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ICE MAKER FOR A REFRIGERATOR

ABSTRACT

An automatic ice maker for a refrigerator includes an ice mold body, an ice stripper and an ice rake. The ice mold body has front, back, and end sides, a top peripheral rim and a plurality of ice chambers. Each ice chamber has a top opening having a frontal portion adjacent the front side and a back portion adjacent the back side. The ice stripper is sealingly disposed on the top peripheral rim, has a unitary one-piece construction and forms extensions of the front, back and end sides. The ice stripper extends over the frontal portion of the top openings and extends over the back portion of the top openings to prevent spillage. The ice rake is disposed between the front and back sides and includes a rotatable shaft, and rake fingers extending outward from the shaft for moving ice cubes out of the respective ice chambers and onto the ice stripper.
ICE MAKER FOR A REFRIGERATOR

BACKGROUND OF THE INVENTION

The disclosed embodiments relate generally to an ice maker for a refrigerator. More particularly, the aspects of the disclosed embodiments relate to an automatic ice maker for use on a door of a refrigerator.

A refrigerator generally includes a freezer compartment and a fresh food compartment. The compartments are partitioned from each other to store various foods at different temperatures in appropriate states for a relatively long time. The freezer compartment is also used to make and store ice.

It is now common practice in the art of refrigerators to provide an automatic ice maker. In a “bottom freezer” type refrigerator where the freezer compartment is arranged below or beneath a top mounted fresh food compartment, convenience necessitates that the automatic ice maker be disposed in a thermally insulated ice compartment mounted or formed on the door for the top mounted fresh food compartment. Ice is delivered through an opening on the door for the fresh food compartment. In a “side by side” type refrigerator, where the freezer compartment is arranged next to the fresh food compartment, the automatic ice maker can be disposed on the door for either one of the freezer compartment or the fresh food compartment. Ice is delivered through an opening formed on the door of the respective compartment.

Positioning the automatic ice maker on the door of a refrigerator presents a number of challenges. One of such challenges is water spillage. When the door is opened or closed while water in the ice maker is not frozen, the unfrozen water can spill out of the ice mold body of the ice maker. This is because the frontal opening of each ice chamber is not completely covered by
the ice stripper. Such water spilling is not desirable. Additionally, the spilled water will likely fall into the ice storage bin positioned below the ice maker, causing the ice cubes in the ice storage bin to clump together.

It would be advantageous to provide an automatic ice maker which has a water spillage arrangement that not only prevents unfrozen water from escaping the ice mold body so that the water can be frozen into ice cubes, but also allows the ice cubes to be properly ejected from the ice mold body.

BRIEF DESCRIPTION OF THE INVENTION

As described herein, the exemplary embodiments of the present invention overcome one or more of the above or other disadvantages known in the art.

One aspect of the disclosed embodiments relates to an automatic ice maker for a refrigerator. The automatic ice maker for a refrigerator includes an ice mold body, an ice stripper and an ice rake. The ice mold body has a front side, a back side, end sides, a top peripheral rim and a plurality of ice chambers for containing water therein for freezing into ice cubes. Each ice chamber has a top opening having a frontal portion adjacent the front side and a back portion adjacent the back side. The ice stripper is sealingly disposed on the top peripheral edge and has a unitary one-piece construction. The ice stripper forms extensions of the front side, back side and end sides and is configured to extend over the frontal portion of the top opening of each ice chamber and extend over the back portion of the top opening of each ice chamber. The ice rake is disposed between the front side and the back side and includes a rotatable shaft, and a plurality of rake fingers extending outward from the shaft for moving ice cubes out of the respective ice chambers and onto the ice stripper.

Another aspect of the disclosed embodiments relates to a refrigerator which includes a main body defining therein a food storage compartment with a frontal opening, a door rotatably attached to the main body for selectively closing the frontal opening of the food storage compartment, an ice
compartment on the door, the ice compartment comprising a front wall which faces the interior of the food storage compartment when the door is closed, and an automatic ice maker disposed in the ice compartment. The ice maker includes an ice mold body, an ice stripper and an ice rake. The ice mold body has a front side, a back side, end sides, a top peripheral rim and a plurality of ice chambers for containing water therein for freezing into ice cubes. Each ice chamber has a top opening having a frontal portion adjacent the front side and a back portion adjacent the back side. The ice stripper is sealingly disposed on the top peripheral rim and has a unitary one-piece construction. The ice stripper forms extensions of the front side, back side and end sides and is configured to extend over the frontal portion of the top opening of each ice chamber and extend over the back portion of the top opening of each ice chamber. The ice rake is disposed between the front side and the back side and includes a rotatable shaft, and a plurality of rake fingers extending outward from the shaft for moving ice cubes out of the respective ice chambers and onto the ice stripper.

Still another aspect of the disclosed embodiments relates to an ice stripper for an automatic ice maker of a refrigerator. The automatic ice maker includes an ice mold body having a front side, a back side and end sides forming a peripheral top rim, a plurality of ice chambers and partition walls disposed between adjacent ice chambers. The ice stripper includes a front wall, a back wall extending over a back portion of the ice chambers for substantially preventing water spillage from the back portion, end side walls connecting the front and back walls. The end side walls are configured to substantially prevent water spillage from the end sides of the ice mold body, where the front, back and end side walls form a peripheral interface rim configured to sealingly engage the peripheral top rim of the mold body for mounting the ice stripper to the ice mold body. A plurality of raised stripper fingers depend from the front wall and extend over respective ones of the partition walls. A web cover extends between adjacent stripper fingers configured to extend over a frontal portion of respective ones of the ice chambers for substantially
preventing water spillage from frontal portion. The ice stripper is formed in a unitary one-piece construction.

These and other aspects and advantages of the disclosed embodiments will become apparent from the following detailed description considered in conjunction with the accompanying drawings. It is to be understood, however, that the drawings are designed solely for purposes of illustration and not as a definition of the limits of the invention, for which reference should be made to the appended claims. Moreover, the drawings are not necessarily drawn to scale and that, unless otherwise indicated, they are merely intended to conceptually illustrate the structures and procedures described herein.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

Fig. 1 is a perspective view of an exemplary "bottom freezer" refrigerator;

Fig. 2 is a simplified, perspective view of the refrigerator of Fig. 1 with the access doors of the fresh food compartment being in an open position and the drawer for the freezer compartment being removed for clarity;

Fig. 3 schematically shows an exemplary ice maker and a secondary temperature control circuit used in the refrigerator of Fig. 1;

Fig. 4 is a perspective view of the ice maker of Fig. 3;

Fig. 5 is a partial perspective view along line A-A in Fig. 4;

Fig. 6 is another perspective view of the ice maker of Fig. 4;

Figs. 7 and 8 are partial perspective views of the ice maker of Fig. 4; and

Figs. 9A through 9F are cross sectional views, illustrating an exemplary operation of the ice maker of Fig. 4.
DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS OF THE INVENTION

Figs. 1 and 2 illustrate an exemplary refrigerator 100 that includes food storage compartments, such as a fresh food compartment 102 and a freezer compartment 104. The refrigerator 100 is coolable by a conventional vapor-compression temperature control circuit (not shown). Although the refrigerator 100 is shown as the "bottom freezer" type, the aspects of the disclosed embodiments are applicable to other types of refrigeration appliances, including but not limited to, side-by-side refrigerators. The aspects of the disclosed embodiments are therefore not intended to be limited to any particular type or configuration of a refrigerator.

The freezer compartment 104 and the fresh food compartment 102 are arranged in a bottom mount configuration where the freezer compartment 104 is disposed or arranged beneath or below the fresh food compartment 102. The fresh food compartment 102 is shown with French doors 134 and 135. However, a single access door can be used instead of the French doors 134, 135. The freezer compartment 104 is closed by a drawer or an access door 132.

The fresh food compartment 102 and the freezer compartment 104 are contained or defined within a main body 106 of the refrigerator 100. The main body 106 includes a top wall 230 and two sidewalls 232. A mullion 235, best shown in Fig. 2, connects the two sidewalls 232 to each other and separates the fresh food compartment 102 from the freezer compartment 104. The main body 106 also has a bottom wall 234, which connects the two sidewalls 232 to each other at the bottom edges thereof, and a back wall (not shown).

The access door 132 and the French doors 134, 135 close frontal access openings of the freezer compartment 104 and the fresh food compartment 102, respectively.
Each French door 134, 135 is mounted to the main body 106 by a top hinge 136 and a corresponding bottom hinge 137, thereby being rotatable about its outer vertical edge between an open position for accessing the respective part of the fresh food compartment 102, as shown in Fig. 2, and a closed position for closing the respective part of the fresh food compartment 102, as shown in Fig. 1.

Similarly, when an access door 132 is used for the freezer compartment 104, it is rotatably mounted to the main body 106 in a known fashion. When a drawer is used for the freezer compartment 104, it is slidably received in the freezer compartment 104 in a known fashion.

As illustrated in Fig. 2, an ice making assembly 200 is mounted on the interior surface of the access door 134 of the fresh food compartment 102. The ice making assembly 200 could alternatively be mounted on the access door 135. The ice making assembly 200 includes a substantially thermally insulated ice compartment 204 mounted or formed on the access door 134, and an exemplary automatic ice maker 202 in accordance with the present invention. The ice maker 202 is disposed in the ice compartment 204. Water is provided to ice chambers of the ice maker 202 through a water supply conduit (not shown) extending from the main body 106 of the refrigerator 100 to the ice maker 202, and then is frozen into ice cubes. It is noted that while the term "ice cube" is used herein, the pieces of ice may have any suitable shape. For example, in the embodiments described herein the ice cubes 960 (Fig. 9A-D) have a semicircular or crescent shape which when viewed from the side have a cord 960C and an arc segment 960S. "Ends" of the ice cubes 960 are defined herein as the points where the cord 960C meets the arc segment 960S. The ice cubes are usually discharged from the ice maker 202 and stored in an ice storage bin 206 until needed by a user. The ice storage bin 206 is disposed in the ice compartment 204, below the ice maker 202. The ice cubes may be withdrawn by accessing the ice compartment 204 through an access door 208 which faces the fresh food compartment 102 when the access door 134 is closed. However, the ice cubes are typically withdrawn by
using an ice dispenser (not shown) installed in the access door 134 through an opening 203 (shown in Fig. 1) formed on the exterior surface of the French door 134. The opening 203 faces away from the fresh food compartment 102 when the access door 134 is closed and is formed at a height facilitating convenient access to the ice. These are known in the art and therefore will not be discussed in detail here.

Because the ice compartment 204 is located in the fresh food compartment 102, which normally has a temperature higher than the freezing point of water, warming of the interior of the ice compartment 204 occurs. In one example, to counter this warming, a secondary temperature control circuit 140 is used to circulate a working medium to and from the ice maker 202 and/or the ice compartment 204. As shown in Fig. 3, when the working medium is a liquid, such as a food safe liquid in the nature of, for example, a mixture of propylene glycol and water, the secondary temperature control circuit 140 includes a first heat exchanger 141 disposed in the freezer compartment 104, a second heat exchanger 142 thermally coupled to or formed as part of the ice mold body of the ice maker 202, a supply conduit 143 and a return conduit 144 between the first and second heat exchangers 141, 142. A working medium moving device, such as pump 145, is used for circulating the working medium in the secondary temperature control circuit 140. The working medium is cooled when it passes through the first heat exchanger 141. The pump 145 forces the cooled working medium to pass through the second heat exchanger 142 to keep the temperature of the ice maker 202 below the freezing point of water. Such a secondary temperature control circuit is discussed in greater detail in commonly owned Application Serial No. 11/958,900, filed December 18, 2007, the entire content of which is incorporated herein by reference.

When the working medium is air, the secondary temperature control circuit includes a supply conduit (not shown) and a return conduit (not shown) between the freezer compartment 104 and the ice compartment 204. A working medium moving device such as fan (not shown) causes cooling air in the freezer compartment 104 to flow to the ice compartment 204 via the
supply conduit, and air in the ice compartment 204 to flow back to the freezer compartment 104 via the return path. This configuration is known in the art, and therefore will not be discussed further here. It should be understood that the ice making assembly 200 could, in other examples, be mounted on the access door or drawer 132 in the freezer compartment 104 in which case a secondary temperature control circuit may not be needed.

As shown in Fig. 4, the ice maker 202 includes a motor 410 and an ice mold body 411. The ice mold body 411 has a front side 411F, a back side 411B, and two opposing end sides 411E1, 411E2. One of the end sides 411E1 is attached to the motor 410, and the other end side 411E2 is disposed remote from the motor 410. At least one of the end sides 411E1, 411E2 may be configured to substantially rotatably support an ice rake or ejector 422 (Fig. 5) within the ice mold body 411 as described below.

Referring also to Fig. 5, the ice mold body 411 also has a bottom wall 412 with a curved inner surface 413 extending generally longitudinally along the length of the ice mold body 411, and a plurality of partial partition walls 414 extending transversely across the ice mold body 411 to define a plurality of ice chambers 415. As is known in the art, ice cubes are formed in these ice chambers 415. Each partial partition wall 414 preferably has a recessed upper edge portion (not shown) through which water flows successively from one ice chamber to the next to fill all of the ice chambers 415. The partial partition walls 414 are configured to form a track or guide way for guiding ice cubes as the ice cubes are ejected out of the ice maker 202.

As shown in Figs. 4 and 5, each ice chamber 415 preferably has a generally semi-circular or otherwise curve shaped top opening 420 terminating at a top surface 411T of the ice mold body 411. In this embodiment, each top opening 420 has a substantially semi-circular frontal portion 420F adjacent the front side 411F and a substantially semi-circular back portion 420B adjacent the back side 411B.
The ice maker 202 also includes an ice stripper 421 having a unitary one-piece construction, which includes a plurality of raised stripper fingers 421F, a front wall 421D, a back wall 421B, end side walls 421E1, 421E2 and a water inlet element 416. In one example the ice stripper 421 is molded of plastic by any suitable molding technique such as injection molding. In other examples the ice stripper can be constructed of any suitable material in any suitable manner. The ice stripper 421 is configured to sealingly mate with the ice mold body 411 so as to form a substantially continuous inner wall surface between the ice mold body 411 and the ice stripper 421. For example, the end side walls 421E1, 421E2 of the ice stripper 421 form extensions of the ice mold body 411 end side walls 411E1, 411E2 for substantially preventing or substantially reducing water spillage (i.e., unfrozen water flowing out of the ice maker 202) from the sides of the ice maker 202 when the door 134 (and/or 135) is opened or closed. In this example, the end side walls 421E1, 421E2 are substantially straight and in-line with the end side walls 411E1, 411E2. In other examples, the walls 421E1, 421E2 may be angled or curved relative to the end side walls 411E1, 411E2. The back wall 421B has an inner surface 421BS that extends generally longitudinally along the length of the ice mold body 411 to form an extension of the curved inner surface 413 of the ice mold body for substantially preventing or substantially reducing water spillage from the back portions 420B when the door 134 (and/or 135) is opened or closed. The inner surface 421BS is generally contoured to follow a curvature of the curved inner surface 413. In alternate embodiments the back wall may also includes a plurality of ribs that extend from the inner surface where each rib in the plurality of ribs is generally aligned with, and substantially contacts, a corresponding one of the partial partition walls of the ice mold body. The front wall 421D generally extends adjacent to and along at least a portion of the front 411F of the ice mold body 411.

The plurality of stripper fingers 421F extend from the front wall in a generally inward direction towards the ice rake shaft 422S. Each of the stripper fingers 421F includes a first guide portion 550 and a second guide portion 551. The
first guide portion 550 includes a proximate end depending from the front wall 421D and a distal end disposed remote from the front wall 421D. The first guide portion 550 extends at an angle $\theta$ (Fig. 9A) upward and inward from a top of the front wall 421D towards the ice rake shaft 422S. The angle $\theta$ may be any suitable angle such that the stripper fingers 421F (and covers 421W – described below) are raised to allow for the rotation of rake fingers 422F, which each have a predetermined length L (Fig. 9A), within the ice maker 202, without interference from the ice stripper 421. The second guide portion 551 includes a proximate end and a distal end. The proximate end of the second guide portion 551 depends from the distal end of the first guide portion 550. The second guide portion 551 extends inwardly from the distal end of the first guide portion 550 in a generally downward direction. The distal end (e.g. the tip 421T of the stripper finger 421F) of the second guide portion is disposed adjacent the ice rake shaft 422S so as to substantially prevent ice from getting stuck under the stripper finger 421F as the ice is ejected from the ice maker 202. As can be seen in Figs. 4 and 5, the first and second guide portions 550, 551 form a substantially V-shaped finger with an apex 910 (Fig. 9A) disposed between the front wall 421D and the shaft 422S of the ice rake 422. Each of the stripper fingers 421F includes a central portion 572, running a length of the stripper finger 421F, and edges 571 disposed on either side of the central portion 572. The central portion 572 is raised relative to the edges 571 so that a crown 570 is formed on each of the stripper fingers 421F. The adjacent crowned stripper fingers 421F form channels therebetween for ice cubes to travel along during ejection from the ice maker 202.

The stripper fingers 421F are generally longitudinally spaced apart from each other so that each of the stripper fingers 421F is substantially aligned with, for example, corresponding ones of the partial partition walls 414 so as to form a channel for directing ice out of the ice maker 202. The spacing of the stripper fingers 421F is such that the gap between adjacent fingers is wider than the rake elements but narrower than the width of the ice cubes so as to guide the cubes ejected from the mold without interfering with the operation of the rake.
A web or cover 421W extends over the frontal portions 420F between each adjacent stripper fingers 421F for preventing or limiting spillage over front wall 421D when the door 134 (and/or 135) is opened or closed, without interfering with an operation of the ice rake 422. The stripper fingers 421F project inwardly beyond cover 421W.

Referring to Fig. 6, the water inlet element 416 is integrally formed (e.g. unitary one-piece construction) on, for example, the back wall 421B of the ice stripper 421. In this example, the water inlet element 416 substantially forms a funnel for directing water from the water supply conduit through an aperture 600 disposed at the bottom the water inlet element. The aperture 600 opens into the interior of the ice mold body 411 for directing water into the ice chambers 415.

The ice stripper 411 forms a partially opened hood for substantially preventing water from escaping or spilling from the ice maker 202 when, for example the door 134 (and/or 135) is opened and closed. As can be clearly seen in Figs. 4, 5, 7 and 8, the ice stripper 421 sealingly engages the ice mold body 411. The ice stripper 421 includes an interface rim including a front rim portion 501 (adjacent the front wall 421D), a back rim portion 502 (adjacent the back wall 421B) and side rim portions (not shown – adjacent the end side walls 421E1, 421E2). The interface rim of the ice stripper 421 is configured to substantially contact the top peripheral rim of the ice mold body 411 for forming a substantially water tight seal between the ice mold body 411 and the ice stripper 421. The top peripheral rim of the ice mold body 411 includes a front rim 510, back rim 511 and side rims (not shown) that are configured to interface with corresponding rim portions of the ice stripper interface rim. A suitable grease, such as a silicone grease, or a gasket or other suitable sealing member or material, may also be provided between the interfacing rims of the ice stripper 421 and ice mold body 411. The ice stripper 421 may be held on the ice mold body 411 in any suitable manner. In the exemplary embodiment the ice stripper 421 includes resilient members 700 extending from, end side walls 421E1, 421E2. The ice mold body 411 includes
receptacles 710 configured to accept the resilient members 700 such that the resilient members "snap" into the receptacles 710 for securing the ice stripper 421 to the ice mold body 411. In other examples, the resilient members 700 and the receptacles 710 may be disposed on any suitable sides of the ice stripper 421 and ice mold body 411. Also in the exemplary embodiment, the ice stripper 421 includes tabs 730 extending therefrom. The tabs 730 include apertures 730A configured to allow a screw 740 or other fastener to pass through a respective tab 730. The ice mold body 411 may include corresponding tabs having threaded apertures (not shown) for accepting the screw 740 of a respective tab 730 for securing the ice stripper 421 to the ice mold body 411.

Referring also to Figs. 9A-9F, the ice rake or ejector 422 has a rotatable shaft 422S disposed preferably slightly above the ice chambers 415 and at approximately midway between the frontal portions 420F and the back portions 420B. A plurality of rake fingers 422F extend radially outward from the shaft 422S and over the respective ice chambers 415. In this embodiment, each rake finger 422F has a predetermined length L. The predetermined length of each rake finger 422F is such that each tip 422T is disposed adjacent the curved inner surface 413 of the ice mold body 411 to allow the rake finger 422F to contact a respective ice cube 960 substantially at an end of the ice cube 960 for pushing the ice cube 960 out of the ice maker 202. During rotation of the ice rake 422, the rake fingers 422F extend into the gap formed between respective adjacent stripper fingers 421F, but do not come into contact with the respective cover 421W when the shaft 422S rotates 360 degrees.

As shown in FIG. 4, in the exemplary embodiment, one end of the shaft 422S is coupled to the motor 410 and the opposite end of the shaft 422S is supported by, for example, end side 411E2. End side 411E2 is a suitable bearing or support surface. As is known in the art, when the motor 410 is activated, the shaft 422S rotates, and the rake fingers 422F move ice cubes 960 from the respective ice chambers 415 to the ice stripper 421 during ice
harvesting. In this embodiment, the motor 410 is an AC motor, and the shaft 422S rotates approximately 360 degrees in an ice harvesting cycle. As shown in Fig. 5, the ice maker 202 preferably has at least one heating element 580 disposed along the bottom 412 of the ice mold body 411. The heating element 580 is used to heat the ice mold body 411 when the ice harvesting cycle begins in order to slightly melt the ice cubes 960 within the ice chambers 415 to allow the ice cubes 960 to be more easily released from the ice chambers 415. A heating element guard 585 is disposed adjacent a respective one of the heating elements 580. The heating element guard 585 is operative to insulate each heating element 580 in order to substantially prevent heat transfer from the heating element 580 into, for example, the freezer compartment 104 (Fig. 2), fresh food compartment 102 (Fig. 2), or any other suitable compartment of the refrigerator, depending on where the ice mold body 411 is located.

In operation, water enters the ice mold body 411 and settles into the ice chambers 415 where the water freezes into ice cubes 960. After the ice cubes 960 are formed, a harvest cycle begins and the motor 410 (Fig. 4) causes the ice rake 422 to rotate in the direction of arrow A for moving the ice cubes 960 out of the ice chambers 415 and into the ice stripper 421. The raised orientation of the stripper fingers 421F (e.g. the second guide portion 551 forms an incline relative to the path of the ice cube 960 as the ice cube travels through the ice stripper 421) causes the ice cubes 960 to be ejected from the ice maker "up-hill". The ice cubes 960 travel up the incline formed by the second guide portion 551 of the stripper fingers 421F and the ice cubes 960 have a tendency to slide off the rake fingers 422F and fall back into the ice mold body 411. The curvature of the back wall 421B substantially follows the path of the rake fingers 422F to substantially prevent the ice cubes 960 from sliding off the rake fingers 422F as the ice cubes are moved up and over the inclined second guide portion 551 of the stripper fingers 421F. The crown 570 (Fig. 5) on the stripper fingers may also center the ice cubes 960 between respective stripper fingers 421F for stabilizing the ice cubes relative to a
respective rake finger 422F. Once over the apex 910 of the stripper fingers 421F the ice cubes substantially slide down the first guide portion 550 of the stripper fingers 421F and are ejected out of the ice maker 202.

While the invention has been described in terms of various specific embodiments, those skilled in the art will recognize that the invention can be practiced with modification within the spirit and scope of the claims. For example, features of various embodiments/variations can be combined. Thus, while there have shown, described and pointed out fundamental novel features of the invention as applied to various specific embodiments thereof, it will be understood that various omissions, substitutions and changes in the form and details of the devices illustrated and in their operation, may be made by those skilled in the art without departing from the spirit of the invention. For example, it is expressly intended that all combinations of those elements and/or method steps which perform substantially the same function in substantially the same way to achieve the same results are within the scope of the invention. Moreover, it should be recognized that structures and/or elements and/or method steps shown and/or described in connection with any disclosed form or embodiment of the invention may be incorporated in any other disclosed or described or suggested form or embodiment as a general matter of design choice. It is the intention, therefore, to be limited only as indicated by the scope of the claims appended hereto.
What is claimed is:

1. An automatic ice maker for a refrigerator, comprising:
   an ice mold body having a front side, a back side, end sides, a top peripheral rim and a plurality of ice chambers for containing water therein for freezing into ice cubes, each ice chamber having a top opening having a frontal portion adjacent the front side and a back portion adjacent the back side;
   an ice stripper sealingly disposed on the top peripheral rim, the ice stripper being of unitary one-piece construction and forming extensions of the front side, back side and end sides, the ice stripper being configured to extend over the frontal portion of the top opening of each ice chamber and extend over the back portion of the top opening of each ice chamber; and
   an ice rake disposed between the front side and the back side, the ice rake comprising a rotatable shaft, and a plurality of rake fingers extending outward from the shaft for moving ice cubes out of the respective ice chambers and onto the ice stripper.

2. The automatic ice maker of claim 1, wherein the ice stripper comprises a plurality of stripper fingers and a cover extending between adjacent fingers, the stripper fingers extending inward further than the cover.

3. The automatic ice maker of claim 2, wherein each ice chamber includes a curved inner surface, each rake finger being disposed between two respective adjacent stripper fingers and having a length so that a tip of the rake finger is disposed adjacent the curved inner surface for contacting an end of a respective ice cube for moving the respective ice cube onto the stripper, the stripper fingers and cover being raised so as to not interfere with a rotation of the rake fingers.

4. The automatic ice maker of claim 1, wherein the ice mold body includes a curved bottom wall and end side walls, the ice stripper including side walls and a back wall, the side walls being disposed above the
end side walls to form an extension thereof and the back wall being disposed along the back side of the ice mold body to form an extension of the curved bottom wall, the back wall extending over the back portions of the plurality of ice chambers.

5. The automatic ice maker of claim 1, wherein the ice stripper further includes a water inlet element having a unitary one-piece construction with the ice stripper, the water inlet element having an aperture that opens into an interior of the ice mold body where the water inlet element substantially forms a funnel for directing water into the ice chambers.

6. The automatic ice maker of claim 1, wherein the ice stripper includes a plurality of stripper fingers depending from a front of the ice stripper, each stripper finger includes first and second guide portions that form a substantially V-shaped finger with an apex disposed between the front side and the rotatable shaft.

7. The automatic ice maker of claim 6, wherein each stripper finger includes a central portion, running a length of the stripper finger, and edges disposed on either side of the central portion, the central portion being raised relative to the edges so that a crown is formed on each of the stripper fingers.

8. The automatic ice maker of claim 7, wherein a tip of each stripper finger is disposed adjacent the rotatable shaft and being configured to prevent ice from passing between the stripper finger and the rotatable shaft.

9. The automatic ice maker of claim 1, wherein the ice stripper includes an integral water inlet element configured to direct water into the ice chambers.

10. A refrigerator comprising:
    a main body defining therein a food storage compartment with a frontal opening;
a door rotatably attached to the main body for selectively closing the frontal opening of the food storage compartment;

an ice compartment on the door, the ice compartment comprising a front wall which faces the interior of the food storage compartment when the door is closed; and

an automatic ice maker disposed in the ice compartment, the ice maker comprising:

an ice mold body having a front side, a back side, end sides, a top peripheral rim and a plurality of ice chambers for containing water therein for freezing into ice cubes, each ice chamber having a top opening having a frontal portion adjacent the front side and a back portion adjacent the back side;

an ice stripper sealingly disposed on the top peripheral rim, the ice stripper being of unitary one-piece construction and forming extensions of the front side, back side and end sides, the ice stripper being configured to extend over the frontal portion of the top opening of each ice chamber and extend over the back portion of the top opening of each ice chamber; and

an ice rake disposed between the front side and the back side, the ice rake comprising a rotatable shaft, and a plurality of rake fingers extending outward from the shaft for moving ice cubes out of the respective ice chambers and onto the ice stripper.

11. The refrigerator of claim 10, wherein the ice stripper comprises a plurality of stripper fingers and a cover extending between adjacent fingers, the stripper fingers extending inward further than the cover, wherein the frontal portion of the top opening of each ice chamber is covered by the cover.

12. The refrigerator of claim 11, wherein each ice chamber includes a curved inner surface, each rake finger being disposed between two respective adjacent stripper fingers and having a length so that a tip of the rake finger is disposed adjacent the curved inner surface for contacting an
end of a respective ice cube for moving the respective ice cube onto the
stripper, the stripper fingers and covers being raised so as to not interfere with
a rotation of the rake fingers.

13. The refrigerator of claim 10, wherein the ice mold body
includes a curved bottom wall and end side walls, the ice stripper including
side walls and a back wall, the side walls being disposed above the end side
walls to form an extension thereof and the back wall being disposed along the
back side of the ice mold body to form an extension of the curved bottom wall,
the back wall extending over the back portions of the plurality of ice chambers.

14. The refrigerator of claim 10, wherein the ice stripper further
includes a water inlet element having a unitary one-piece construction with the
ice stripper, the water inlet element having an aperture that opens into an
interior of the ice mold body where the water inlet element substantially forms
a funnel for directing water into the ice chambers.

15. The refrigerator of claim 10, wherein the ice stripper includes
a plurality of stripper fingers depending from a front of the ice stripper, each
stripper finger includes a crowned first and second guide portions that form a
substantially V-shaped finger with an apex disposed between the front side
and the rotatable shaft.

16. An ice stripper for an automatic ice maker of a refrigerator, the
automatic ice maker including an ice mold body having a front side, a back
side and end sides forming a peripheral top rim, a plurality of ice chambers
and partial partition walls disposed between adjacent ice chambers, the ice
stripper comprising:
   a front wall;
   a back wall extending over a back portion of the ice chambers for
substantially preventing water spillage from the back portion;
   end side walls connecting the front and back walls, the end side
walls being configured to substantially prevent water spillage from the end
sides of the ice mold body, where the front, back and end side walls form a peripheral interface rim configured to engage the peripheral top rim for sealingly connecting the ice stripper to the ice mold body;

    a plurality of raised stripper fingers depending from the front wall and extending over respective ones of the partition walls; and

    a cover extending between adjacent stripper fingers, the cover being configured to extend over a frontal portion of the ice chambers for substantially preventing water spillage from the frontal portions;

    wherein the ice stripper is formed in a unitary one-piece construction.

17. The ice stripper of claim 16, wherein the stripper fingers extend inward further than the cover.

18. The ice stripper of claim 16, wherein the ice stripper further comprises a water inlet element formed with a unitary one-piece construction on the back wall, the water inlet element having an aperture that opens into an interior of the ice mold body where the water inlet element substantially forms a funnel for directing water into the ice chambers.

19. The ice stripper of claim 16, wherein each stripper finger includes a first and second guide portions that form a substantially V-shaped finger with an apex disposed inward of the front wall.