ice making part 102. That is because generation of ice jam should be prevented, with securing a sufficient space for the ice to move in the ice accommodating part 103 freely, when the case 101 is moved in the state of the ice being made and ejected.

[0050] In addition, the longitudinal length, in other words, the height of the opening 111 may be larger than the longitudinal length, in other words, the height of the ice making part 102. That is because the ice accommodated in the ice accommodating part 103 has to be discharged outside via the opening 111 smoothly.

[0051] In reference to the accompanying drawings, the operation of the ice making tray according to the embodiment will be described as follows.

[0052] As shown in FIG. 4, the user erects the case 101 and opens the opening and closing member 110, to open the opening 111.

[0053] The user introduces ice-making water into the case 101 via the opening 111.

[0054] In this instance, the water level of the ice making water may not pass the limit indication line 120.

[0055] When the ice making tray 100 is located at the home position as shown in FIG. 2(a), all of the ice making water is accommodated in the ice making part 102.

[0056] The ice making tray 100 having the ice making water accommodated in the ice making part 102 is mounted in the freezer compartment, the ice making compartment or the door. In a predetermined time after that, the ice cubes are formed in the same shape of the ice making spaces formed in the ice making part 102.

[0057] Once it is checked that the ice making is completed, the user takes out and twists the ice making tray 100 in different directions, with holding the tray 100. After that, the ice is ejected and accommodated in the ice accommodating part 103.

[0058] In this instance, as shown in FIG. 5, the user opens the opening and closing member 110 to open the opening 111 and tilts the ice making tray for the opening 111 to be toward a predetermined target point. After that, the ice cubes are discharged via the opening 111 and they fall toward the target point.

Claims

1. An ice making tray comprising:

   a case to define an exterior appearance thereof;
   an ice making part provided in a lower portion of the case, the ice making part comprising ice making spaces partitioned by a plurality of partition walls to accommodate ice-making water;
   an ice accommodating part provided in an upper portion of the case to accommodate ice ejected to a top of the ice making part; and
   an opening formed in a predetermined side of the case to introduce the ice-making water into the case or to discharge the ejected ice.

2. The ice making tray according to claim 1, wherein a limit indication line is marked on the case to indicate a limit point of the ice-making water.

3. The ice making tray according to claim 2, wherein the limit indication line is marked on the ice accommodating part.

4. The ice making tray according to claim 2, wherein the ice-making water is not overflowing the ice making part, when the ice-making water is introduced to the limit indication line.

5. The ice making tray according to claim 2, wherein the limit indication line is marked horizontal with respect to the opening.

6. The ice making tray according to claim 1, further comprising:

an opening and closing member rotatably provided in a predetermined side of the case to open and close the opening.

7. The ice making tray according to claim 6, wherein the height of a lower portion of the opening and closing member is larger than the height of an upper portion of the ice making part.

8. The ice making tray according to claim 1, wherein the longitudinal length of the opening is larger than the longitudinal length of the ice making part.

9. The ice making tray according to claim 1, wherein a volume of the ice accommodating part is larger than a volume of the ice making part.

10. The ice making tray according to claim 1, wherein the case is twistable and when the case is twisted, the ice accommodated in the ice making part is ejected to the ice accommodating part.

FIG. 1

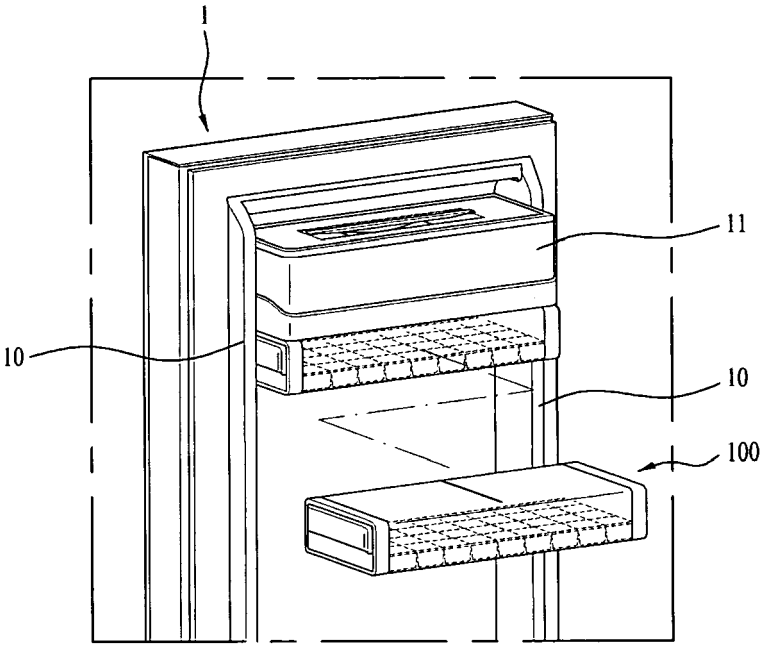
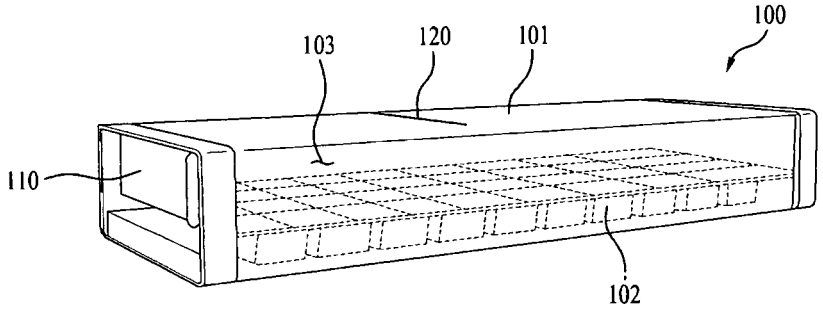
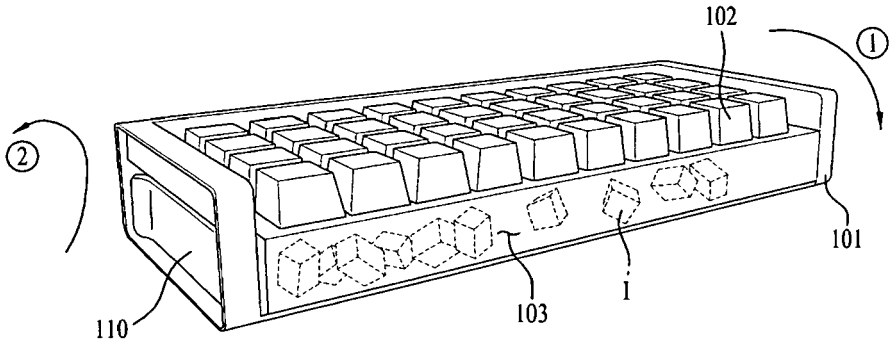


FIG. 2



(a)



(b)

FIG. 3

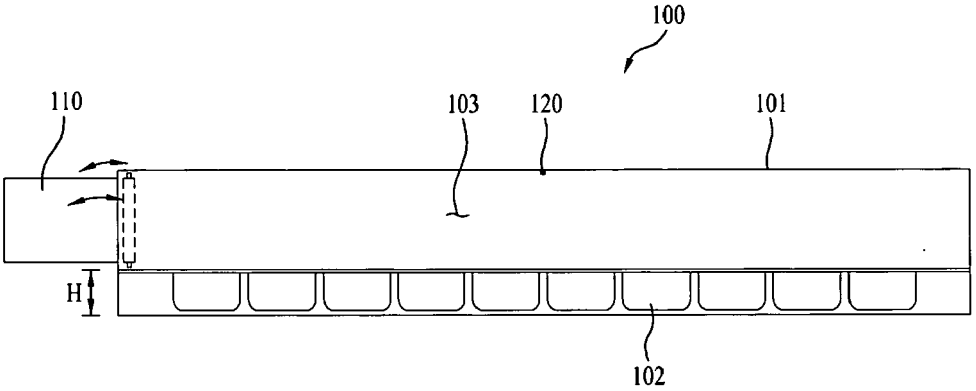


FIG. 4

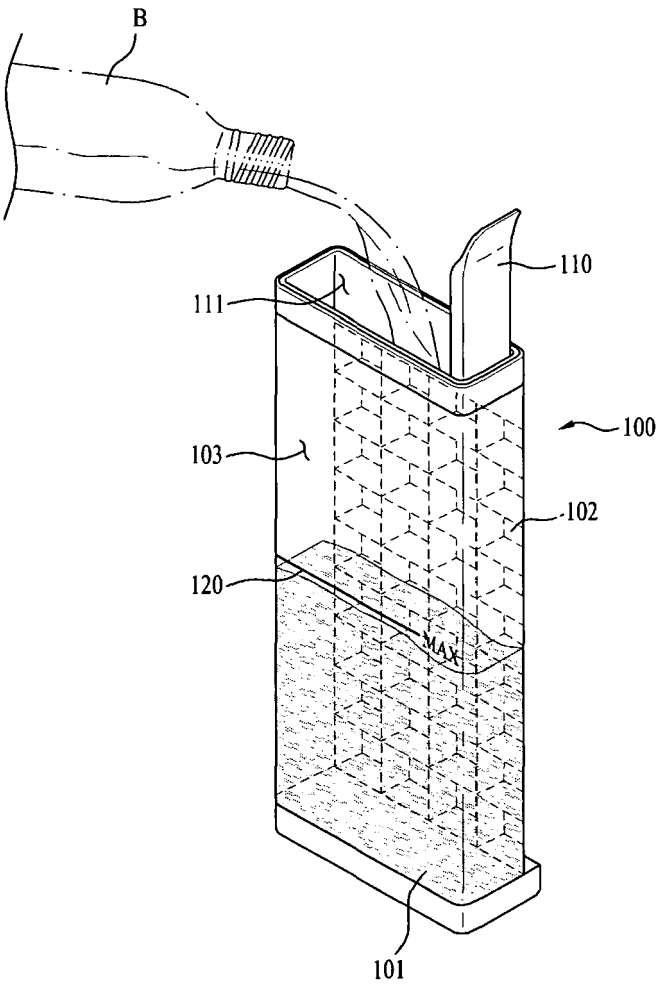


FIG. 5