H. B. COOLEY.

DISPENSING APPARATUS.

APPLICATION FILED MAR. 21, 1912.

1,186,887.

Patented June 13, 1916.

2 SHEETS—SHEET 1.

Fig. 8.

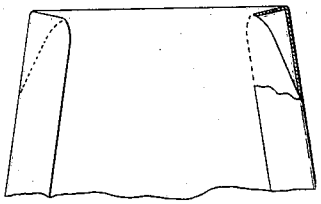


Fig. 1.

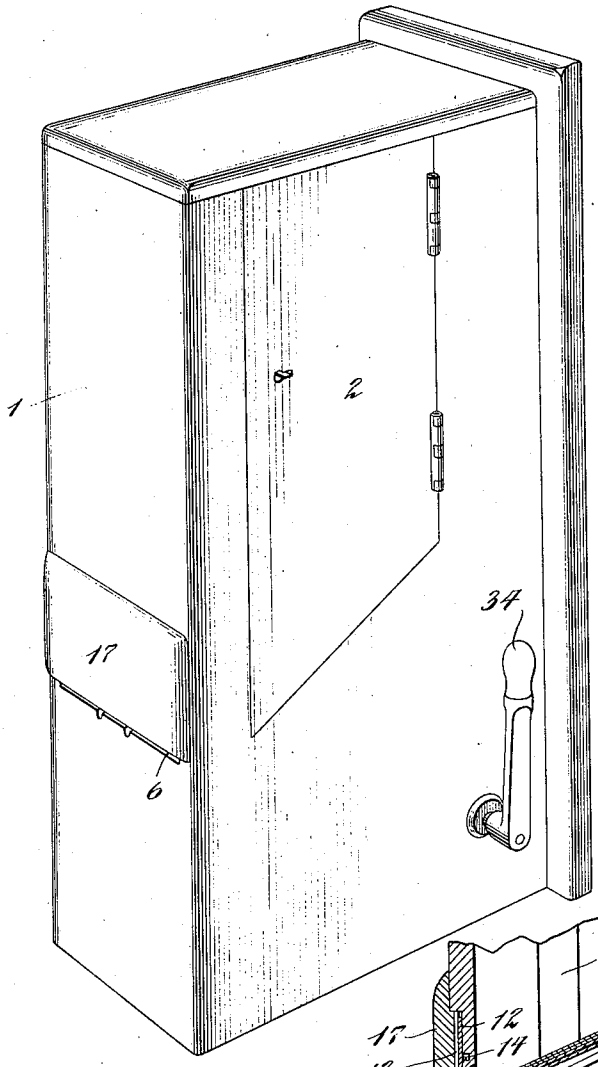


Fig. 7.

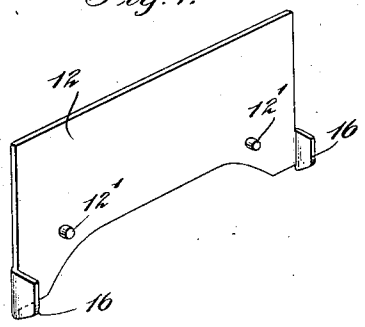
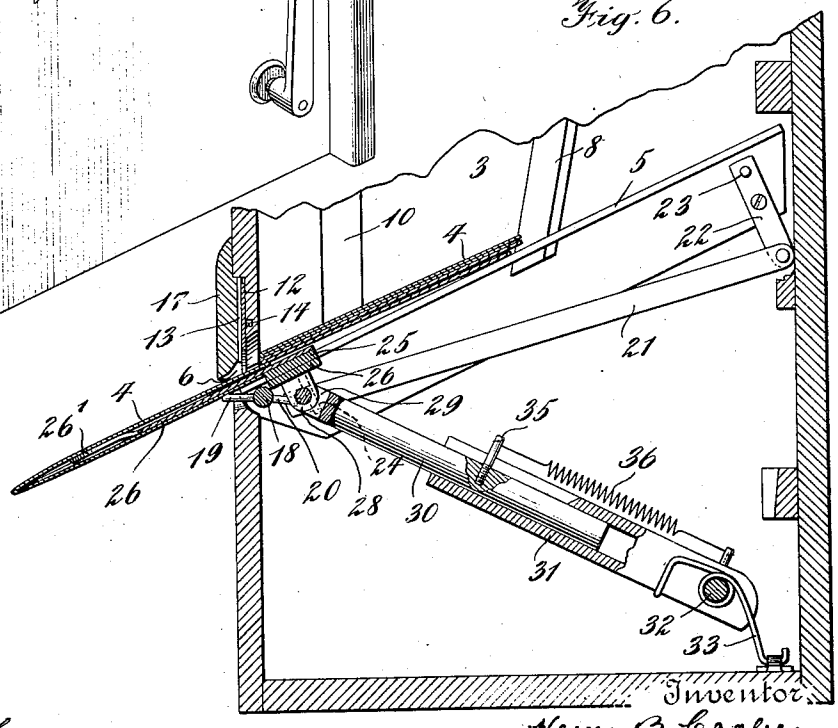


Fig. 6.



Witnesses:

Geo. E. Keeney

Clarence A. Jones.

Inventor.

Henry B. Cooley

By his Attorneys

Gifford & Bull

H. B. COOLEY.

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2 SHEETS—SHEET 2.

Fig. 2.

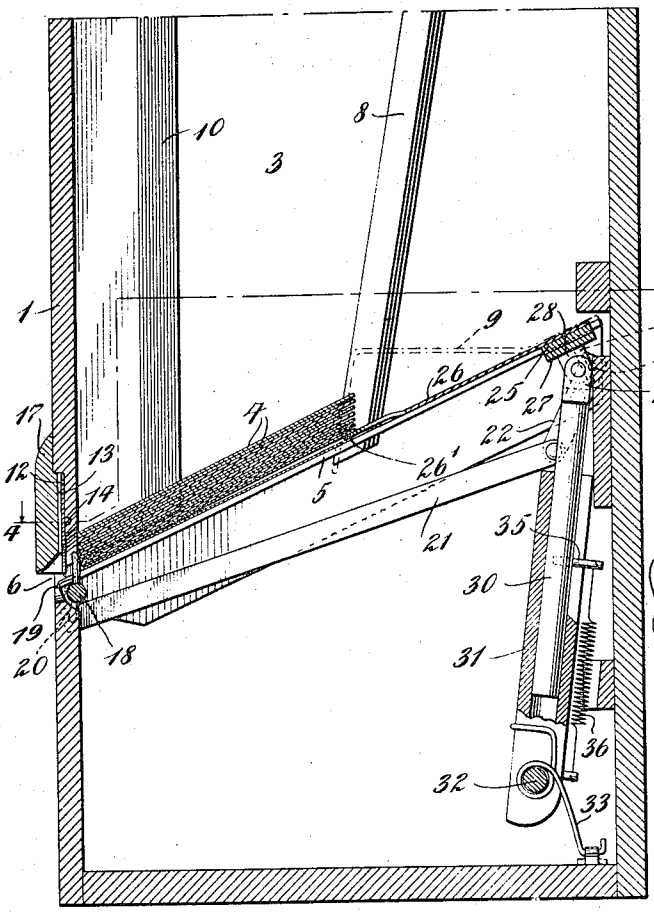


Fig. 3.

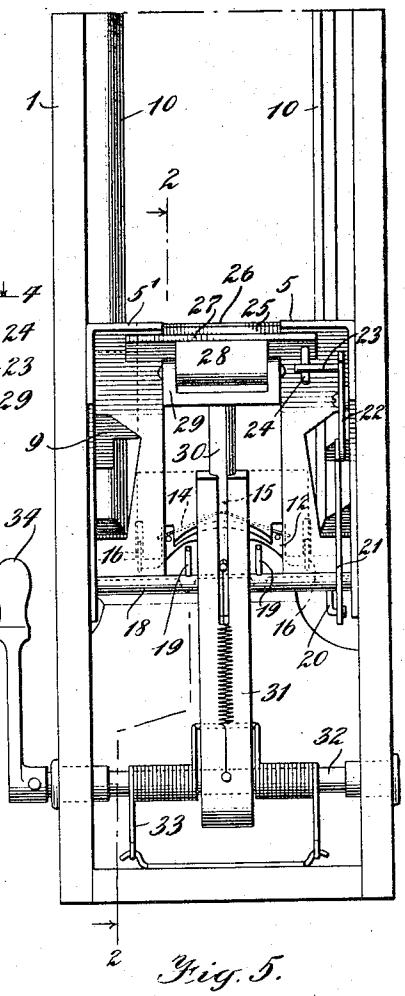


Fig. 4.

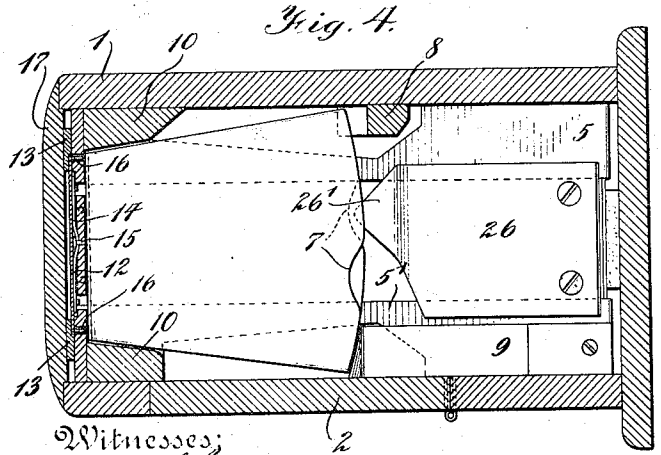
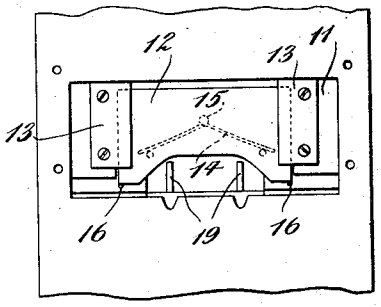


Fig. 5.



Witnesses:

Inventor

Henry B. Cooley

By his Attorneys

Gifford & Bull

UNITED STATES PATENT OFFICE.

HENRY B. COOLEY, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE AMERICAN PAPER GOODS COMPANY, OF KENSINGTON, CONNECTICUT, A CORPORATION OF NEW JERSEY.

DISPENSING APPARATUS.

1,186,887. Specification of Letters Patent. **Patented June 13, 1916.**

Application filed March 21, 1912. Serial No. 685,216.

To all whom it may concern:

Be it known that I, HENRY B. COOLEY, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Dispensing Apparatus, of which the following is a specification.

My invention relates to a dispensing apparatus, designed more particularly to deliver a paper drinking cup, and will be understood by reference to the accompanying drawings in which—

Figure 1, is a perspective view of the casing; Fig. 2, a central vertical section on the plane of the line 2—2 of Fig. 3; Fig. 3, an elevation with the rear wall of the casing removed; Fig. 4, a horizontal section on the plane of the line 4—4 of Fig. 2; Fig. 5, a front view of the delivery aperture with the cover plate removed; Fig. 6, a view similar to Fig. 2 with the parts advanced to deliver a cup; Fig. 7, a detail view of a plate shown in Fig. 5; and Fig. 8 a section through the narrow end of the cup.

Similar reference numerals indicate similar parts in the several views.

The dispensing or delivery mechanism is contained in a suitable casing 1 having a door 2 giving access to the magazine 3 in which the cups 4 are stored. Two plates 5 and 5′ spaced apart and secured to the side walls of the casing and inclined downwardly from the rear wall to the delivery outlet 6 in the front wall, constitute the floor of the magazine and also a guideway for the ejector and cup opener. The particular cup shown by me is substantially that of a regular trapezoid, the narrow or closed end being presented toward the delivery opening. The edge of the wider or open end of the cup is serrated, or formed with at least two notches or cuts 7 so that whichever side of the cup is placed uppermost, a notch will be in line with the opener, to be presently described, to facilitate the entry of the opener into the cup before the latter is acted upon by the ejector. If the cups are piled with the same side uppermost, there will be but a single notch. On the inner side of the casing, opposite the door, is a guide strip 8, and just inside the door is a guide 9 secured to the floor plate 5, and having its forward end turned down to correspond to the inclination of the opposite guide 8. At the front of the casing are pieces 10 having their inner sides converging toward the front wall, said pieces and the guides 8 and 9 serving to properly confine the cups as shown in Fig. 4. The side pieces 10 terminate a short distance above the floor, as shown by dotted lines in Fig. 2, so as to permit the passage of the wider end of the cup below said pieces, when the cup is being ejected.

The front wall of the casing is cut out at 11 above the delivery outlet to receive a plate 12 and the gibs 13 between which said plate has a slight vertical movement. Projecing from the inner side of the plate 12 are pins 12′ against which bear the ends of a spring 14 (Fig. 5) held at its center on a pin 15 projecting from the front wall of the casing. The latter is slotted (Fig. 3) to receive the inwardly projecting shoes 16 which extend a little below the lower edge of plate 12, as shown in Fig. 7. The shoes 16 normally rest on the floor of the magazine, spring 14 permitting plate 12 to rise when a cup is forced beneath it. A cover plate 17 is fastened to the front outer wall over plate 12. This cover terminates a short distance above the magazine floor so as to permit the delivery of the cup in substantially the plane of the floor.

Extending transversely of and beneath the forward end of the floor is a rock shaft 18 having secured thereto upwardly projecting fingers 19 which fingers, when in normal position, bear against the cups, as shown in Fig. 2, and prevent the withdrawal of a cup through the delivery outlet except by means of the ejector. These fingers also serve to hold the cups which they engage against the guides 8 and 9, and to force back into place a second cup if one should start toward the delivery outlet. The lower edge of the plate 12 is concave (Figs. 5 and 7) to permit the outward swing of the fingers 19 when a cup is being ejected as shown in Fig. 6.

On the side of shaft 18 opposite the fingers 19 is a pin 20 which supports the forward end of a link 21, said link at its rear end being pivotally connected to a lever 22 pivoted to the side wall of the casing, and having at its free end a laterally projecting finger 23, adapted to be engaged by a downwardly projecting finger 24 carried by the ejector frame.

The cups are delivered from the under side of the pile in the magazine by an ejec-

tor supported upon and guided by the floor plates 5 and 5′. The ejector comprises a plate 25 of substantially the width of the space between the two floor plates. On the upper side of plate 25 is secured a finger 26 in the form of a flat plate having its forward end 26′ pointed and raised slightly above the plane of the body portion. The function of the finger 26 is to enter the cup and to give it a preliminary opening which facilitates its complete opening by the user upon delivery, by pressure upon the side edges of the cup. The finger 26 extends some distance in advance of the plate 25, the latter engaging the lower edge of the cup to force it through the delivery outlet. The opening finger 26 may rest upon the magazine floor and is advanced with the ejector plate 25 by the following mechanism: To the underside of plate 25 is secured a plate 27 which carries a bearing block 28. To said block is pivotally hung a yoke 29 on the end of a plunger 30. This plunger works in a cylinder 31 mounted upon and secured to a shaft 32. A spring 33 secured to the base of the casing surrounds the shaft 32 and bears against the cylinder 31 to hold the latter and the ejector in their normal position, shown in Fig. 2, that is, the cylinder 31 is normally held to the right of the center line of shaft 32. In this normal position the pin 24 projecting from the underside of plate 27 bears against the laterally projecting pin 23 of lever 22 to thereby hold the link 21 in its retracted position, and the fingers 19 on rock shaft 18 against the forward end of the lower cups in the magazine to hold those cups engaged by fingers 19 against guides 8 and 9.

The shaft 32 extends at one end outside of the casing and has secured thereto an operating handle 34 by which it may be rocked. As shown in Figs. 2 and 3 the cylinder 31 is formed with a longitudinal opening through which projects a pin 35 on the plunger 30. A spring 36 has one end sliding freely through an opening in pin 35 on the plunger, said spring, at its other end, being fixed to a pin on the cylinder. This spring is normally distended when the parts are in the position shown in Fig. 2. When the operating handle 34 is thrown forward the sliding motion of the cylinder 31 upon the plunger 30 moves the ejector and its opening finger in a straight path guided by the floor plates 5 and 5′. The spring 36 is collapsed immediately after the cylinder 31, on its forward movement, passes the center line of shaft 32, and is distended when the plunger 30 reaches the limit of its forward throw and so acts to assist spring 33 on the return movement. When the ejector is moved forward, in the manner described, the opener 26 enters between the sides of the cup and is advanced therein until the block 25 strikes against the edge of the lower side of the cup. Upon the continued movement of the ejector the lower edge of the cup is forced against the fingers 19, thereby rocking shaft 18, the movement of the latter and of the fingers 19 being permitted as soon as pin 24 on the underside of plate 27 moves away from the laterally projecting pin 23. The extreme forward throw of handle 34 carries the cup about half way through the delivery outlet. It may then be grasped by the user and entirely removed. The user, by grasping the cup at its side edges may readily open it by a slight pressure, this opening being facilitated by the preliminary opening given by finger 26. Upon the return movement of the ejector, pin 24 strikes against pin 23 and restores rock shaft 18 and its pins 19 to normal position. While the lowermost cup is being ejected, shoes 16 on plate 12 prevent the escape of any but the cup acted upon by the ejector. The cup is so cut that when folded, as shown in Fig. 8, there is a double thickness on the narrow end of the cup to secure a tight corner. When this double thickness has passed the shoes 16 the plate 12 remains seated on the cup and prevents the cup next above that being ejected from passing out. This double thickness at the narrow end of the cup requires the form of magazine shown, that is, owing to the double thickness, the upper surface of the pile gradually assumes a horizontal position and the inclination of the guide 8 permits this.

Although the specific article mentioned by me is a drinking cup, the apparatus described may be used for the delivery of articles having a fold or opening to be engaged by finger 26. The apparatus is also adapted for use in connection with a coin or check control, the present application being restricted to the delivery mechanism.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a dispensing apparatus, a casing having a magazine and a delivery outlet, guide plates secured to the casing and forming the floor of said magazine, an ejector movably supported upon said plates, and means for operating the ejector comprising a rock shaft and a slidable connection between said shaft and the ejector.

2. In a dispensing apparatus, a casing having a magazine and a delivery outlet, an ejector and means for operating the same comprising a rock shaft and a cylinder mounted thereon, and a plunger movable in said cylinder and connected to the ejector.

3. In a dispensing apparatus, a casing having a magazine and a delivery outlet, an ejector and means for operating the same comprising a rock shaft and a cylinder mounted thereon, a plunger movable in said

cylinder, and a spring to assist the return movement of the ejector.

4. In a dispensing apparatus, a casing having a magazine and a delivery outlet, an ejector and means for operating the same, a rock shaft having fingers thereon adapted to be displaced by the article being ejected, and means operated by the ejector on its return movement to restore said fingers to normal position.

5. In a dispensing apparatus, a casing having a magazine and a delivery outlet, an ejector and means for operating the same, a rock shaft and fingers thereon adapted to be displaced by the article being ejected, and a connection from said rock shaft in the path of the ejector on the return movement of the latter to restore the said fingers to normal position.

6. In a dispensing apparatus, a casing having a magazine and a delivery outlet, a rock shaft having fingers thereon adapted when in normal position to bear against the forward end of the articles contained in the magazine, said fingers being so mounted as to yield when the ejector is advanced to permit the discharge of an article through the delivery outlet and also adapted to force into place a second article if one should start toward the delivery outlet, and an ejector to engage the lowermost article and force it through the delivery outlet.

7. In a dispensing apparatus, a casing having a magazine and a delivery outlet, an ejector and means for operating the same, a rock shaft having fingers thereon bearing against the forward end of the article to be delivered and adapted to be displaced by the article being ejected, and mechanism actuated by the ejector to return said shaft and fingers to normal position.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

HENRY B. COOLEY.

Witnesses:
THOS. EMERSON,
ROBERT CHRISTIE, Jr.