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ICE CUBE DISPENSER

Filed July 25, 1962

Fig. 1

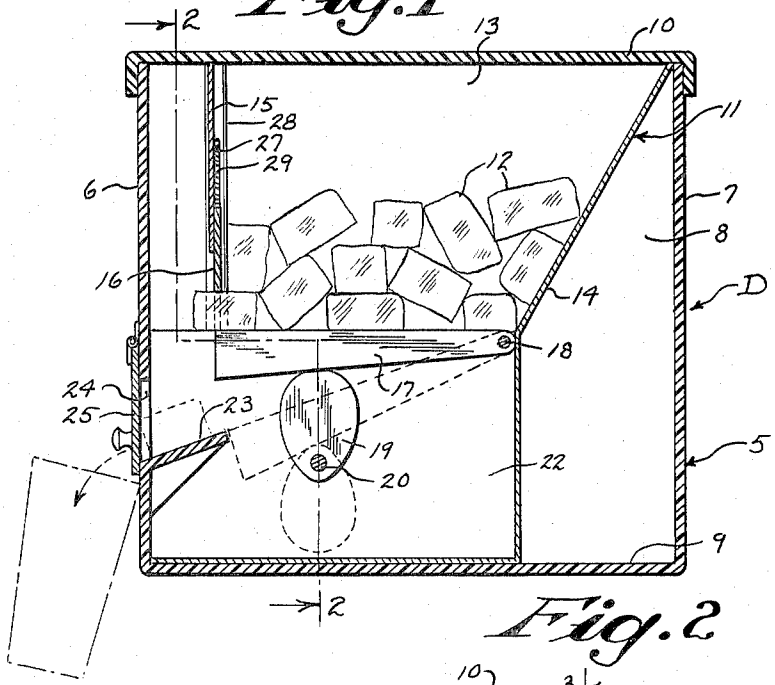


Fig. 2

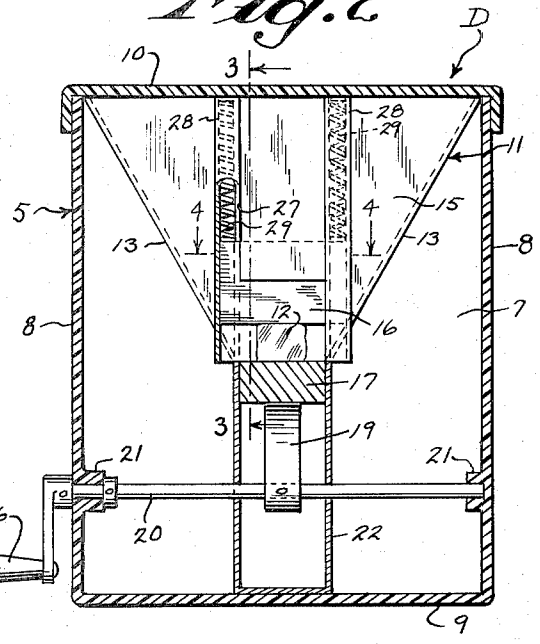


Fig. 3

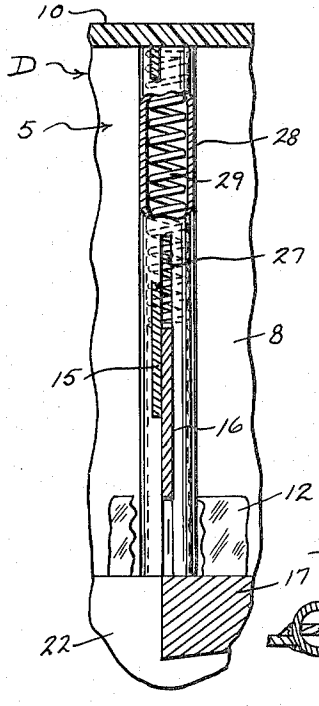
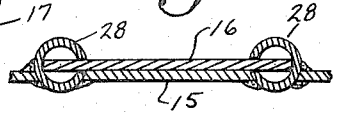


Fig. 4



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ICE CUBE DISPENSER

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This invention appertains to dispensing machines and more particularly to means for facilitating the dispensing of ice cubes into drinking glasses and other receiving receptacles.

There is a need for an efficient machine in taverns and other places for quickly delivering a desired number of ice cubes into drinking glasses without the need of persons handling the ice cubes with their hands. It is the usual practice in serving bars to have an open bin for the ice cubes and to fill glasses with ice by reaching into the bin and transferring the cubes by hand from the bin to the glasses. Not only is this a tedious operation, but the open bin and the handling of cubes by hand is an unsanitary practice.

It is, therefore, one of the primary objects of this invention to provide an ice cube dispensing machine embodying a closed cabinet or the like for the storage of ice cubes, with a novel and simple mechanism for positively delivering a desired number of the cubes directly into a drinking glass by the mere setting into operation of such mechanism.

Another prime object of the invention is to provide an enclosed storage cabinet having a hopper including downwardly and inwardly inclined walls leading toward a pivoted bottom or gate on which the cubes rest, with means for lowering the bottom into an inclined delivery position and into alignment with a delivery chute and dispensing outlet, so that the cubes can slide down the inclined bottom wall by gravity into said chute and out of said outlet into a drinking glass.

A further salient object of the invention is the provision of means for raising and lowering the bottom wall into and out of its operative position, with said means merely embodying a rotary shaft and a cam, the cam functioning when in its raised position to hold the bottom wall in its raised position and against delivery of ice cubes.

A still further important object of the invention is the provision of means for preventing the bottom wall from being moved to its raised position by ice cubes catching in between the bottom wall and front wall of the hopper, said means merely including a sliding gate forming a part of the front wall of the hopper and disposed in the path of movement of said bottom wall.

A still further object of the invention is to provide an ice dispensing machine of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed, and illustrated in the accompanying, drawing, in which drawing,

FIGURE 1 is a central vertical sectional view through the novel ice dispenser;

FIGURE 2 is a transverse sectional view through the ice dispenser taken on the line 2—2 of FIGURE 1, looking in the direction of the arrows;

FIGURE 3 is an enlarged detail vertical sectional view taken on the line 3—3 of FIGURE 2, looking in the direction of the arrows illustrating the novel arrangement of the sliding gate and its position relative to the swinging bottom wall; and

FIGURE 4 is a detail horizontal sectional view through the sliding gate and its guides, the section being taken on the line 4—4 of FIGURE 2, looking in the direction of the arrows.

Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter D generally indicates our novel ice cube dispensing machine. The dispenser D includes a cabinet 5 and this cabinet can be of an ornamental character to be compatible with the interior decoration of a tavern. This cabinet can be constructed from any desired material, such as metal or plastic, and can be provided with insulated walls if such should be desirable. An illustrated, the cabinet preferably includes front and rear walls 6 and 7, side walls 8 and a bottom wall 9. A removable cover 10 is provided for closing the upper end of the cabinet and this cover provides access into the interior of the cabinet for permitting the dumping of ice cubes therein.

Arranged within the cabinet is a hopper 11 for ice cubes 12. The hopper includes downwardly and inwardly inclined side walls 13 and a downwardly and inwardly inclined rear wall 14. The hopper also includes a front wall 15, which is preferably spaced a slight distance from the front wall 6 of the cabinet. This front wall 15 is of a special construction, as will be later set forth, but it is to be noted that the same does include a lower sliding section or gate 16. By referring to FIGURES 1 and 2, it can be seen that the downwardly and inwardly inclined side and rear walls 13 and 14 slope toward the bottom of the hopper so that the ice cubes 12 will gravitate toward said bottom. The bottom is normally closed by a combined guide and bottom wall 17. The combined guide and bottom wall 17 is pivoted at its rear end to the side walls of the hopper by means of a pivot pin 18. This bottom wall extends from the extreme rear end of the hopper to the front of the hopper and terminates under or adjacent to the sliding section or gate 16 of the front hopper wall 15.

This combined guide and bottom wall 17 rests upon a cam 19 and the cam is keyed or otherwise rigidly secured to a transverse shaft 20 rotatably mounted in bearing bosses 21 carried by the side walls 8 of the cabinet. By referring to FIGURE 2, it can be seen that the side walls 13 of the hopper 11 can be continued downwardly toward the bottom wall 9 of the cabinet to provide straight parallel walls 22 and these walls form a guide for the pivoted bottom wall 17 during its raising and lowering movement. With the cam 19 in its raised position, as shown in FIGURES 1 and 2, the bottom wall 17 will be held in its raised position for closing the bottom of the hopper and the ice cubes normally rest upon this bottom wall. By rotating the cam 19 the bottom wall 17 with the ice cubes therein will lower to an inclined position and in alignment with a guide chute 23 carried by the front wall 6 of the cabinet. This chute leads toward the lower edge of a dispensing opening 24 formed in said wall 6 and this dispensing opening 24 can be normally closed by a door 25. In the present instance, the door is shown to be hinged at its upper end and held in its closed position by gravity or by springs forming a part of the hinges.

The cam 19 is so designed that when the same is in its lowermost position, the bottom wall will be in direct alignment with the chute 23 so that cubes will slide down the bottom wall into the chute and out of the dispensing opening 24. By holding a glass or other receptacle under the chute and by raising the door 25, a desired number of the ice cubes will be dispensed into the glass. Thus, it is merely necessary to turn the shaft 20 one revolution to move the bottom wall to its lower inclined position and to its raised position. The shaft 20 can be rotated by

an electric motor timed for one revolution or by a hand crank 26, as shown.

It therefore can be seen that ice cubes can be readily and quickly dispensed from out of the cabinet without any material effort on the part of an operator.

It has been found that during the raising of the bottom wall 17 by its cam 19, there is a likelihood of an ice cube catching under the lower edge of the front hopper wall 15, and thus prevent the complete closing of said bottom wall. To eliminate this, we have provided the sliding front wall section or gate 16. Again, this sliding section or gate 16 is positioned directly above the forward end of the pivoted bottom wall 17. To provide for the easy and efficient raising and lowering of the section or gate 16 the same has its edges slidably mounted in vertically extending guide slots 27 formed in hollow guide posts 28 forming a part of the front hopper wall 15. Housed within the hollow guide posts 28 are expansion coil springs 29 and the lower ends of these springs bear against the upper edge of the section or gate 16 and normally hold the gate or section in a lowered position and against the forward end of the bottom wall 17. Upon the raising of the bottom wall and if an ice cube is located at the extreme forward end thereof, such ice cube will strike the section or gate 16 and the gate will then be raised against influence of its coil expansion spring 29. Thus, the jamming of the machine is effectively prevented.

Various changes in details may be made without departing from the spirit or the scope of this invention, but what is claimed as new is:

1. An ice cube dispensing machine comprising a cabinet having an ice cube delivery opening therein and a chute leading toward said opening, an ice receiving hopper in said cabinet having a front wall and downwardly and inwardly inclined side and rear walls leading toward the lower end of the hopper, a combined guide slide and bottom wall for the hopper pivotally secured at its rear end for swinging movement to a raised position for closing the lower end of the hopper and to an inclined position in alignment with the chute, means for raising said bottom wall to its closed position and for lowering said bottom wall to its inclined position in alignment with the chute, and means for preventing the jamming of the machine when an ice cube is located between the bottom wall and the front wall of the hopper.

2. In an ice cube dispensing machine as defined in claim 1, and said last named means including a sliding front wall hopper section disposed directly above the forward end of the bottom wall, whereby upon raising of said bottom wall with an ice cube at the front thereof said cube will raise said sliding section and permit the closing of the bottom of the hopper by said bottom wall.

3. In an ice cube dispensing machine, as defined in claim 2, and spring means normally holding said sliding section in a lowered position.

4. An ice cube dispensing machine comprising a cabinet having a delivery opening and a guide chute leading toward said opening, a hopper for ice cubes within said cabinet including a front wall and downwardly and inwardly inclined side and rear walls leading toward the lower end of the hopper, a combined guide slide and bottom wall for said hopper pivoted at its rear end to said hopper adjacent to said rear wall, said front wall terminating short of the front end of the bottom wall, said bottom wall being movable to a raised position for closing the lower end of the hopper and to a lowered inclined position in alignment with the chute, means for raising said bottom wall to its closed position and for lowering said bottom wall to its inclined position in alignment with said chute, hollow guide posts carried by said hopper front wall disposed on each side of the bottom wall, a gate slidably carried by said guide posts and disposed directly above the front of the bottom wall, and spring means in said posts normally holding the gate in a lowered position against said bottom wall, said gate being movable to a raised position by an ice cube positioned between the front of the bottom wall and said gate when said bottom wall is moved to its raised closed position.

5. An ice cube dispensing machine comprising a cabinet having a dispensing opening and an inclined guide chute leading toward such opening, an ice cube receiving hopper disposed within said cabinet and having inclined walls leading towards its lower end, a pivoted bottom wall on which the cubes rest normally closing the lower end of said hopper, a rotary shaft supported transversely in said cabinet below said bottom wall, a cam secured to said shaft positioned directly under said bottom wall and in operative contact therewith, so that said bottom wall will raise and lower corresponding to movement of the cam, to a raised hopper closing position and to an inclined dispensing position in alignment with said chute, and a handle operatively connected to the outer end of said rotary shaft for manually rotating the same.

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