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1,761,009

CUP DISPENSER

Filed July 8, 1929

FIG. 1.

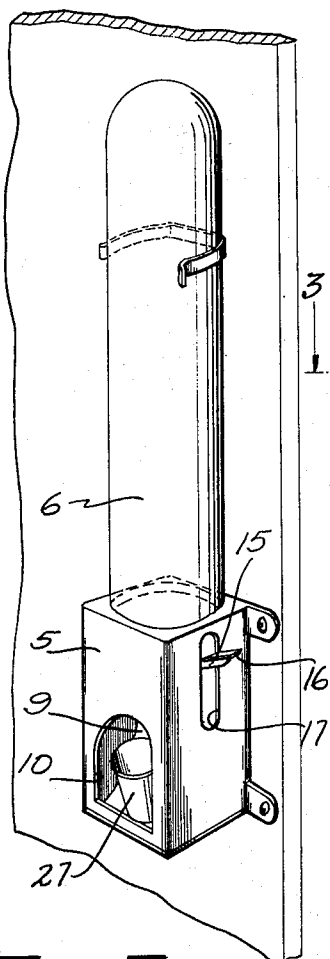


FIG. 2.

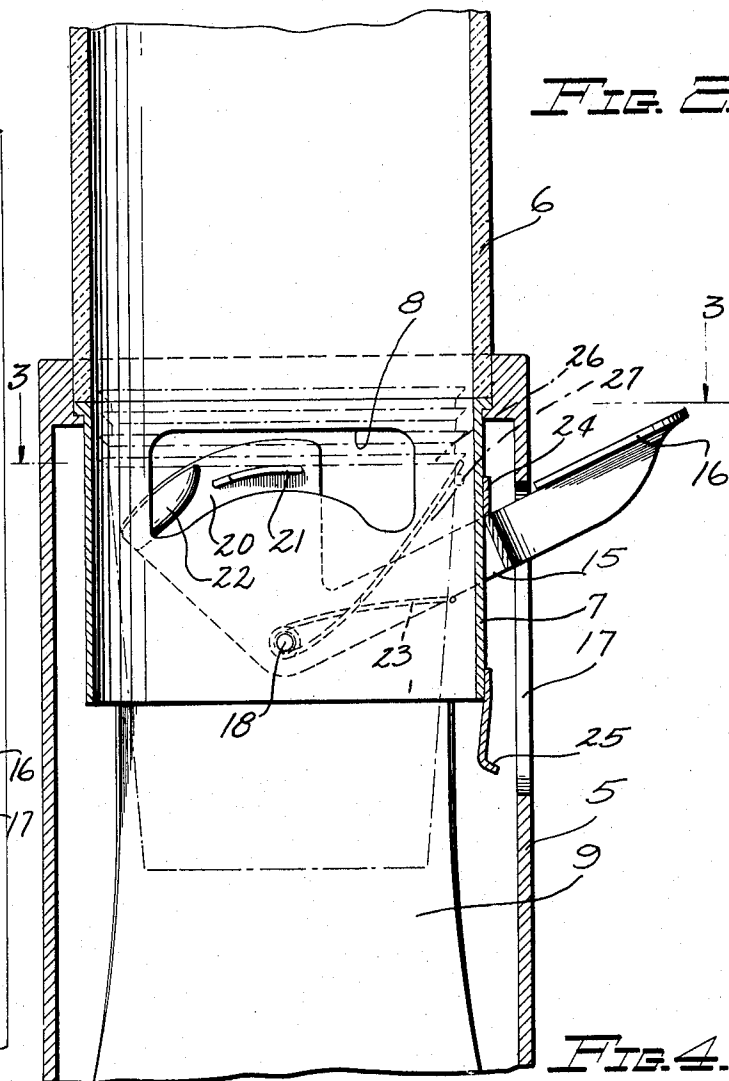


FIG. 3.

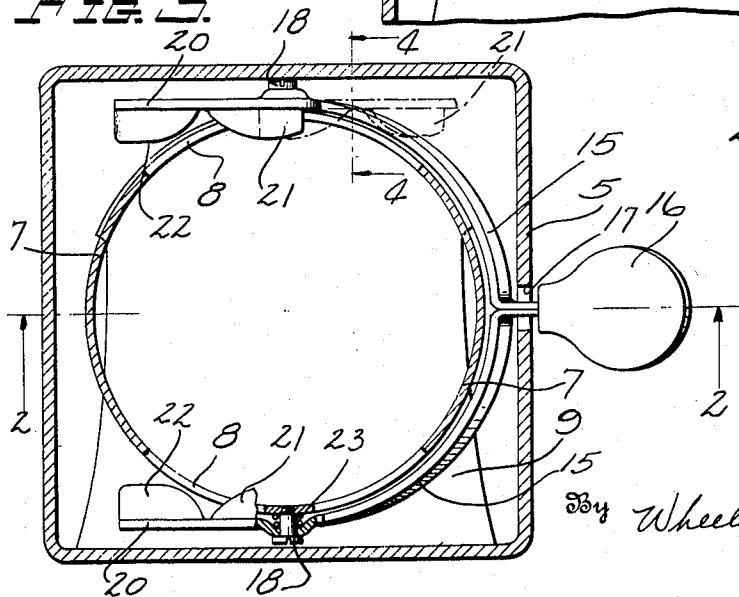
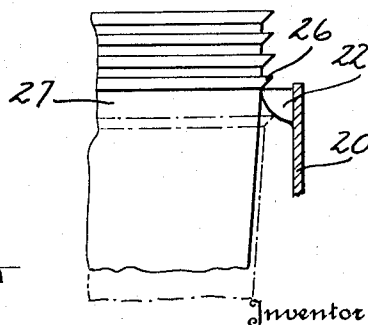


FIG. 4.



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CUP DISPENSER

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This invention relates to improvements in cup dispensers.

It is the object of the invention to provide a novel, simple and effective dispenser for supporting a stack of nested cups or like containers and adapted, when operated, to eject the lowermost cup of the stack while maintaining the remainder of the stack supported.

In the drawings:

10 Figure 1 is a view in perspective of a complete cup dispensing device embodying this invention.

Figure 2 is a detail view on an enlarged scale, showing the parts of the device in section in a plane indicated by the line 2—2 in Fig. 3.

Figure 3 is a transverse section through the case in the plane indicated at 3—3 in Fig. 2 showing the ejecting mechanism in plan.

20 Figure 4 is a detail taken in the plane indicated by the line 4—4 in Fig. 3.

Like parts are identified by the same reference characters throughout the several views.

It will be understood to those skilled in this art, that the dispensing device may take a number of different forms. The particular form is immaterial to the present invention which is concerned primarily with the ejecting mechanism by which one cup is separated from the bottom of a stack of cups and dependably ejected from the machine.

35 The casing 5 houses the ejecting mechanism and supports a tube 6, conveniently made of glass for housing the stack of cups controlled by the ejector. Aligned with tube 6 within the casing 5 is a registering discharge tube 7, having apertures 8 in its sides. Therebeneath an inclined chute 9 leads ejected cups to a discharge port 10 in the casing.

40 The operating mechanism is all supported on sleeve 7 and comprises unitarily a yoke-shaped lever 15 having a finger piece 16 projecting through slot 17 in the case. The yoke-shaped portion of the lever extends about sleeve 7 and is fulcrumed at diametrically opposed points by the pivot pins 18 which may take the form of screws threaded into tapped openings in sleeve 7.

Each arm of the yoke-shaped lever 15 carries an upwardly extending segment 20 carry-

ing flanges adapted to engage through openings 8 the cups of the stack.

Flange 21 is relatively thin and is arcuately concentric with the pivot pin 18 about which the lever oscillates. Flange 22 is angularly offset from flange 21 at a somewhat greater radial distance from the fulcrum 18 of the lever. Its upper margin is likewise concentric with the axis of fulcrum pin 18, but its lower margin is curved downwardly substantially to the projected arc in which flange 21 is disposed. Fig. 2 clearly shows the outline of the parts in elevation.

A spring 23 normally maintains the lever 15 elevated against stop 24 on sleeve 7. From this normally elevated position of the finger piece 16 the lever may be oscillated manually to lower the finger piece until the lever engages stop 25.

70 With the lever in its normal initial position as shown in Figs. 2 and 3, the stack of cups within the device will be supported on the flanges 21 which will project through the openings 8 in sleeve 7 to a position beneath the marginal beads 26 of the cups 27 in the device. In this position of the parts, flanges 22 carried by the lever will be outside of the projected periphery of the sleeve 7 through which the cups move, and consequently will be wholly out of contact with the cups.

80 When the lever is manipulated by depressing finger piece 16 to oscillate the lever in a clockwise direction about its fulcrum pins 18 (as viewed in Fig. 2), the pointed forward ends of flanges 22 will move between the bead of the lowest cup of the stack and the bead of the next cup thereabove. In so moving the flanges 22 will traverse axial planes including minor chords of the cylindrical guide tube 7, and will enter the projected cross section of the tube upon arcuate paths spaced radially from the paths of the withdrawn supporting flanges 21 in the same planes of movement.

95 The increasing thickness of flanges 22 will tend, in the continued movement of the lever, to wedge such cups apart. As soon as this wedge function becomes effective the oscillation of lever 15 will remove flange 21 from beneath the stack of cups to the dotted line position in which such flange is shown in Fig. 100

3. In this position of the parts the wedging operation of flange 22 will have completely separated the lowest cup from the stack and ejected it through the sleeve 7 on to the chute 9 where it will be made available to the operator. In the meantime the stack of cups will be supported on the upper arcuately curved surface of flanges 22.

When the operator releases finger piece 16 the spring 23 acts to restore the parts to their original position. The wedge-shaped ejecting flanges 22 are again removed out of the path of cup travel and the supporting flanges 21 slip beneath the stack of cups, which drops slightly upon the supporting flanges as the ejecting flanges 22, which have temporarily supported the stack, pass out of range.

Fig. 4 shows the effect of the wedging flanges 22 upon the cups. The cup illustrated in broken line in Fig. 4 is in the position to which it is forced by the wedging action of flanges 22. Obviously the cup has been wholly separated from the stack and must fall by gravity from this position onto the delivery chute 9.

The radial distance between the respective paths of travel of flanges 21 and 22 preferably corresponds to the spacing between bead portions 26 of consecutive cups in the stack. Obviously, however, it is immaterial in a broad sense, whether this exact relation is preserved or whether the form of the flanges is slightly modified to permit of the transfer of the weight of the stack from one flange to the other during a concurrent wedging operation as above described. It will also be understood that in referring to cups I intend to designate generically all similar cup-shaped articles such as may be dispensed in a device of this character. The specific form of the guiding means for articles to be dispensed is also broadly immaterial.

I claim:

1. In a cup dispenser, the combination with a laterally apertured conduit, of cup ejecting means fulcrumed for oscillatory movement between first and second predetermined positions, and flanges carried by said means at different radial distances from the fulcrum thereof, and positioned to traverse different paths across the interior of said conduit through the apertures therein, said flanges being angularly offset about said fulcrum for successive traverse of said conduit.

2. In a cup dispenser, the combination with a laterally apertured conduit, of cup ejecting means fulcrumed for oscillatory movement between first and second predetermined positions, and flanges carried by said means at different radial distances from the fulcrum thereof, and positioned to traverse different paths across the interior of said conduit through the apertures therein, said flanges being angularly offset about said fulcrum for successive traverse of said conduit, and

one of said flanges being provided with a wedge portion adapted in movement of said means from one of said positions to the other, to eject from said conduit a cup previously supported by the other of said flanges.

3. In a cup dispenser, the combination with a laterally apertured, tubular conduit, of a yoke fulcrumed at the sides of said support and provided with a manually operable portion, arms carried by said yoke adjacent the apertures of said conduit, and flanges mounted on said arm and movable through said apertures across portions of said conduit.

4. In a cup dispenser, the combination with a laterally apertured, tubular conduit, of a yoke fulcrumed at the sides of said support and provided with a manually operable portion, arms carried by said yoke adjacent the apertures of said conduit, and flanges mounted on said arms and movable through said apertures across portions of said conduit, the flanges on each such arm being radially and angularly offset.

5. In a cup dispenser, the combination with a laterally apertured, tubular conduit, of a yoke fulcrumed at the sides of said support and provided with a manually operable portion, arms carried by said yoke adjacent the apertures of said conduit, and flanges mounted on said arm and movable through said apertures across portions of said conduit, the flanges on each such arm being radially and angularly offset, and one of said flanges being provided with a wedge portion inclined toward the path of movement of the other of said flanges.

6. In a cup dispenser, the combination with a laterally apertured, tubular conduit, of a yoke fulcrumed at the sides of said support and provided with a manually operable portion, arms carried by said yoke adjacent the apertures of said conduit, and flanges mounted on said arm and movable through said apertures across portions of said conduit, the flanges on each such arm being radially and angularly offset, and one of said flanges being provided with a wedge portion inclined toward the path of movement of the other of said flanges, together with means for yieldably pressing said yoke toward a position in which said other flanges are disposed within the openings of said conduit.

7. In a cup dispenser, the combination with a tube adapted to receive a stack of beaded cups to be dispensed, of a yoke-shaped lever including arms fulcrumed at either side of the path of movement of such cups, oscillatory cup supporting means connected with said lever, and cup feeding means angularly and radially offset from said supporting means and adapted in the oscillation of said lever to discharge a cup previously supported by said supporting means.

8. The combination with means for guid-

ing a stack of beaded cups, of a pair of arms pivoted on either side of the path of movement of said cups so guided, each such arm being provided with a pair of flanges angularly and radially spaced for successive engagement with bead portions of different cups, and wedge means movable with said flanges and operable upon the bead portion of a cup from which one of said flanges has withdrawn.

9. The combination with means for guiding a stack of beaded cups, of a pair of arms pivoted on either side of the path of movement of said cups so guided, each such arm being provided with a pair of flanges angularly and radially spaced for successive engagement with bead portions of different cups, and wedge means movable with said flanges and operable upon the bead portion of a cup from which one of said flanges has withdrawn, together with means for the simultaneous operation of said arms, and a spring opposing movement of said arms toward a position rendering said wedge means effective.

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