

Aug. 27, 1940.

J. M. MAJEWSKI, JR

2,213,166

ICE CRUSHER

Filed July 5, 1939

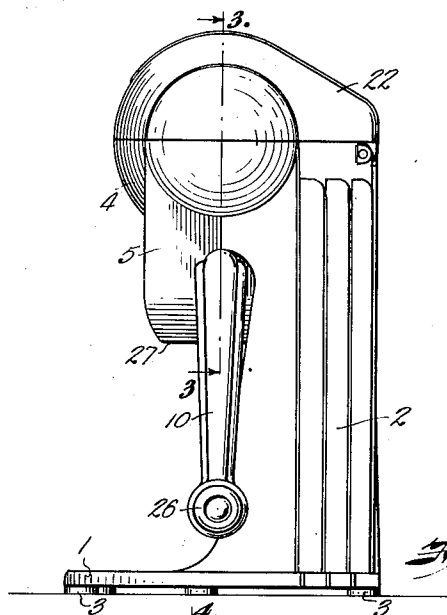


Fig. 1.

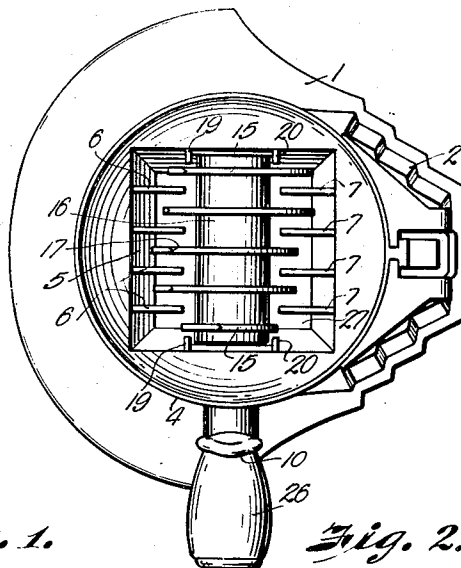


Fig. 2.

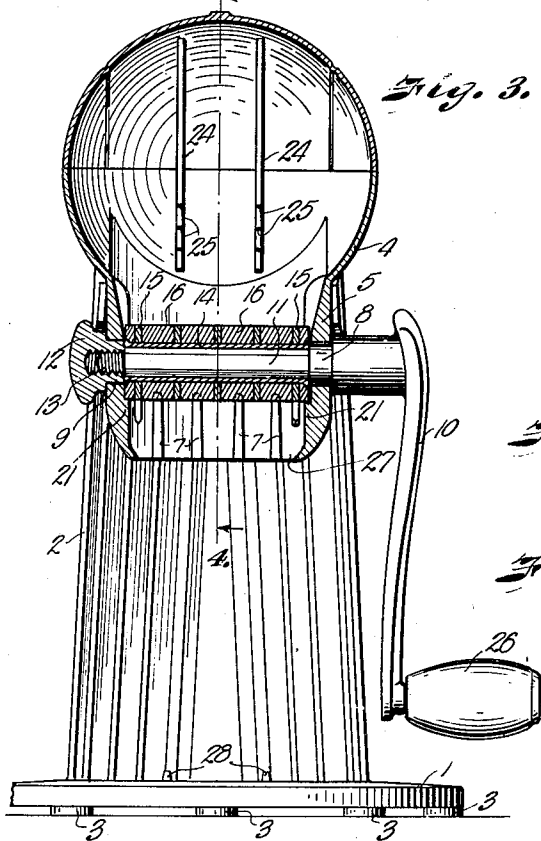


Fig. 3.

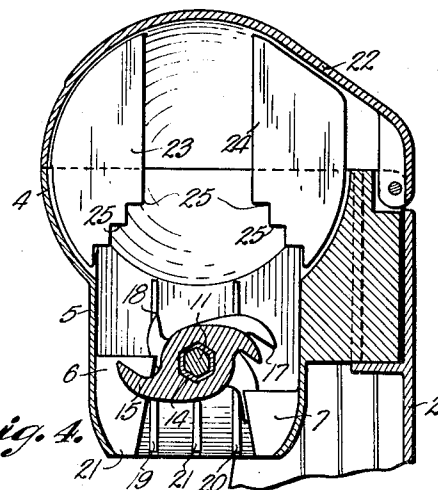


Fig. 4.

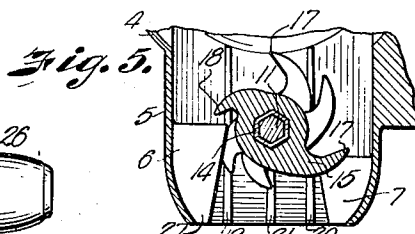


Fig. 5.

INVENTOR
Joseph M. Majewski, Jr.
BY
Thos. E. Hoefield
ATTORNEY

UNITED STATES PATENT OFFICE

2,213,166

ICE CRUSHER

Joseph M. Majewski, Jr., Kansas City, Mo., assignor to Foster L. Talge, Kansas City, Mo., doing business as Rival Manufacturing Company

Application July 5, 1939, Serial No. 282,840

4 Claims. (Cl. 83—63)

My invention relates to ice crushers, and more particularly to a device for crushing ice into small fragments for use in icing drinks, juleps, and ice bags.

One object of my invention is to provide a novel ice crusher adapted to rapidly and easily crush ice into small fragments.

Another object of my invention is to provide a device for crushing ice in which the fragment size may be controlled.

Other and further objects of my invention will appear from the following description.

In the accompanying drawing which forms part of the instant specification, and which is to be read in conjunction therewith, and in which like reference numerals are used to indicate like parts in the various views:

Fig. 1 is a side elevation of an ice crusher showing one embodiment of my invention.

Fig. 2 is a plan view of the ice crusher shown in Fig. 1 with the cover removed.

Fig. 3 is a front elevation of the ice crusher shown in Fig. 1, with parts along the line 3—3 of Fig. 1 in section.

Fig. 4 is a sectional view taken along the line 4—4, Fig. 3.

Fig. 5 is a fragmentary view similar to Fig. 4 showing the rotary crushing element in position for forming the smaller ice fragments.

Referring now to the drawing, a base member 1 is formed with a standard 2, and provided with a plurality of feet 3, which may be of rubber or the like. The standard supports a bowl 4 adapted to receive the ice to be crushed. The lower end of the bowl 5 is formed as an open passageway of rectangular cross-sectional shape. The passageway is provided with a plurality of fins 6 along one side wall thereof, and a plurality of fins 7 along the opposite side wall thereof. By reference to Fig. 4 it will be noted that the fins 7 do not extend upwardly along the side walls to as great a distance as the fins 6. The other two side walls of the lower end of the bowl 5 are bored to receive bearings 8 and 9. Bearing 8 is formed at the end of a handle member 10, to which a shaft 11 of octagonal cross-sectional shape is rigidly secured. Bearing member 9 is formed at the end of a nut 12 adapted to screw onto a threaded portion 13 formed at the end of the shaft 11.

The shaft 11 is adapted to pass through an assembly of cutters, assembled upon a bushing 14 having a hexagonal cross-sectional shape. The assembly comprises cutting members 15 and spacer members 16. Each of the cutters 15 is of

the shape shown in Figs. 4 and 5, and is provided with a sharpened point 17 and a sharpened point 18. The points 17 and 18 are located 180° apart, and point 17 is located at a greater distance from the axis of the bushing 14 than the point 18.

In assembling the cutters upon the bushing 14, a number of arrangements may be employed. It will be observed that since the bushing 14 is hexagonal, adjacent cutters may be 60° apart. A handy assembly is as follows. A long point, another long point 60° behind, a third long point 60° behind, a short point in phase relation with the adjacent long point, and a short point 60° ahead. The diametrically opposite cutters will then be arranged as follows. A short point, another short point 60° behind, a third short point 60° behind the second short point, a long point in phase relation with the short point, and a long point 60° ahead of the adjacent long point.

In the arrangement shown I have provided two sets of four fins 6 and 7 and five cutters. The spacing is such that the cutters pass between the fins.

Adjacent the openings for the bearings 8 and 9, I provide guide fins 19 and 20, and centering fins 21. The fins 19, 20 and 21 are adapted to position the cutter assembly opposite the openings in the side walls so that the shaft 11 can be readily passed through the bushing 14.

Referring now to Fig. 4, it will be noted that the direction of rotation in order to crush ice will be in a clockwise direction, as viewed in the figure. In other words, ice will be crushed upon the fins 7 by the cutters. When the fins 7 are employed the crushed ice will be coarser in texture than when the cutters are reversed as shown in Fig. 5. It will be observed in Fig. 5 that the direction of rotation will be counter-clockwise, and that fins 6 will be effective for coaction with the cutters. The ice in this case will be crushed to a finer degree.

Hinged to the standard 2 is a cover member 22 provided with downwardly extending fins 23 and 24. The lower ends of the fins 23 and 24 are provided with stepped portions 25. The function of the projecting fins is to prevent the ice from moving upwardly during the rotation of the cutters.

In operation, if it is desired to crush ice coarsely the assembly is as shown in Fig. 4 with the fins 7 effective to co-operate with the cutter assembly. Ice is dropped into the hopper and the cover 22 swung to closed position and the cutter assembly rotated by means of handle 26,

which is secured to the handle arm 10. The rotation of the cutter assembly will crush the ice between the fins 7 and the cutting points, and the crushed ice will drop downwardly by gravity through the opening 27 into a receptacle which may be placed under the opening upon the base member 1. A pair of fins 28 are formed in the base member to act as stops for the receptacle enabling it to be positioned directly under the opening 27.

If it is desired to crush ice more finely, the nut 12 is unscrewed and the shaft 11 and handle assembly moved laterally out of the cutter bushing 14. The cutter assembly will then be supported by the fins 19, 23 and 24. The cutter assembly is lifted out of the hopper, reversed and dropped into the hopper. The fins 19 and 20 will position the cutter assembly laterally in the hopper for registration with the bearing openings in the hopper sides. The fins 21 will position the cutter assembly vertically for registration with the bearing openings in the hopper sides. The operating shaft 11 may then be inserted through the bushing 14 and the nut 12 again screwed onto the threads 13. The direction of rotation with the cutter reversed will, of course, be opposite.

It will be seen that I have accomplished the objects of my invention. I have provided a novel ice crusher assembly which is adapted to conveniently and expeditiously crush ice. My device will crush ice to a fine or coarse size as desired. The adjustment for change in the size of ice particles may be quickly and conveniently made. The fins 23 and 24 upon the cover member prevent the ice from riding around in the bowl.

It will be understood that certain features and sub-combinations are of utility and may be employed without reference to other features and sub-combinations. This is contemplated by and is within the scope of my claims. It is further obvious that various changes may be made in details within the scope of my claims, without departing from the spirit of my invention. It is, therefore, to be understood that my invention is not to be limited to the specific details shown and described.

Having thus described my invention, I claim:

1. An ice crusher comprising in combination a standard, a bowl mounted on said standard, a plurality of fins formed within said bowl on one side thereof, a cutter assembly adapted to be

rotated adjacent said fins, said cutter assembly comprising a plurality of cutters each formed with a pair of diametrically extending cutting blades positioned substantially 180° apart, said cutting blades being formed with terminal sharp points, one of the points of a blade being positioned a greater distance from the axis of rotation of the blade than the other of said points, and means for rotating said cutting assembly to successively engage ice to be crushed.

2. An ice crusher comprising in combination a bowl of substantially rectangular cross-sectional shape, a first plurality of fins formed on one side of said bowl, a second plurality of fins formed on the opposite side of said bowl and extending upwardly to a greater extent than the first plurality of fins, a cutting assembly comprising a plurality of outwardly extending staggered fingers, bearings formed in the other pair of side walls of said bowl, said bearing side walls being formed with means for positioning said cutter assembly in registry with said bearings, said cutting assembly being formed upon a bushing of polygonal cross-sectional shape, a shaft of corresponding polygonal cross-sectional shape adapted to be inserted into said bushing, journals carried by said shaft for rotation in said bearings, and means for rotating said shaft in said bearings the upper ends of said first plurality of fins being located at a greater distance from the axis of said shaft than the upper ends of said second plurality of fins, the construction being such that said cutter assembly may be positioned in said bowl for coaction with said first plurality of fins or said second plurality of fins to crush ice to different degrees of fineness.

3. In an ice crusher, a bowl, fins formed on one side of said bowl, a cutter assembly positioned in said bowl and journaled for rotation therein, said cutter assembly comprising a plurality of outwardly extending cutting blades adapted to coact with said fins, a cover, means for hinging said cover adjacent the upper end of said bowl, a plurality of fingers formed in said cover, said fingers extending downwardly when the cover is closed to locate the ice in ice crushing position.

4. An ice crusher as in claim 3 in which said fingers are formed with a plurality of stepped portions, the stepped portions nearer the sides of the bowl extending downwardly to a greater extent.

JOSEPH M. MAJEWSKI, JR.