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OH(10) **Pub. No.: US 2016/0069604 A1**(43) **Pub. Date: Mar. 10, 2016**(54) **ICE SHAVING MACHINE EQUIPPED WITH
DETACHABLE ICE CONTAINER**(52) **U.S. Cl.**
CPC *F25C 5/12* (2013.01)(71) Applicant: **SAE KWANG OH**, Seoul (KR)(72) Inventor: **SAE KWANG OH**, Seoul (KR)(21) Appl. No.: **14/844,506**(22) Filed: **Sep. 3, 2015**(30) **Foreign Application Priority Data**

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Publication Classification(51) **Int. Cl.**
F25C 5/12 (2006.01)(57) **ABSTRACT**

Provided is an ice shaving machine that can shave ice into small fragments, can sanitarily handle ice for shaved-ice, can prevent ice from flying to the outside when shaving ice, and allows for making a predetermined amount of shaved-ice. The ice shaving machine includes: a body including a rotary member moved up and down and rotated manually or automatically, or both of manually and automatically, and having a mount and a shaved-ice container storage; an ice container having a receiving portion for ice, a shaved-ice exit formed through a bottom of the receiving portion, and an ice cutting blade attached to a lower surface at a side of the bottom from the shaved-ice exit; and a fixing mechanism fixing the ice container to the mount.

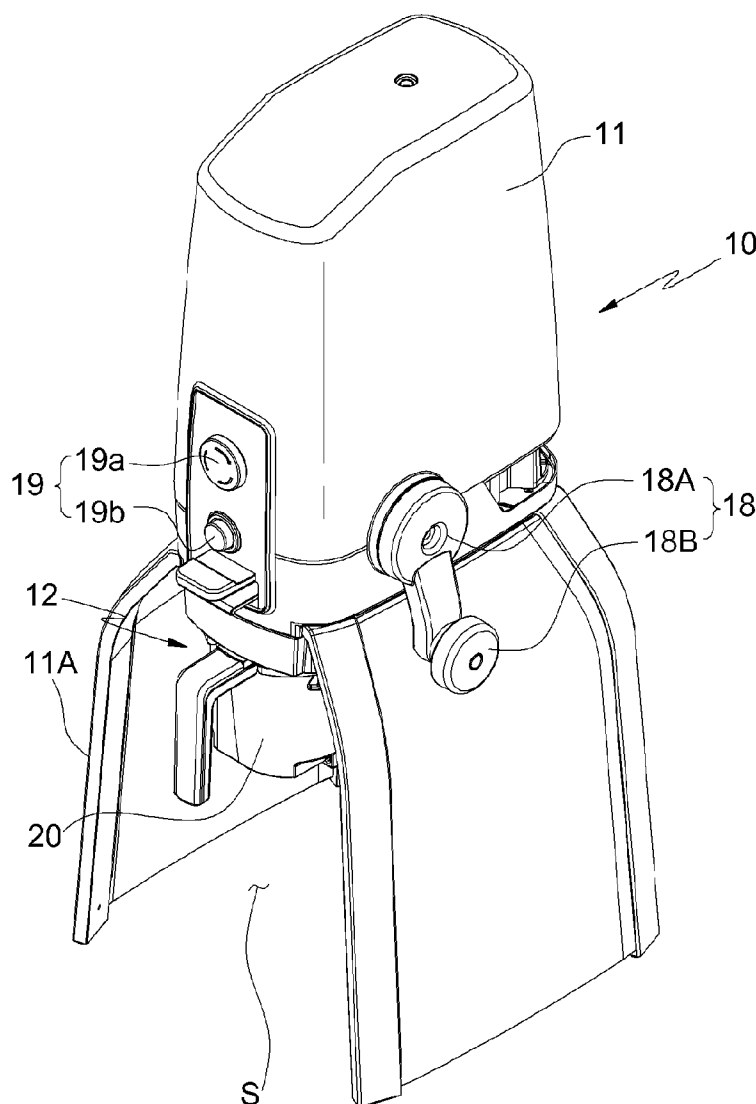


FIG. 1
Prior Art

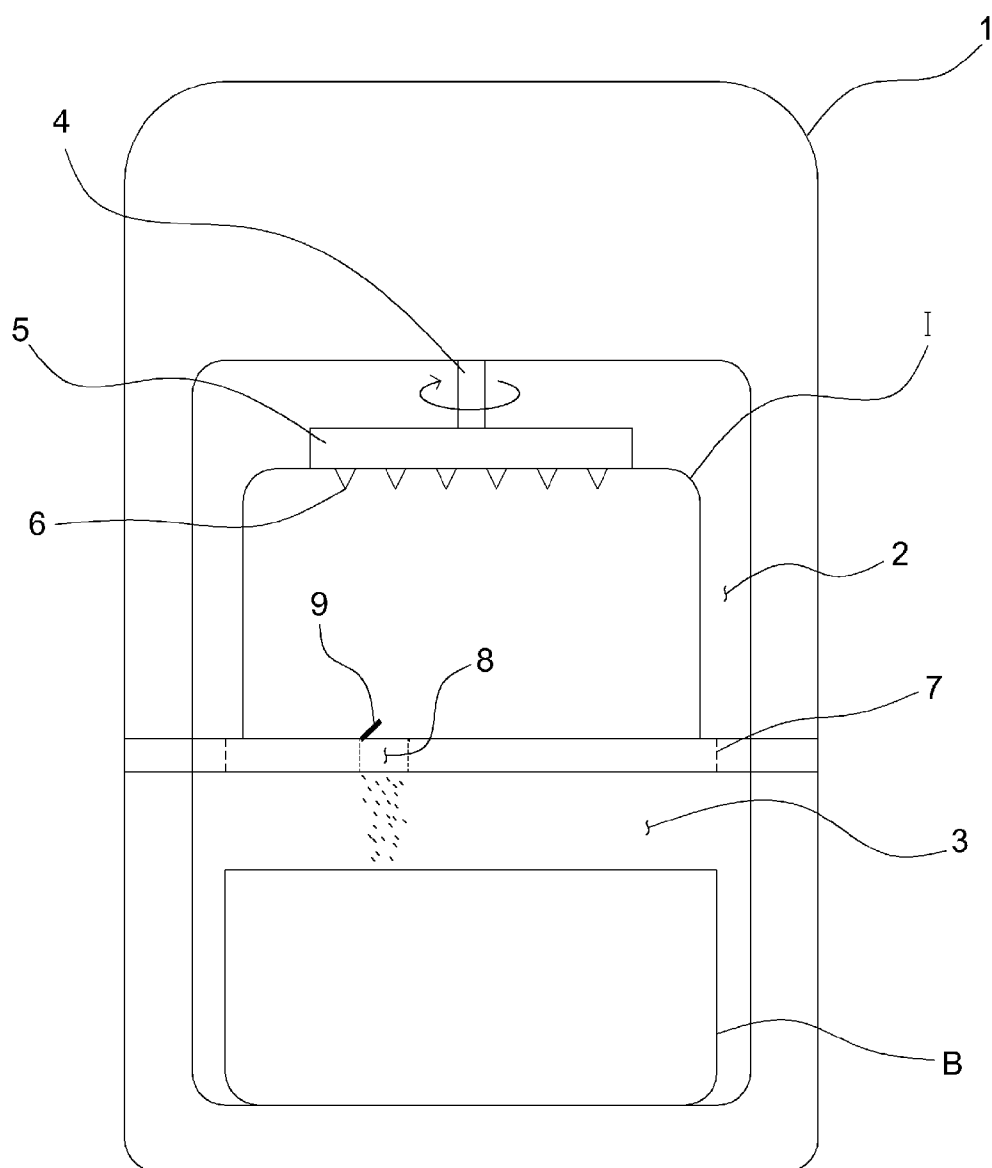


FIG. 2

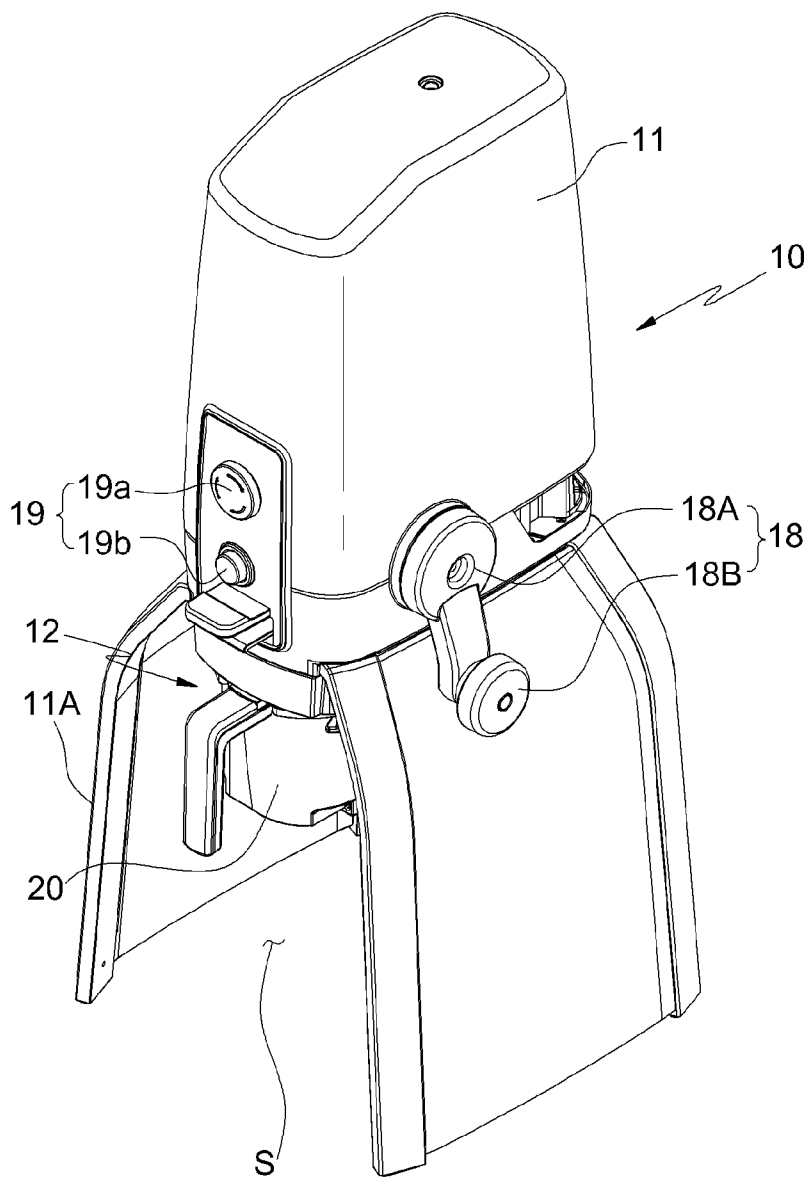


FIG. 3A

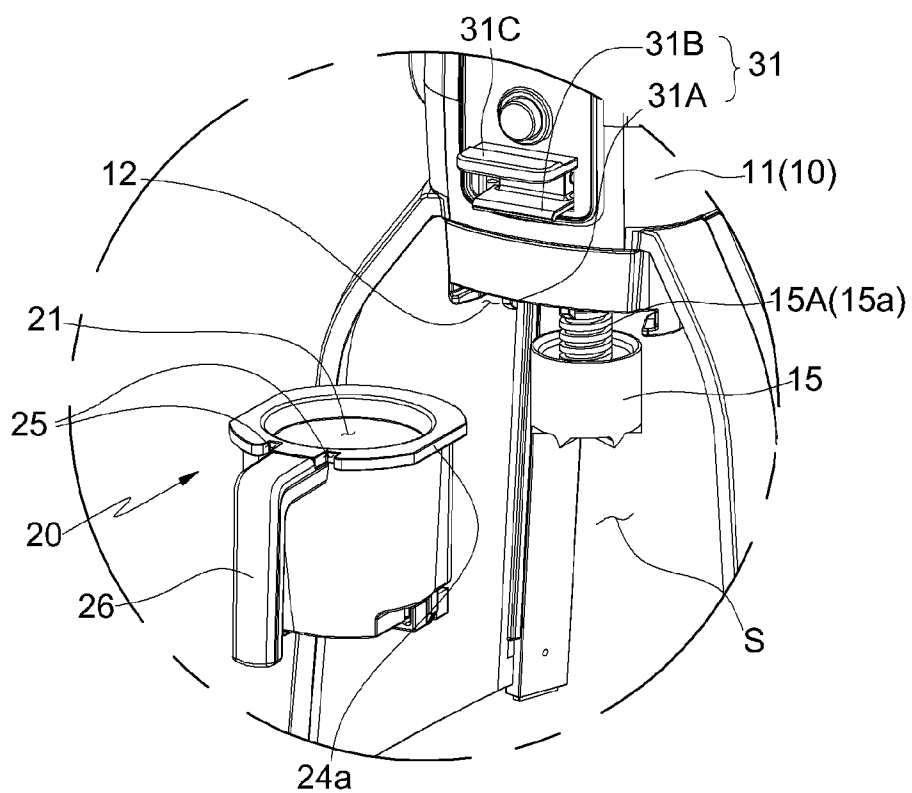


FIG. 3B

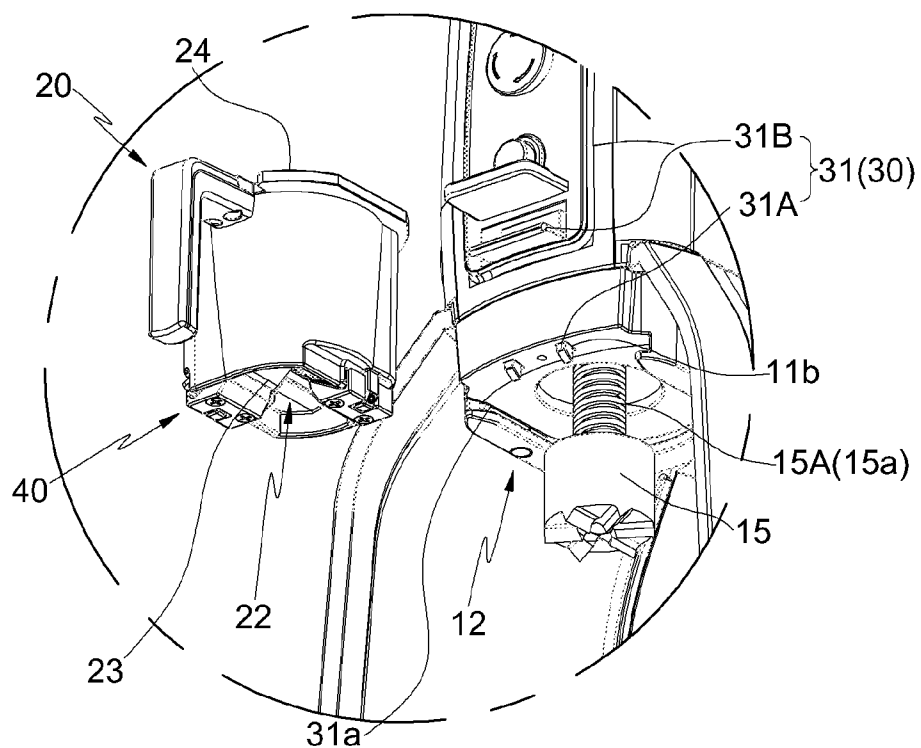


FIG. 4

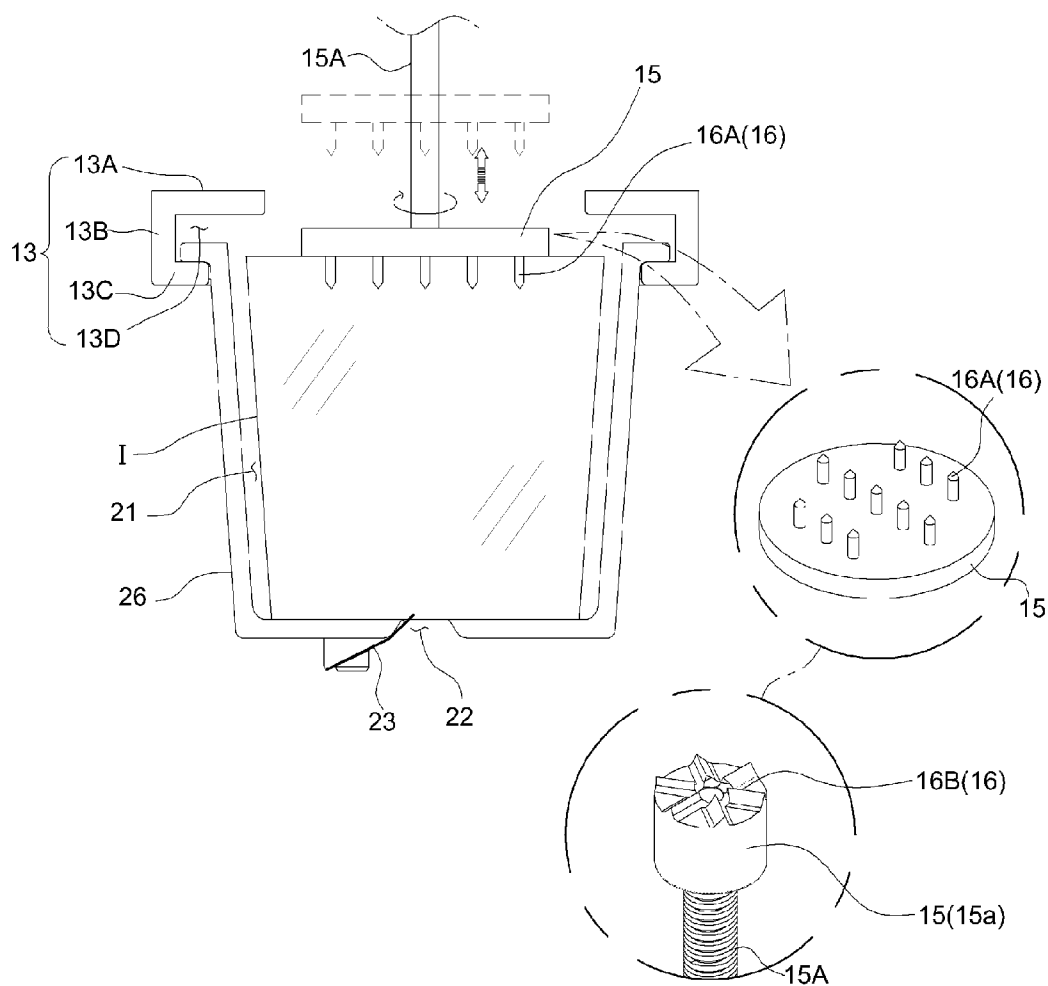


FIG. 5

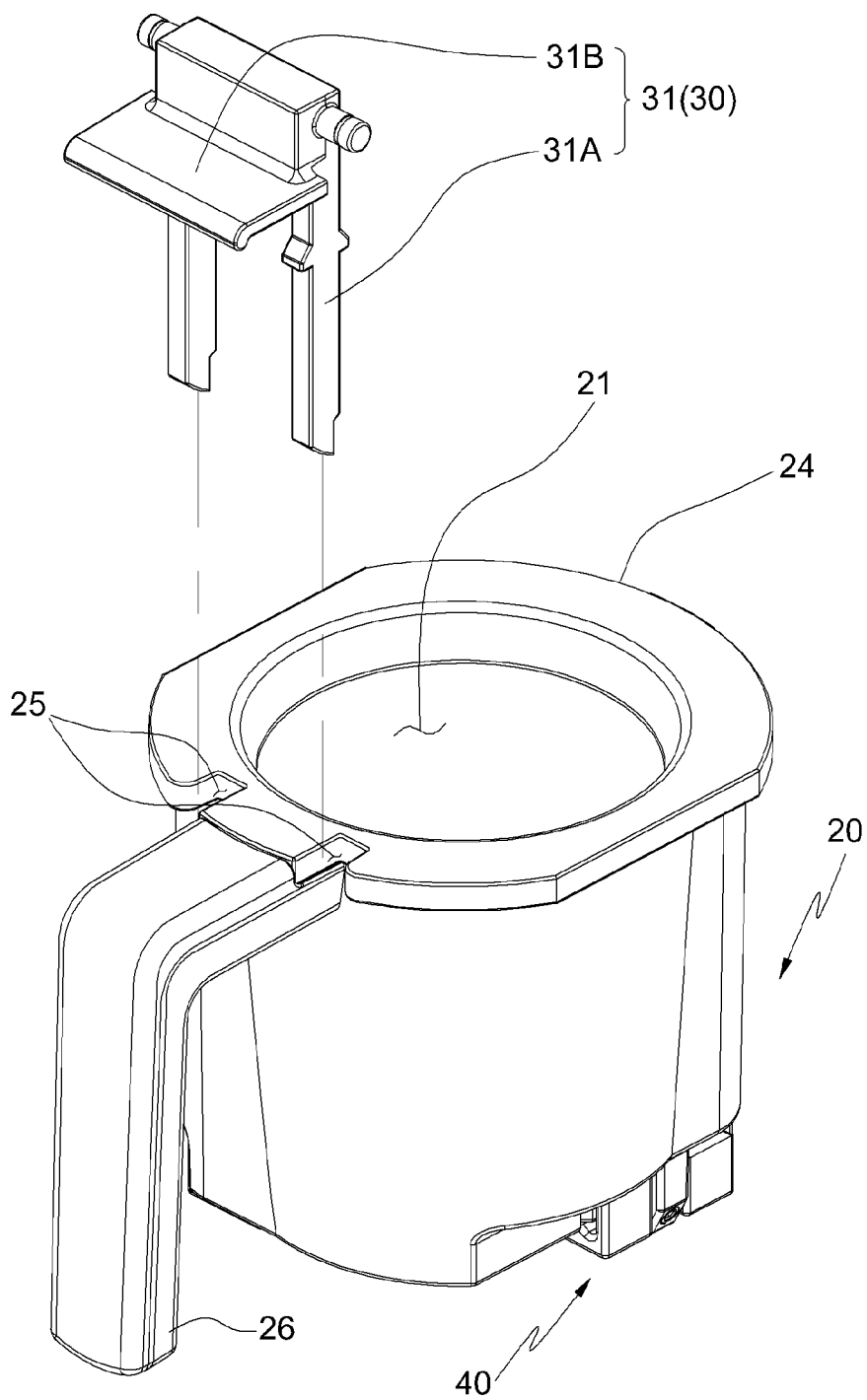


FIG. 6A

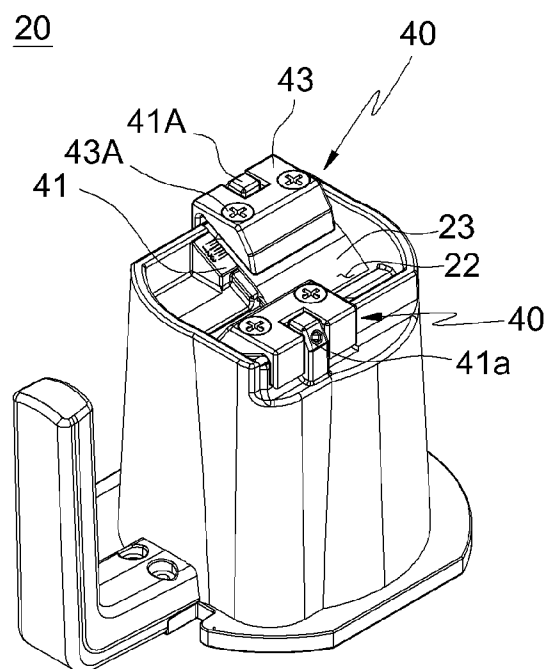


FIG. 6B

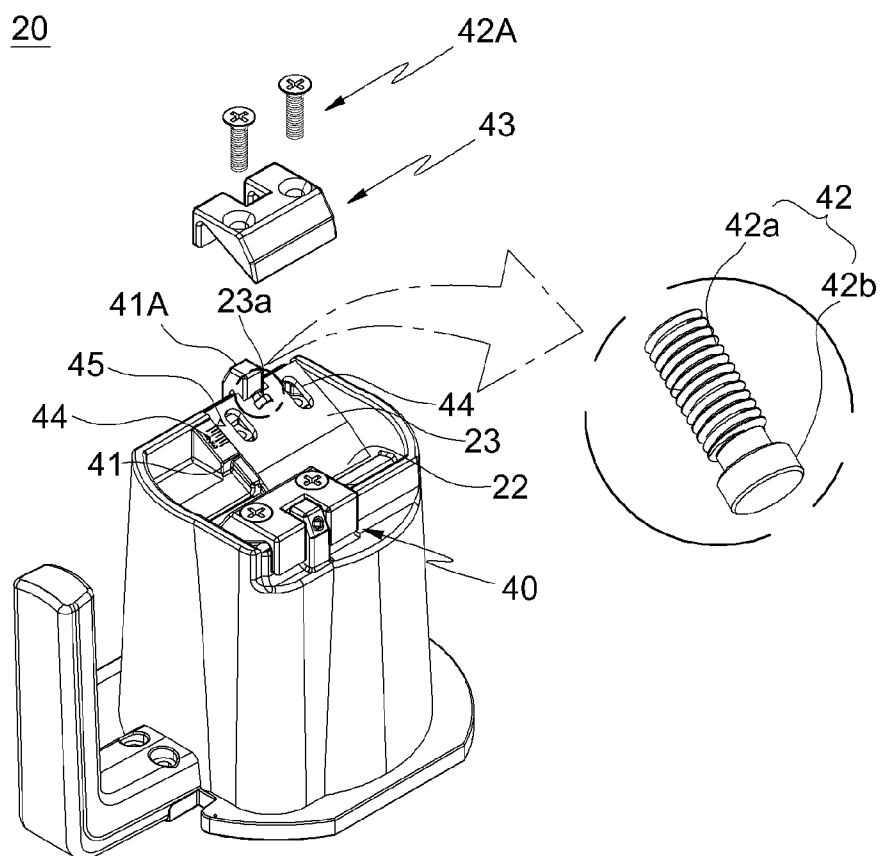
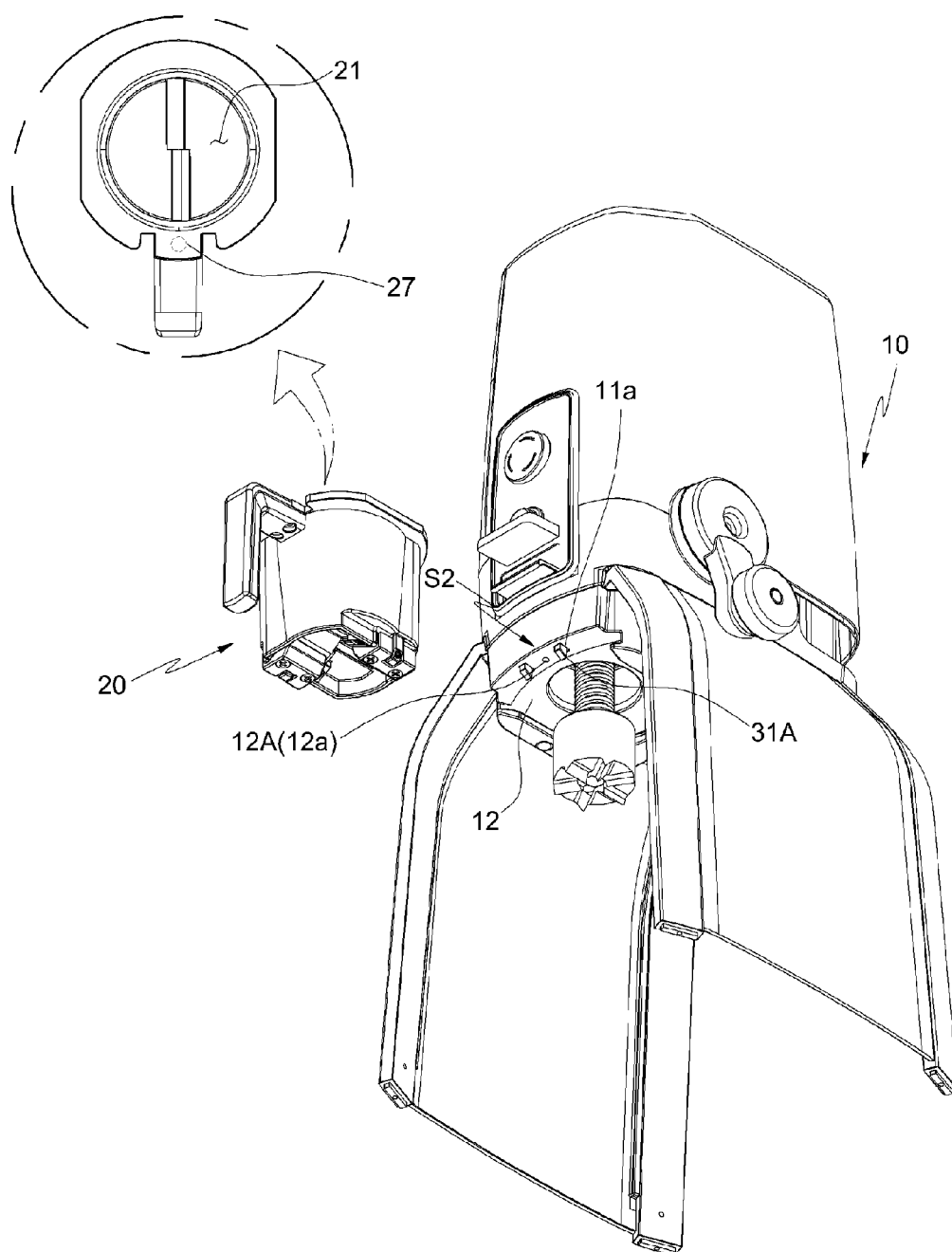


FIG. 8



ICE SHAVING MACHINE EQUIPPED WITH DETACHABLE ICE CONTAINER

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to an ice shaving machine equipped with a detachable ice container. More particularly, the present invention relates to an ice shaving machine that can shave ice into small fragments, can sanitarily handle ice for shaved-ice, can prevent ice from flying to the outside when shaving ice, and allows for making a predetermined amount of shaved-ice.

[0003] 2. Description of the Related Art

[0004] An ice shaving machine that shaves small ice cubes and an ice shaving machine that shaves an ice block are typical ice shaving machines for making shaved-ice.

[0005] As an ice shaving machine for cube ice in the related art, an "Electric shaved ice maker" has been disclosed in Korean Utility Model No. 20-0316572 (2003 Jun. 4) (hereafter, referred to as Related art 1).

[0006] The Related art 1 relates to an electric shaved ice maker including a body equipped with a driving gear, an ice container, a rotary shaft pipe, a rotary cup, a ring gear, a nut, a lid, and a stand, in which the sides of the ice container are made of a transparent material and the side of the rotary cup is decorated with various characters.

[0007] The Related art 1, which is a shaved ice maker using ice cubes, is suitable for domestic use, but is not useful for a restaurant or a coffee shop that use a large quantity of shaved-ice. Further, since it uses ice cubes, the ice cubes occupy a large volume when they are kept cold, so it is not useful as an ice shaving machine for selling shaved-ice.

[0008] On the other hand, as an ice shaving machine using a large ice block, a "Domestic ice shaving machine" has been disclosed in Korean Utility Model Application Publication No. 20-1996-38186 (1995 Dec. 18) (hereafter, referred to as Related art 2).

[0009] The Related art 2 relates to an ice shaving machine including: a base plate that has a seat on a side where a vessel for keeping ice is placed and a support rod having a locking protrusion on the other side; a support plate that has a fastening portion having a groove where the locking protrusion is inserted and an insertion groove where the support rod is inserted at the other side, supports a tub having a plurality of stoppers around it, and has blades inside the tub and cutting grooves with predetermined gaps; and an upper body that has a groove where the tub is inserted, has a plurality of stoppers inside the groove, has a predetermined rotational gap by the stoppers of the tub, and has a motor inside, in which a fixing plate for fixing ice is connected to a rotary shaft of the motor, so that when the fixing plate is rotated by the motor, ice is rotated and cut by the cutting grooves.

[0010] Referring to FIG. 1 simply showing the entire structure of the Related art 2, a vessel space 3 where a vessel B is placed is formed at the lower portion of a body 1, a support plate 7 is fixed over the vessel space. When a rotary plate 5 coupled to a rotary rod 4 with ice I on the support plate 7, fixing blades 6 are driven into the ice and fixed therein, and then when the rotary plate 5 is rotated, the ice, in contact with a cutting blade 9, is shaved into shaved-ice and then discharged into the vessel through a discharge hole 8.

[0011] Since the ice shaving machine having this configuration uses an ice block, it is suitable for not only for domestic use, but for shaved-ice stores, and generally, those shops

purchase a large quantity of ice blocks, keep them in a freezer, and use them to make shaved-ice.

[0012] However, according to the ice shaving machine of the Related art 2, an ice block is taken out and kept in a freezer to prevent the ice block from melting after making shaved-ice and then the ice block is mounted on an ice shaving machine to make shaved-ice later, so a user has to manually handle an ice block every time to make shaved-ice, and accordingly, the ice block is frequently exposed to the outside and may not be sanitarily managed.

[0013] That is, an ice block is exposed to the outside as frequently as it is handled, so contaminants such as dust may stick to the ice block. Accordingly, a user has to carefully handle an ice block, thus causing difficulty in sanitary management.

[0014] Further, when making shaved-ice, a user controls the operation time of the ice shaving machine to make a desired amount of shaved-ice while visually checking the amount of shaved-ice made from an ice block, but the amount of shaved-ice may be different in accordance with the quality of an ice block and the amount of shaved-ice visually seen by the user and the actual amount of shaved-ice may be different, so it is difficult to make a desired amount of shaved-ice. Further, particularly for a small ice shaving machine for making shaved-ice in a small amount such as for one or two persons, it is more difficult to make a desired amount of shaved-ice every time.

SUMMARY OF THE INVENTION

[0015] Accordingly, the present invention has been made keeping in mind the above problems occurring in the related art, and the present invention is intended to propose an ice shaving machine that has a cutting blade in an ice container for keeping a desired amount of ice, can be detachably mounted on a mount of a body, can make a desired amount of shaved-ice every time by making shaved-ice using ice frozen in advance in a predetermined amount for a desired number of people, and that makes it possible to easily and sanitarily manage ice so that a user does not need to handle the same ice every time in order to make shaved-ice.

[0016] Further, the present invention is intended to propose an ice shaving machine including a fixing mechanism that fixes an ice container and a straight holding mechanism that restricts rotation of the ice container in order to prevent the ice container from being rotated when ice is rotated with the ice container mounted on a body.

[0017] Further, the present invention is intended to propose an ice shaving machine including a first sensing unit that is mounted on a body to vertical position of a rotary member and a second sensing unit that is mounted on the body to sense attachment/detachment of an ice container, in order to safely move up/down the rotary member for rotating ice and prevent a safety accident due to the rotary member.

[0018] Further, the present invention is intended to propose an ice shaving machine that makes it easy to replace an ice cutting blade and includes a height adjusting mechanism that adjust the vertical position of the ice cutting blade protruding toward an ice exit to be able to freely adjust the size of shaved-ice by adjusting the position of the ice cutting blade.

[0019] Accordingly, the present invention has been made keeping in mind the above problems occurring in the related art, and the present invention is intended to propose an ice shaving machine equipped with a detachable ice container that includes: a body including a rotary member moved up

and down and rotated manually or automatically, or both of manually and automatically, and having a mount and a shaved-ice container storage; an ice container having a receiving portion for ice, a shaved-ice exit formed through a bottom of the receiving portion, and an ice cutting blade attached to a lower surface at a side of the bottom from the shaved-ice exit; and a fixing mechanism fixing the ice container to the mount.

[0020] Further, in the ice shaving machine equipped with a detachable ice container, the body may include a first sensing unit that senses the vertical position of the rotary member.

[0021] Further, in the ice shaving machine equipped with a detachable ice container, the body may include a second sensing unit that senses attachment/detachment of the ice container.

[0022] Further, in the ice shaving machine equipped with a detachable ice container, the ice container may include a height adjuster for adjusting a vertical position of the ice cutting blade protruding over the shaved-ice exit by adjusting a position of the ice cutting blade.

[0023] According to the ice shaving machine equipped with a detachable ice container of the present invention, ice made in a desired amount is put in a container and shaved-ice is made from the ice, so there is no need for reusing ice that is used when making shaved-ice, and accordingly, sanitation can be ensured.

[0024] Further, since ice is made in advance in a desired amount, the amount of shaved-ice is always the same in a desired amount, so it is not required to manage the amount of shaved-ice. Accordingly, the ice shaving machine is very useful particularly for making a small amount of shaved-ice for one person or two people, for example.

[0025] Further, according to the ice shaving machine equipped with a detachable ice container of the present invention, a fixing mechanism, an ice container, and a mount are designed to prevent the ice container from rotating when the ice shaving machine is operated, so stable operation can be ensured. Further, the entire structure is simple, so the ice shaving machine can be easily manufactured and the manufacturing cost can be reduced.

[0026] Further, according to the ice shaving machine equipped with a detachable ice container of the present invention, since a first sensing unit for sensing the vertical position of the rotary member and a second sensing unit for sensing attachment/detachment of the ice container are provided, the rotary member can be stably operated and a safety accident due to the rotary member can be prevented.

[0027] Further, according to the ice shaving machine equipped with a detachable ice container of the present invention, a height adjuster that adjusts the vertical position of an ice cutting blade protruding over the shaved-ice exit is provided, it is easy to replace the ice cutting blade and to freely control the size and area of ice to be shaved by adjusting the vertical position of the ice cutting blade; therefore, the ice shaving machine is very convenient to use.

BRIEF DESCRIPTION OF THE DRAWINGS

[0028] The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description when taken in conjunction with the accompanying drawings, in which:

[0029] FIG. 1 is a view schematically showing an ice shaving machine according to the related art;

[0030] FIG. 2 is a perspective view showing an ice shaving machine according to an embodiment of the present invention;

[0031] FIGS. 3A and 3B are exploded perspective views showing main parts of the ice shaving machine according to an embodiment of the present invention in different directions;

[0032] FIG. 4 is a cross-sectional view schematically showing the internal structure of the ice shaving machine according to an embodiment of the present invention;

[0033] FIG. 5 is a perspective view illustrating an ice container and a fixing mechanism of the ice shaving machine according to an embodiment of the present invention;

[0034] FIGS. 6A and 6B are perspective views illustrating a height adjusting mechanism for an ice cutting blade of the ice shaving machine according to an embodiment of the present invention;

[0035] FIG. 7 is a perspective view illustrating the internal structure of a body of the ice shaving machine according to an embodiment of the present invention; and

[0036] FIG. 8 is a perspective view illustrating a second sensing unit in the ice shaving machine according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0037] The present invention will now be described in detail based on aspects (or embodiments). The present invention may, however, be embodied in many different forms and should not be construed as being limited to only the embodiments set forth herein, but should be construed as covering modifications, equivalents or alternatives falling within ideas and technical scopes of the present invention.

[0038] In the figures, like reference numerals, particularly, reference numerals having the same last two digits or the same last two digits and letters refer to like elements having like functions throughout, and unless the context clearly indicates otherwise, elements referred to by reference numerals of the drawings should be understood based on this standard.

[0039] Also, for convenience of understanding of the elements, in the figures, sizes or thicknesses may be exaggerated to be large (or thick), may be expressed to be small (or thin) or may be simplified for clarity of illustration, but due to this, the protective scope of the present invention should not be interpreted narrowly.

[0040] The terminology used herein is for the purpose of describing particular aspects (or embodiments) only and is not intended to be limiting of the present invention. As used herein, the singular forms are intended to include the plural forms as well, unless the context clearly indicates otherwise.

[0041] It will be further understood that the terms “comprises,” “comprising,” “includes” and/or “including,” when used herein, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

[0042] Unless otherwise defined, all terms including technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which the present invention belongs. It will be further understood that terms used herein should be interpreted as having a meaning that is consistent with their meaning in the context of

this specification and the relevant art and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

[0043] Terms such as ‘a first ~’ and ‘a second ~’ are used only for the purpose for distinguishing a constitutive element from other constitutive element, but constitutive element should not be limited to a manufacturing order, and the terms described in the detailed description of the invention may not be consistent with those described in the claims

[0044] For convenience of the description of a detachable ice container for an ice shaving machine according to the present invention, when an approximate direction rather than a precise direction is specified with reference to FIG. 2, a lower side is determined based on a direction to which gravity is applied, up and down directions and right and left directions are determined as they are shown, and front and rear directions are determined with the direction, in which an ice container 20 is mounted, that is, an opening of a seat 12 is formed, determined as the front direction. This standard may be also applied to the other drawings, and directions may be specified and described based on this standard unless the detailed description of the invention and the claims specially indicate otherwise.

[0045] Hereinbelow, an ice shaving machine equipped with a detachable ice container according to the present invention will be described with reference to the accompanying drawings.

[0046] As shown in FIGS. 2 to 8, an ice shaving machine equipped with a detachable ice container according to the present invention includes a body 10 having a storage S that can receive a shaved-ice container (not shown) and a mount 12 where an ice container 20 is detachably mounted, and has a ice-shaving rotary member 15, the ice container 20 receiving a predetermined amount of ice that freezes in advance and having an ice cutting blade 23, and a fixing mechanism 30 fixing the ice container 20 to the mount 12 of the body 10.

[0047] First, as shown in FIGS. 2 to 3B, the rotary member 15 (see FIG. 4) that rotates and moves down when the ice shaving machine is operated is disposed inside a body housing 11 of the body 10.

[0048] The mount 12 to which the ice container 20 is detachably attached is disposed at the lower portion of the body housing 11.

[0049] The body is supported by legs 11A at the lower portion of the body housing 11 and the open space between the legs is the container storage S where shaved-ice can be kept.

[0050] A water tray (not shown) that can keep water produced from shaved-ice fragments flying to the outside when shaved-ice drops into the container in the storage S during shaving of ice to make shaved-ice or water from ice remaining and melting after the ice shaving machine is used is further disposed on the bottom of the container storage S.

[0051] The rotary member 15 can be manually or automatically rotated and moved up/down, and a driving unit for the rotary member, as shown in FIG. 7, includes an electric motor 14 disposed in the body housing 11 and automatically rotating and moving up/down a rotary rod 15A (see FIG. 2) of the rotary member and a manual operating unit 18 disposed outside the body housing 11 and moving up/down the rotary rod 15A.

[0052] The electric motor 14 and the rotary rod 15A are connected by a timing gear 14A, a thread 15a (see FIG. 3A) formed on the outer side of the rotary rod 15A is thread-

fastened to a threaded portion (not shown) fixed to the body housing, and a rotary key (not shown) on the inner side of the timing gear of the rotary rod 15A is inserted in a slit (not shown) formed in the longitudinal direction of the rotary rod 15A, so as the electric motor 14 is operated, the rotary key of the timing gear rotates the rotary rod 15A and the rotary rod 15A is moved up or down in accordance with the rotational direction.

[0053] The manual operating unit 18 is connected to a lifting shaft 18a having a lifting gear (not shown) coupled to the thread 15a of the rotary rod 15A, so the rotary rod 15A is moved up or down without rotating in according to the rotational direction of the lifting gear.

[0054] The connection structure of the electric motor 14 and the rotary rod 15A and the connection structure 15A of the manual operating unit 18 and the rotary rod 15A are implemented by other well-known types composed of various shafts and/or gears, so the rotary member 15, that is, the rotary rod 15A can be automatically or manually operated. Further, these configurations are little related to the necessary characteristics of the present invention and can be achieved from various structures and connection relationship applied to common ice shaving machines by those skilled in the art, so they should not be construed as limiting the scope of the present invention.

[0055] As shown in FIGS. 2 to 3B, the manual operating unit 18 includes an operating plate 18A that rotates and/or moves up/down the rotary member 15 in the body housing 11.

[0056] A handle 18B is connected to the operating plate 18A so that a user can turn the operating plate 18A.

[0057] In particular, the operating plates 18A are provided in a pair on both sides of the body housing 11 and the handle 18B can be detachably attached to any one of the left and right operating plate 18A, so a user can attach the handle to a desired side regardless of whether he/she is left handed or right handed and can manually operate the rotary member, thereby improving convenience for the user.

[0058] As shown in FIG. 7, a first sensing unit S1 that senses the vertical position of the rotary rod 15A, that is, the rotary member 15 is disposed in the body 10.

[0059] The first sensing unit S1 includes a support rod 17 vertically disposed at a side of the rotary rod 15A, a lifting member 15B connected to the upper end of the rotary rod 15A and having a receiving groove 15b in which the support rod 17 is inserted, a second sensed unit (not shown) mounted in the receiving groove 15b, and a first-first sensor 17A and a first-second sensor 17B disposed at the upper and lower ends of the support rod 17, respectively, (that is, at the uppermost and lowermost positions of the rotary rod vertically moving up/down) and being capable of sensing the second sensed unit.

[0060] When the rotary rod 15A is moved up/down by the electric motor 15 and the first-first and first-second sensors 17A and 17B sense the second sensed unit, the electric motor 14 is automatically stopped.

[0061] Further, as shown in FIGS. 2 to 3B, a control panel 19 including a dial (not shown), a power button (not shown), an emergency stop button 19a, and an automatic operation button 19b to control the electric motor 14, that is, the rotation time of the rotary member 15 is disposed on the front of the body housing 11.

[0062] As shown in FIGS. 3A and 3B, a cutting blade 23 for shaving ice and a shaved-ice exit are not provided in the body

of the present invention, unlike common ice shaving machines, and this configuration will be described in detail below.

[0063] As shown in FIGS. 3A to 4, the ice container 20, which is a common vessel, has a receiving portion 21 that can keep ice made in advance and a handle 26 allowing a user to easily handle the ice container 20.

[0064] According to the present invention, with the ice container 20 mounted to the mount 12 of the body 10, the rotary member 15 is moved down to fix ice and then rotated, thereby making shaved-ice.

[0065] Accordingly, a shaved-ice exit 22 is formed through the bottom of the ice container 20 and a cutting-blade 23 for shaving ice is disposed under a side of the shaved-ice exit 22 to face the shaved-ice exit 22.

[0066] In particular, the cutting blade 23 may be inclined in the opposite direction to the rotational direction of ice, that is, the rotation direction of the rotary member 15 in order to shave ice well producing high quality shaved-ice.

[0067] The sizes and shapes of the shaved-ice exit 22 and the cutting blade 23 may be changed in various ways.

[0068] In the drawings, the shaved-ice exit 22 is formed in a “-” shape at the center of the bottom of the ice container 20.

[0069] A pair of cutting blades 23 is disposed to face each other at an angle in the opposite direction to the rotational direction of the rotary member 15, at the left and right sides from the center of the shaved-ice exit 22.

[0070] However, as described above, the present invention is fundamentally characterized not by the structure of shape of the shaved-ice exit 22 and the cutting blades 23, but by the positions of the shaved-ice exit 22 and the cutting blades 23, that is, by the shaved-ice exit 22 and the cutting blades 23 disposed not in the body 10 of the ice shaving machine, but in the bottom of the ice container 20.

[0071] Accordingly, the shaved-ice exit 22 and the cutting blades 23 may have other structures and shapes different from those shown in the drawings, and thus, the scope of the present invention should not be construed as being limited to the structure and shape of the shaved-ice exit 22 and the cutting blades 23.

[0072] As shown in FIGS. 3A to 4, the ice container 20 has a flange 24 protruding outward around the opening of the receiving portion 21.

[0073] The mount 12 of the body 10 is a guide member 13 in which the flange 24 can be slid.

[0074] The guide member 13 has a coupling portion 13A that is coupled to both left and right sides and the rear side, except for the front opening, of the bottom of the body housing 11, a side 13B bending downward from the outer end of the coupling portion 13A, and a supporting portion 13C bending inward from the lower end of the side 13B, so it has a semicircular shape or a U-shape in a plane. Accordingly, the ice container 20 is detachably mounted by sliding the flange 24 into a space 13D defined by the coupling portion 13, the side 13B, and the supporting portion 13C.

[0075] Since ice is shaved while it is rotated, the receiving portion 21 of the ice container 20 may be formed in a circle and accordingly the flange 24 and the guide member may be formed in a semicircular shape.

[0076] When the ice container 20 is mounted on the mount 12, the ice container 20 is fixed by the fixing mechanism 30, but when the flange 24 and the guide member 13 are formed in a semicircular shape, the force rotating ice is directly

transmitted to the ice container 20, so fixing protrusions 31 to be described below may receive large pressure and is likely to be broken.

[0077] In order to prevent this problem, the flange 24 and the side 13B of the guide member 13 respectively have straight retaining portions 24a and 13a that can prevent rotation of the ice container 20.

[0078] Accordingly, when the ice container 20 of the present invention is mounted on the mount 12 of the body 10, the straight retaining portions 24a and 13a of the flange 24 and the side 13B of the guide member 13 guide the ice container 20 to be coupled in a predetermined direction, in contact with each other. Further, after the ice container 20 is mounted, the straight retaining portions 24a and 13a resist the torque by rotation of ice, so they block pressure that is applied to the fixing protrusions 13A and the fixing protrusions 13 can be prevented from being damaged and broken.

[0079] Each of straight retaining portions 24a and 13a, as shown in the drawings, is disposed at the left and right sides of the flange 24 and the side 13B of the guide member, but they may be disposed at other positions (for example, the rear end of the flange 24 and the rear side 13B of the guide member 13) or in other shapes (for example, two or more straight retaining portions may be connected to each other in a polygon).

[0080] Accordingly, the straight retaining portions 24a and 13a fundamentally bring the flange 24 and the side 13B of the guide member 13 in contact with each other not in a circular shape, but a straight shape to be able to resist rotation of the ice container 20.

[0081] One or more fixing grooves 25 is formed around the receiving portion 21 of the ice container 20 and the body 10 has a fixing member 31 elastically supported toward the mount 12, so the fixing member constitutes the fixing mechanism 30 for the ice container 20 by being inserted in the fixing grooves.

[0082] In detail, as shown in FIGS. 3A, 3B, and 5, the fixing member 31 is composed of a fixing lever 31B exposed to the outside through a hole 11a formed through the front of the body housing 11 and the fixing projections 31A integrally connected to the fixing lever 31B and moved in/out through bottom holes 11B formed through the bottom of the body housing 11.

[0083] The fixing member 31 is elastically supported toward the lower portion of the body housing 11 by an elastic member (not shown).

[0084] Further, the fixing projections 31A are rounded in the mounting direction of the ice container 20, that is, at the front sides, and perpendicularly formed in the separation direction of the ice container 20, that is, at the rear sides.

[0085] The ice container 20 has fixing grooves 25 (which may be holes) at positions corresponding to the fixing member 31 around the receiving portion 21.

[0086] Accordingly, when a user put ice into the receiving portion 21 of the ice container 20 and couples the ice container 20 to the mount 12, the rounded surfaces of the fixing protrusions 31A are inserted into the body 10 in contact with the flange 24 of the ice container 20, and when the ice container 20 is fully pushed, the fixing protrusions 31A protrudes under the body 10 and are inserted into the fixing grooves. Accordingly, in this state, the perpendicular rear sides of the fixing protrusions 31A are locked in the fixing grooves 25, so the ice container 20 cannot be unexpectedly separated and can be fixedly mounted.

[0087] In order to take out the ice container 20 after shaved-ice is made, a user puts up the fixing lever 31B so that the fixing protrusions 31A are taken out from the fixing grooves 25 and then he/she can separate the ice container 20 from the mount 12 of the body 10.

[0088] Further, a holding handle 31C (see FIG. 2) is fixed to the body housing 11 over the fixing lever 31B so that a user can push up the fixing lever by hand holding the holding handle.

[0089] Since the fixing member 31 is provided on the front of the body housing 11, the fixing grooves 25 where the fixing protrusions 31A are inserted are also formed at the front of the receiving portion 21 and the handle 26 is formed at the same position.

[0090] In order to prevent the strength of the handle of the ice container from being reduced by the fixing grooves 25, a pair of fixing grooves is formed at both sides of the handle of the ice container and the fixing protrusions 31A of the fixing member 31 may be also formed in a pair to corresponding to the fixing grooves to ensure the strength of the handle.

[0091] The shape, position, and number of the fixing mechanism 30 may be different from those shown in the drawings.

[0092] On the other hand, as shown in FIG. 8, the second sensing unit S2 that senses attachment/detachment 20 of the ice container is disposed on the mount 12 of the present invention, so when the ice container 20 is not mounted, operation of the rotary member 15 due to malfunction is prevented.

[0093] Unlike ice shaving machines of the related art, according to the ice shaving machine of the present invention, an ice holder 16 of the rotary member 15 is rotated and moved up/down in a state of being exposed outside the body 10 in order to prevent injury to a user due to carelessness or incorrect operation by the user.

[0094] The second sensing unit S2 may be implemented by various sensors of the related art, but in order to ensure safety and easiness of manufacturing, the second sensing unit S2 is implemented by a second-first sensor 12A on the front of the mount 12 and the ice container 20 has the second sensed unit 27 on the front of the receiving portion 21 so that that second-first sensor 12A can sense it.

[0095] That is, the second-first sensor 12A is disposed on a mounting groove 12a formed at the front of the mount 12 (between a pair of holes 11a in the drawings) and the second sensed unit 27 is disposed at the front of the flange, which is positioned in the same line as the mounting groove when the ice container 20 is fully pushed inside the mount 12 so that when the ice container 20 is not fully mounted, that is, when the ice container 20 is not mounted or unstably mounted, the second-first sensor 12A cannot sense the second sensed unit 27.

[0096] Accordingly, only when the ice container 20 is fully mounted on the mount 12 and the second-first sensor 12A senses the second sensed unit 27, the rotary member 15 is rotated and moved up/down, so safety for a user can be ensured.

[0097] The sensed unit may be typically a magnetic member and the sensor may be a sensor that senses magnetism.

[0098] Next, the height adjuster 40 that allow for adjustment of the size of ice to be shaved by adjusting the vertical position of the cutting blade 23 over the shaved-ice exit 22 is described with reference to FIG. 6.

[0099] The height adjuster 40 disposed in the ice container 20 has the following: an upward inclined surface 41 that is

inclined upward so that the cutting blade 23 faces the shaved-ice exit 22 along the bottom of a side of the shaved-ice exit 22 and on which the cutting blade 23 is mounted; an adjusting bolt 42 that has a threaded portion 42a that is thread-fastened to an adjusting portion 41A of the upward inclined surface 41 and a head 42b fastened to the rear end of the cutting blade 23; a fixing block 43 that is bolted to the upward inclined surface 41 to cover the entire cutting blade 23; and oblong holes 44 that are formed toward the upward inclined surface 41 through the cutting blade 23 so that bolts 43A can be fastened to the ice container 20.

[0100] The adjusting portion 41A protrudes downward (upward in the drawings) from the bottom of the upward inclined surface 41 and has a threaded hole 41a.

[0101] The adjusting bolt 42 is coupled to the threaded hole 41a by means of the threaded portion 42a, with the head 42b locked in a locking groove 23a formed at the rear end of the cutting blade 23.

[0102] The end of the threaded portion 42a of the adjusting bolt 42 is formed in a shape (for example, the shape of a groove for a bolt, a hexagonal nut, or a hexagonal wrench) in which a tool is inserted to tighten or loosen the adjusting bolt 42.

[0103] Accordingly, when the bolts 43A are partially loosened, the force holding the fixing block 43 is reduced and the force fixing the cutting blade 23 is removed, so tightening or loosening the adjusting bolt 42 changes the position of the cutting blade 23 on the upward inclined surface 41. Therefore, it is possible to adjust the vertical position of the cutting blade 23 over the shaved-ice exit 22 by fixing the fixing block 43 in close contact with the upward inclined surface 41 by tightening the bolts 43A after adjusting the position of the cutting blade 23.

[0104] Further, a scale 44 is provided at a side of the upward inclined surface 41 and a ruler 45 is disposed on a side of the cutting blade 23 that is not covered with the fixing block 43 so that a user can adjust the vertical position of the cutting blade 23 while directly checking the position of the cutting blade 23 through the scale.

[0105] The ice holder 16 of the rotary member 15 of the present invention is described with reference to FIG. 4.

[0106] First, as shown in the perspective view in a circle at the right upper portion in FIG. 4, the ice holder 16 is implemented by a plurality of needles 16A that are applied to the rotary member 15 of well-known ice shaving machines.

[0107] When the rotary member 15 is moved down, the needles of the ice holder 16 cut into ice I and fix the ice, so when the rotary member 15 is rotated, the ice is also rotated.

[0108] However, when the needles 16A are used, the top of ice may be broken by the needles 16A, so the rotary member 15 may idle without rotating the ice, depending on the quality of ice.

[0109] That is, when ice partially melts and the freezing state is poor, the strength of the ice is low, and in this case, when the needles 16A are driven into the ice and the rotary member 15 is rotated at a high speed under high pressure, the ice may not be rotated and the needles 16A may break the top of the ice, so the rotary member 15 may idle.

[0110] This is because the needles 16A cannot resist the forced in the rotational direction of the rotary member 15.

[0111] Accordingly, as shown in the perspective view in the circle at the right lower portion in FIG. 4, the ice holder 16 may be composed of one or more fixing protrusions 16B are formed perpendicular to the rotational direction of the rotary member 15.

[0112] The fixing protrusions 16B have a surface that can hold ice in the rotational direction of the rotary body 15, so if ice partially melts, idling of the rotary member 15 can be prevented.

[0113] Although four fixing protrusions 16B are arranged in a cross shape in FIG. 4, a plurality of fixing protrusions may be arranged in a star shape ('*'), or if necessary, one fixing protrusion may be formed in a bar shape ('-') across the center of the rotary member 15.

[0114] Further, according to the present invention, a rotary member 15 having the needles 16A and a rotary member 15 having the fixing protrusions 16B may be separately manufactured to be detachably mounted on the rotary rod 15A (or a fixing plate fixed to the rotary rod 15A), so they may be replaced in accordance with the quality of ice.

[0115] Although an ice shaving machine equipped with a detachable ice container which has a specific shape and structure was described above with reference to the accompanying drawing, the present invention may be changed and modified in various ways by those skilled in the art and those changes and modifications should be construed as being included in the scope of the present invention.

What is claimed is:

1. An ice shaving machine comprising:

a body including a rotary member moved up and down and rotated manually or automatically, or both of manually and automatically, and having a mount and a shaved-ice container storage;

an ice container having a receiving portion for ice, a shaved-ice exit formed through a bottom of the receiving portion, and an ice cutting blade attached to a lower surface at a side of the bottom from the shaved-ice exit; and

a fixing mechanism fixing the ice container to the mount.

2. The ice shaving machine of claim 1, wherein the body includes a first sensing unit for sensing a vertical position of the rotary member.

3. The ice shaving machine of claim 1, wherein the body includes a second sensing unit for sensing attachment and detachment of the ice container.

4. The ice shaving machine of claim 1, wherein the ice container includes a height adjuster for adjusting a vertical position of the ice cutting blade protruding over the shaved-ice exit by adjusting a position of the ice cutting blade.

5. The ice shaving machine of claim 2, wherein the ice container includes a height adjuster for adjusting a vertical position of the ice cutting blade protruding over the shaved-ice exit by adjusting a position of the ice cutting blade.

6. The ice shaving machine of claim 3, wherein the ice container includes a height adjuster for adjusting a vertical position of the ice cutting blade protruding over the shaved-ice exit by adjusting a position of the ice cutting blade.

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