Jan. 13, 1970 KATSUHIKO TAKAHASHI 3,489,357

ARTICLE SHAVING DEVICE

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FIG. 1

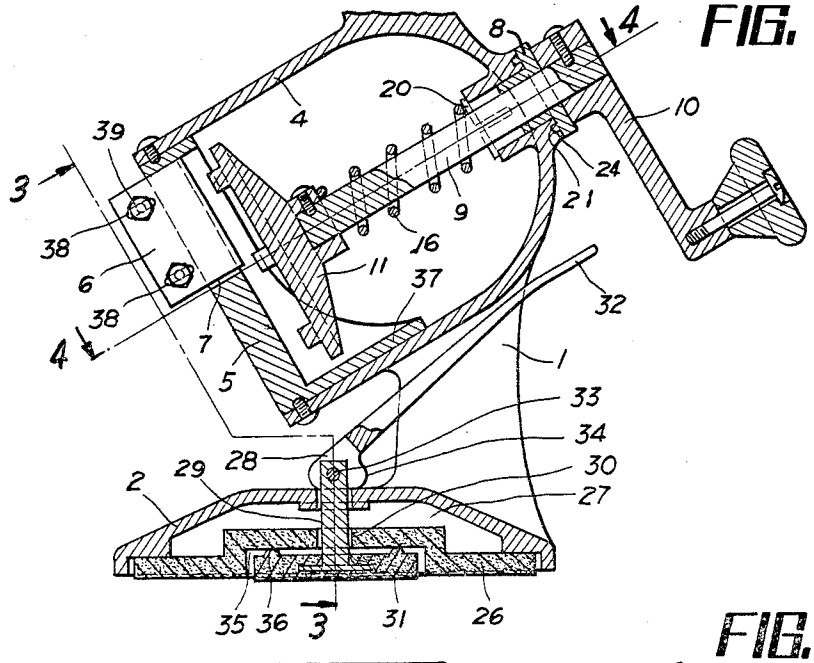
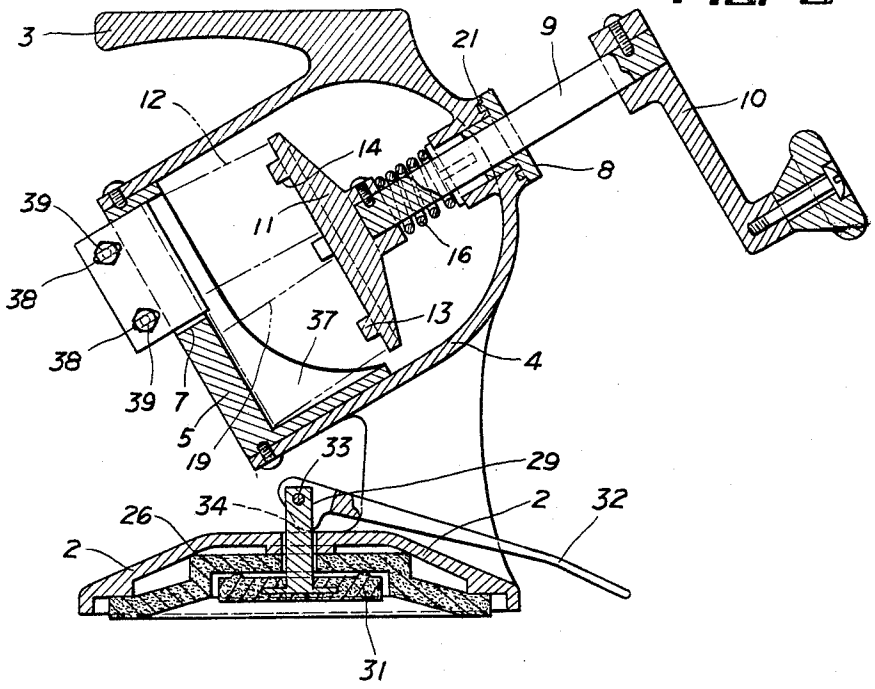


FIG. 2



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FIG. 3

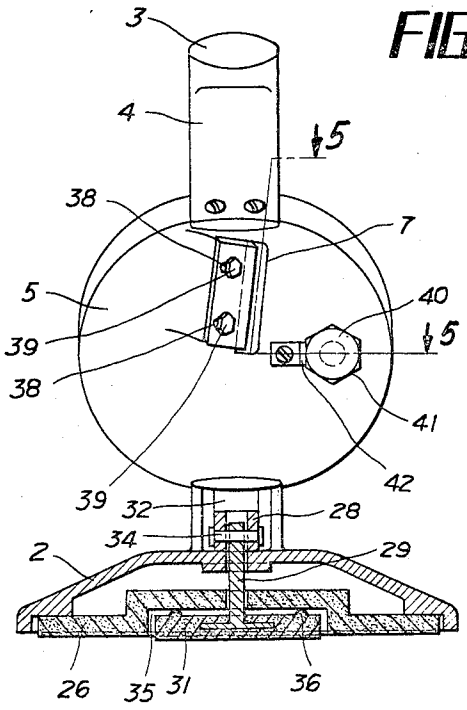
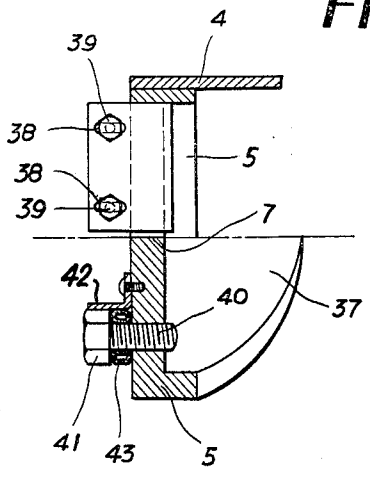


FIG. 5



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FIG. 4

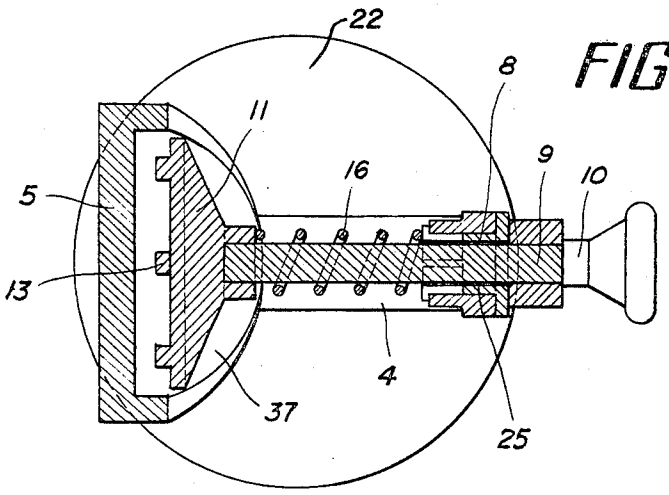


FIG. 6

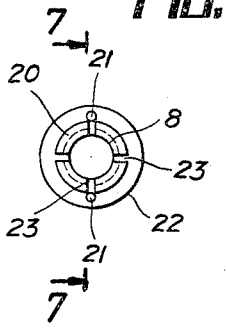


FIG. 7

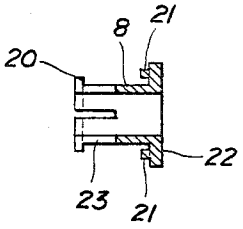


FIG. 8

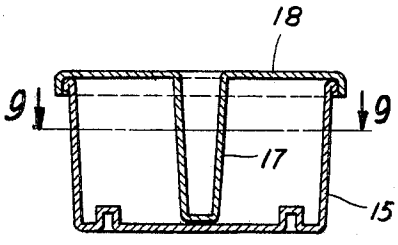
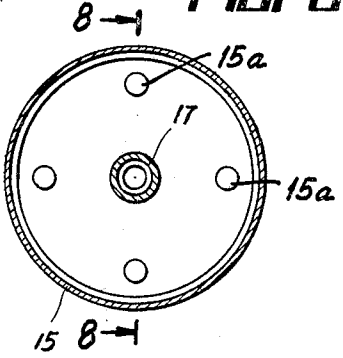


FIG. 9



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3,489,357

ARTICLE SHAVING DEVICE

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Int. Cl. B02c 7/00, 7/14, 23/00
U.S. Cl. 241—95 8 Claims

ABSTRACT OF THE DISCLOSURE

A compact ice shaver particularly for shaving ice cubes having recesses formed in the cubes at locations spaced outwardly from the center thereof includes a holding plate member with projections which are adapted to engage into the recesses of the ice cubes. The holding plate is arranged within a small size chamber which is closed at the one end by an oblique plate having an opening through which a knife blade projects. The holding plate is biased against the ice cube to urge the cube against the knife blade of the plate during rotation of the holding plate which is effected by grasping a handle which extends out through the housing in an accessible position.

A feature of the construction is that the housing is mounted on a small pedestal which includes a suction member which may be tightly engaged against the table using a camming lever which evacuates the air therefrom. The top of the pedestal includes a handle grip which may be engaged during the rotation of the handle and a force of the spring within the housing causes the holding plate to urge the ice cube against the shaving knife to affect a uniform shaving thereof into small particles of ice.

SUMMARY OF THE INVENTION

This invention relates, in general, to shaving or cutting devices, and in particular to a new and useful device for cutting or shaving ice which includes means for supporting a block of ice above a cutting instrument and for engaging the ice and imparting a rotation thereto to cause the cutting instrument to shave the ice as it is rotated.

The present invention is an improvement over prior art devices, particularly in respect to the provision of a simple and inexpensive device for shaving articles such as ice cubes. In a preferred arrangement of the invention, the device includes a mounting stand preferably with means for advantageously mounting the stand in a fixed relationship on a table top or other place. The stand is provided with an improved suction gripping means. The stand includes a hand-grip portion which may be held by the operator's hand when a block of ice is placed on a receiving saucer which is mounted on a U-shaped frame. The U-shaped frame rotatably supports a handle member with a pressure or holding element on its end which engages the ice cube. The saucer element includes a shaving blade which projects up from the saucer and engages the surface of the ice. The pressure element of the handle urges the ice against the cutter and a handle is provided for rotating the pusher element to effect the desired ice cutting or shaving. In a preferred arrangement, the ice itself is advantageously made so that it includes recesses defined therein which may be engaged by projections which are formed on the pusher member which imparts the rotation to the ice.

A further feature of the invention is the inexpensive manufacture of the device and the simple manner in which the ice cube may be oriented on a saucer element for positioning for shaving purposes. The device also includes a stand with a rotatable handle and pivot member thereon for the ice holding plate which is mounted in an efficient and excellent manner.

Accordingly, it is an object of the invention to provide an article shaving device which includes a plate member for holding the article to be shaved above a shaving blade and means for rotating the article in contact with the blade for effecting the shaving.

A further object of the invention is to provide a shaving device for ice cubes and the like which includes a U-shaped frame which is adapted to be secured to a table and the like such as by an improved suction member with a saucer on the frame for receiving the ice and being curved to contain any melting ice water and including a shaving blade held in a stationary manner on the saucer to project against the surface of the ice, and means for holding the opposite end of the ice and for effecting the rotation thereof past the blade to effect shaving.

A further object of the invention is to provide an ice shaving device which is simple in design, rugged in construction and economical to manufacture.

For an understanding of the principles of the invention, reference is made to the following description of a typical embodiment thereof as illustrated in the accompanying drawings.

In the drawings:

FIG. 1 is a transverse section of an ice-shaving machine constructed in accordance with the invention;

FIG. 2 is a view similar to FIG. 1 with the suction member indicated in an engaged position;

FIG. 3 is a partial elevational and partial sectional view taken along the line 3—3 of FIG. 1;

FIG. 4 is a section taken along the line 4—4 of FIG. 1;

FIG. 5 is a section taken along the line 5—5 of FIG. 3;

FIG. 6 is a front elevational view of a bushing employed in the device;

FIG. 7 is a section take on the line 7—7 of FIG. 6;

FIG. 8 is a sectional view taken along the line 8—8 of an ice tray for forming the ice cubes to be shaved into the device; and

FIG. 9 is a section taken along the line 9—9 of FIG. 8.

Referring to the drawings, in particular, the invention embodied therein comprises an ice shaving device particularly for home use which includes a main body which is advantageously made of a rigid material such as a metal which has a continuous structure including a lower circular pedestal portion 2 and an upper horizontal grip portion 3. The central portion of the body includes a substantially U-shaped frame 4 which carries at its outer (lower) end an ice saucer or plate 5 which is connected thereto such as by bolts.

In accordance with the invention, the plate 5 is provided with an aperture 7 in which is mounted a shaving blade or cutting device 6. The shaving device 6 is secured in position by bolt members 39, 39 which are inserted into elongated slots 38, 38, respectively, and are tightened after the cutting device 6 is moved to an adjustable position. The setting of the blade 6 is in ac-

cordance with experience and satisfactory operating conditions so that it will project upwardly from the interior wall of the plates **5** to engage a surface of a block of a material such as ice which in the drawing of FIG. 2 is indicated in dot-dash lines at **12**. The saucer or plate **5** is provided with a widened lower portion **37** in order to collect any water which may accumulate as a result of the melting of the ice.

The frame **4** also contains at its upper inner end a mounting journal for a bushing generally designated **8** and advantageously made of a plastic material. The bushing **8** receives an elongated shaft or rotating member **9**. A handle **10** is secured to the shaft **9** the end of which is located exteriorly of the frame portion **4** in a position so that rotation of the shaft **9** may be easily accomplished. The opposite end of the shaft **9** is provided with a holding plate or push board **11** which may be rotated with the shaft **9** upon rotation of the handle **10**. A spring **16** is disposed between a hub portion of the holding plate **11** and the flange portion **20** of the bushing **8** and biases the holding plate **11** into engagement with the article or ice cube **12**. Rotation of the handle **10** effects the rotation of the ice block **12** and the shaving thereof by the shaving blade **6**. Additional pressure may be exerted in a downward direction, that is toward the ice block **12** by moving the handle and the shaft **9** downwardly in the bushing **8**. As indicated in FIGS. 4, 6 and 7, the bushing **8** includes a flange portion **22** having inturned flange elements **21** which engage in recesses **24** (see FIG. 1) of the body portion **4**. The bushing is split at **23** so that it may be easily positioned in place on the body and provides a secure rotating mount for the shaft **9** and handle **10**.

A further feature of the inventive construction is that the base or pedestal **2** is provided with an interior bottom recess in which is positioned a suction cup or disk **26**. An interior mooring plate **31** is located within the cup **26** and it is connected to a pulling-up rod **29** which is pivoted at **33** to a crank member **32**. The crank member **32** includes a projecting portion **34** which bears on the top of the pedestal to pull the pulling-up rod upwardly to cause the suction cup to become moored in position on a table top or the like (not shown). The movement upwardly of the mooring plate **31** causes a vacuum to be created within the disk **26** to cause the cup to adhere to the table. Reverse operation of the lever **32** to the position indicated in FIG. 1 permits the body to be removed from the table. A further feature of the mooring piece **31** construction is that it prevents the device from adhering to the table when the lever **23** is in an upward position as indicated in FIG. 1.

The device is advantageously operated with ice which is specially formed such as by using the ice tray **15**. The ice tray **15** advantageously includes projections **15***a* defined on the bottom wall which form similar recesses in the cube which is being made. In addition, a cover **18** is provided with a downward central projection **17** which forms a central hollow cone in the ice cube, as indicated at **19** in FIG. 2. The recesses which are formed in the ice cube are engaged by projections **13** and **14** formed on the holding member **11**. In this manner, the holding member will tightly engage the cube to effect rotation thereof and the cube will be shaved by the blade **6** with a minimum of effort. The shaving is facilitated by having the hollow portion **19** which extends through the center of the ice cube. The cube **12** is inserted by pushing the holding member backwardly against the spring **16** from either side of the U-shaped frame **4**.

In addition to the adjustment of the blade, there is an adjustment screw **40** which extends through the plate **5** (FIG. 5) which may be tightened or loosened to compress a washer **43**. The inner end of the screw **40** will abut against the ice cube. The height of this inner end from the floor **7** of the plate **5**, and hence the spacing of an ice cube supported thereon from the plate **6**, can be adjusted by rotating the nut head **41**. A spring member **42** which is of L-shaped configuration is bolted to the plate **5** and bears against one face of the multi-face nut **41** and prevents it from loosening. In this manner the screw is held resiliently in an adjusted position.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the principles of the invention, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A cutting device particularly for shaving cubes and similar articles comprising a main body having a base portion and an open frame portion extending obliquely above said base, a plate carried on said main body frame portion extending obliquely adjacent the lower end thereof and having an aperture therethrough, a cutting blade carried by said plate adjacent said aperture and projecting above the interior of said plate, a rotatable member rotatably and axially movably mounted in said body frame portion, an article holding member carried by said rotatable member and being displaceable toward and away from said plate to engage an article over said plate, a handle projecting from the upper portion of said main body for holding said main body to a support, a suction cup on the bottom of said base portion for engaging said base portion on a support, and means to rotate said rotatable member with said holding member to rotate said article past said cutting blade to effect shaving thereof.

2. A cutting device according to claim **1**, wherein said rotatable member is a rotatable shaft having an outward portion and a handle connected to said outward portion constituting said means to rotate said shaft.

3. An article cutting device according to claim **1**, wherein said rotatable member is a rotatable shaft, a spring around said shaft biasing said holding member toward the end thereof and toward said plate.

4. A cutting device according to claim **1**, wherein said plate includes widened lower portion for collecting water therein which may result from the melting of an ice cube.

5. A cutting device according to claim **1**, including a mooring piece located within said suction plate and means connecting said mooring piece from the exterior of said pedestal for pulling said mooring plate upwardly to cause said suction plate to adhere to a table and for moving said mooring piece downwardly for releasing said suction plate from a table.

6. A cutting device according to claim **1**, including projections formed on said holding piece for engaging into recesses of the article to be held to secure the article to said holding piece for rotation therewith.

7. A cutting device particularly for shaving ice cubes and similar articles comprising a main body, a plate carried on said main body having an aperture therethrough, a cutting blade carried by said plate adjacent said aperture and projecting above the interior of said plate, a rotatable member rotatably mounted in said frame, an article holding member carried by said rotatable member and being displaceable toward and away from said plate to engage an article over said plate, and means to rotate said rotatable member with said holding member to rotate said article past said cutting blade to effect shaving thereof, and a spacing screw connected to said plate and extending upwardly therefrom forming a lower abutment for the article being shaved.

8. A cutting device particularly for shaving ice cubes and similar articles comprising a main body, a plate carried on said main body having an aperture therethrough, a cutting blade carried by said plate adjacent said aperture and projecting above the interior of said plate, a rotatable member rotatably mounted in said frame, an article holding member carried by said rotatable member and being displaceable toward and away from said plate to engage an article over said plate, and means to rotate said rotatable member with said holding member to rotate said article past said cutting blade to effect shaving thereof,

and a spacing screw connected to said plate and extending upwardly therefrom forming a lower abutment for the article being shaved, said spacing member being a screw which is threaded into said plate and may be threadably moved for adjusting said spacing.

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