No. 871,780. PATENTED NOV. 26, 1907.

E. M. CARD.

NON-REFILLABLE BOTTLE.

APPLICATION FILED OCT. 6, 1905. RENEWED APR. 20, 1907.

Fig. 1.

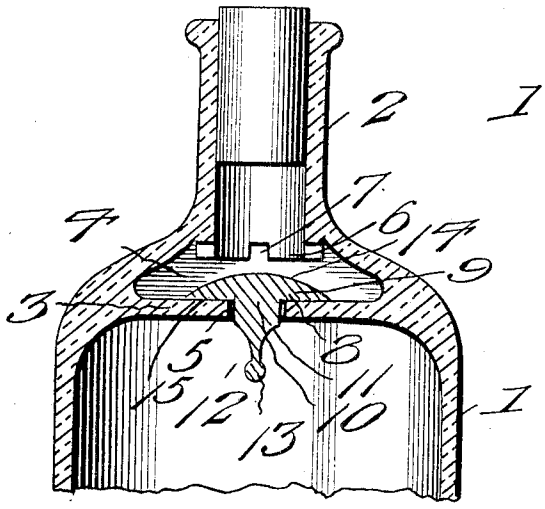



Fig. 2.

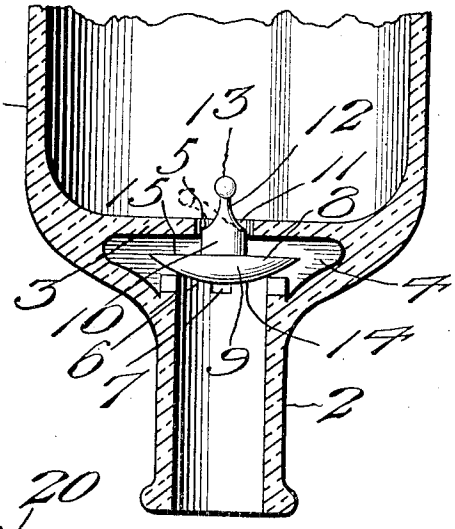
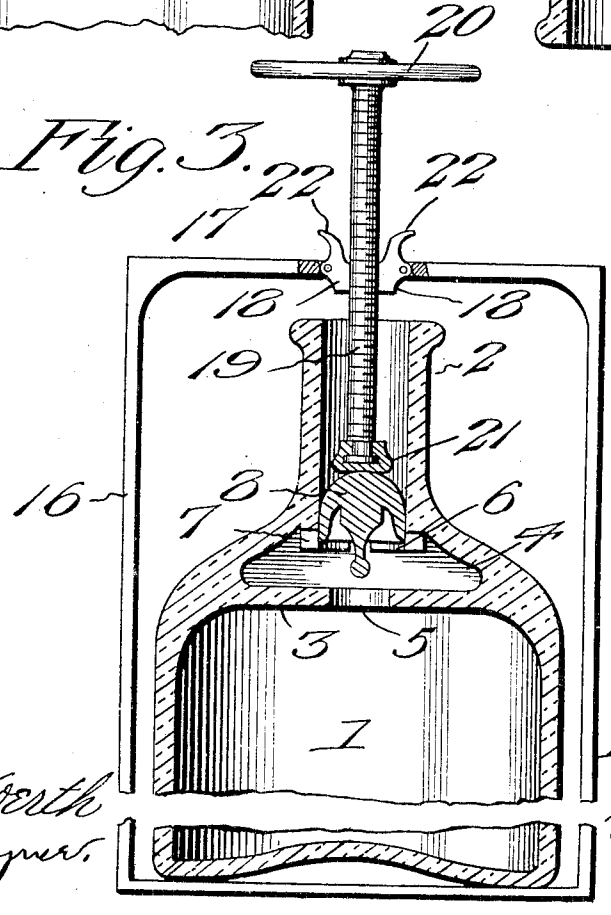



Fig. 3.




Witnesses

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# UNITED STATES PATENT OFFICE.

EDWARD M. CARD, OF MIDDLEFIELD, CONNECTICUT.

## NON-REFILLABLE BOTTLE.

No. 871,780. Specification of Letters Patent. Patented Nov. 26, 1907.

Application filed October 6, 1905, Serial No. 281,688. Renewed April 20, 1907. Serial No. 369,407.

*To all whom it may concern:*

Be it known that I, EDWARD M. CARD, a citizen of the United States, residing at Middlefield, in the county of Middlesex and State of Connecticut, have invented new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to bottles of the non-refillable type including a valve mechanism, and has for its objects to produce a comparatively simple, inexpensive device of this character, which when initially filled and sealed will permit discharge of its contents, but prevent the introduction of further liquid into the bottle, thus obviating the fraudulent substitution of an inferior grade of goods for that originally contained in the bottle.

A further object of the invention is to provide a device of this character with a simple, efficient valve which may be conveniently introduced, one which will move freely to permit discharge of the liquid and one which will move automatically to closed position for preventing the introduction of liquid into the bottle.

With these and other objects in view, the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings: Figure 1 is a vertical longitudinal section through the upper portion of a bottle equipped with a valve embodying the invention and showing the parts in normal position. Fig. 2 is a similar view showing the bottle inverted and the valve in open position. Fig. 3 is a sectional elevation showing the mechanism for inserting the valve into the neck of the bottle.

Referring to the drawings, 1 designates a bottle having a neck 2 and provided with an inner web or partition 3 spaced from the inner end of the neck to form a valve chamber 4, said web, which constitutes a valve seat, being provided with an opening 5 alined with the neck, which latter has formed at its inner end and within the chamber 4 a plurality of spaced stop projections or lugs 6 presenting openings or passages 7 for a purpose which will presently appear.

Arranged in the chamber 4 is a movable valve 8 preferably composed of rubber and of substantially mushroom form, presenting an enlarged disk-like head 9 and a cylindrical stem 10 having at its inner end tapered or inclined walls 11 merging into a flattened portion or web 12 equipped at its inner end with a weight 13, said head 9 being of substantially semi-elliptical form in cross section to present an outer curved or convex face 14 and a flattened inner face 15, which latter normally rests upon the adjacent face of the partition or seat 3.

In practice, when the parts are in normal position, as in Fig. 1, the valve rests upon the seat 3 with its inner face 15 lying flat upon said seat and its stem 10 disposed in the opening 5 in the web, whereby said opening will be effectually closed to prevent the introduction of liquid into the bottle, it being apparent that any attempt to force liquid in will result in pressing the valve more firmly to its seat. When, however, the bottle is inverted as in Fig. 2 for discharging the liquid, the outer convex face 14 rests upon the inner ends of stop lugs 6 and the inclined faces 11 of the valve stem occupy a position within the opening 5 whereby the liquid may flow freely through the latter and thence through openings or passages 7 for escape through the neck. If the bottle be held in horizontal position to open the valve and permit introduction of liquid, the flexible web 12 will bend under the influence of weight 13 to the position indicated by dotted lines in Fig. 2, thus causing the weight to act for drawing the valve inward to its seat, upon which it will be tightly closed under pressure of the incoming liquid.

For inserting the valve into the neck of the bottle I preferably employ the mechanism illustrated in Fig. 3 and in which 16 designates a rectangular frame having a portion or bar 17 in which is pivoted a pair of movable jaws 18 through which is threaded a pressure member or screw 19 equipped at its upper end with an end wall 20 and at its lower end with a swiveled bearing portion or head 21, there being formed on the clamping jaws 18 upwardly projecting finger pieces 22 which may be grasped for manipulating the clamps to release the screw 19 and permit its ready withdrawal from the neck of the bottle after the valve has been inserted therein.

In the operation of inserting the valve the bottle is positioned within the frame 16 and the valve having its head 9 folded as illustrated is introduced into the central bore of the neck, after which the pressure screw 19 is rotated through the medium of end wall 20 for forcing the valve downward through the neck bore and into the chamber 4. As soon as the valve enters the chamber the head 9,

owing to the elasticity of the material, automatically assumes its initial condition, whereby its withdrawal is obviated and the clamping members 18 are moved to open position to permit withdrawal of the screw, as before stated.

From the foregoing it is apparent that I produce a simple device admirably adapted for the attainment of the ends in view, it being understood that in attaining these ends minor changes in the details herein set forth may be resorted to without departing from the spirit of the invention.

Having thus fully described my invention, what I claim as new is:

1. A bottle having a neck provided with a passage, and having a valve chamber at the inner end of the neck, a valve seat formed in the chamber, and a valve operable in the latter and provided with a compressible head adapted to close upon the seat and of greater diameter than the passage.

2. A bottle having a neck provided with a passage, and having a valve chamber at the inner end of the neck, a valve seat within the chamber and a compressible disk valve designed to rest upon the seat within the chamber and of greater diameter than the passage.

3. A bottle having a neck provided with a passage, a web disposed in the bottle at the inner end of the neck and spaced from the latter to form a chamber, said web being provided with an opening, and a compressible valve disposed in the chamber for closing said opening, said valve being of greater diameter than the passage in the neck.

In testimony whereof, I affix my signature in presence of two witnesses.

EDWARD M. CARD.

Witnesses:
HUGH M. STERLING,
D. W. GOULD.