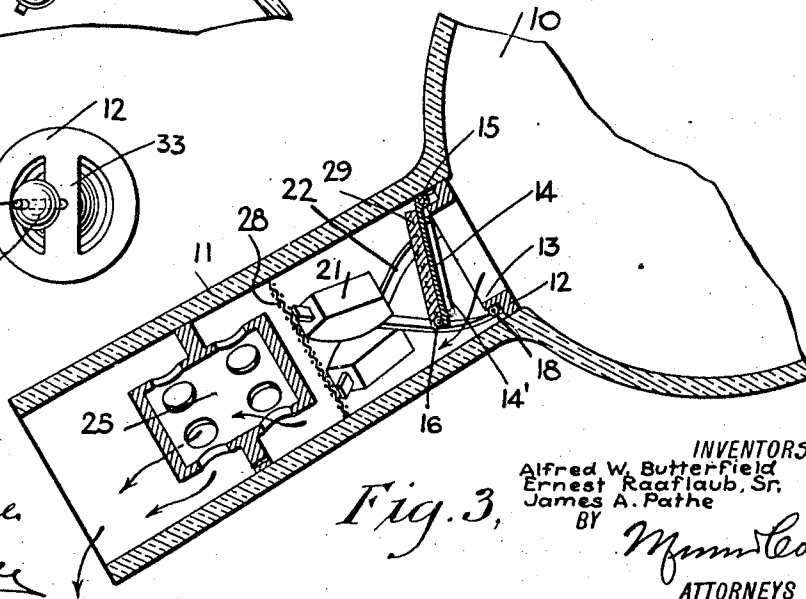
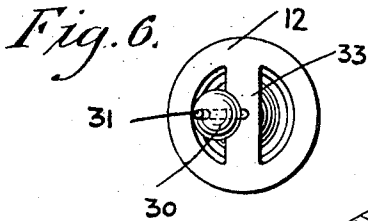
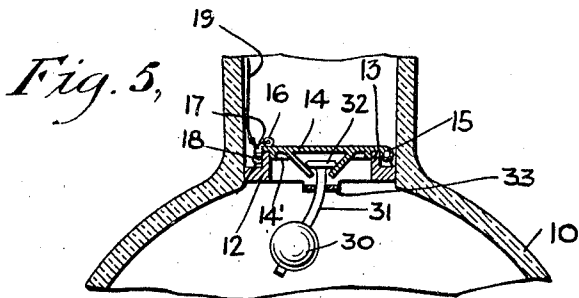
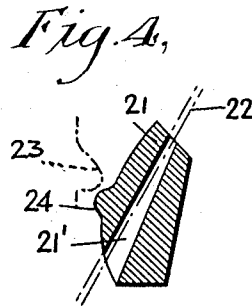
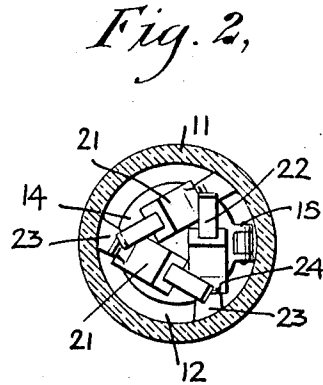
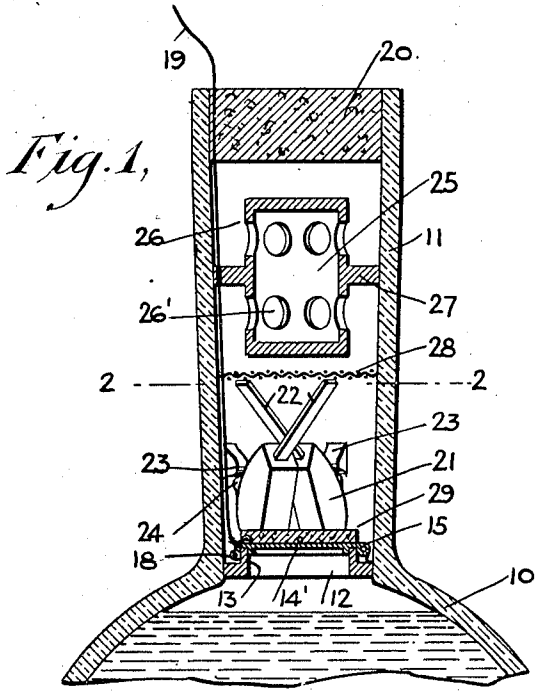


NON-REFILLABLE BOTTLE.
APPLICATION FILED MAY 15, 1912.

Patented Mar. 4, 1913.



WITNESSES

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UNITED STATES PATENT OFFICE.

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NON-REFILLABLE BOTTLE.

1,055,299.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed May 15, 1912. Serial No. 697,373.

To all whom it may concern:

Be it known that we, ALFRED W. BUTTERFIELD, ERNEST RAAFLAUB, Sr., and JAMES A. PATHE, citizens of the United States, and residents of Bloomfield, in the county of Essex and State of New Jersey, have invented a new and Improved Non-Refillable Bottle, of which the following is a full, clear, and exact description.

This invention relates to bottles, jugs or similar containers for liquids of a superior grade, and has particular reference to a stopper for such a container, hereinafter referred to, for convenience of expression, as a bottle, whereby the bottle cannot be refilled after the seal is once broken.

The object of our invention is to provide a closure or valve for a bottle having breakable means to seal it shut so as to prevent leakage of the liquid past the valve while the bottle is carried or stored in an inclined or inverted position, whereby that portion of the liquid which ordinarily fills the neck of the bottle is kept therefrom with a corresponding saving of the liquid.

Another object of the invention is to provide a guard for the bottle neck on the outside of the valve mechanism which will be of a nature to prevent surreptitious tampering with the valve from the outside.

A still further object of the invention is to improve the construction of the valve and the means for keeping it seated when the liquid is not being poured from the bottle.

The foregoing and other objects of the invention will hereinafter be more fully described and claimed and illustrated in the drawings accompanying this specification in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a vertical section of a conventional type of bottle neck and a preferred form of our invention secured therein; Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1, showing the valve in plan; Fig. 3 is a view corresponding to Fig. 1 in the pouring position; Fig. 4 is a sectional detail of one of the weights; Fig. 5 is a vertical section showing a modified form of valve operating means; and Fig. 6 is a bottom plan view of the valve shown in Fig. 5.

Referring particularly to the drawings,

we show at 10 a fragment of a bottle having a neck 11.

At 12 is shown an annulus secured in any convenient manner adjacent the base of the neck and provided with a flange or seat 13 on its upper surface. The valve comprises a disk 14 hinged at 15 to the annulus and having a rim 14' adapted to enter the valve seat 13 to make the connection between the valve and its seat more secure. On the outside of the valve, preferably opposite the hinge 15, is formed an eye 16 to which is connected a strong but frangible string or thread 17 which extends thence downwardly through an eye 18 connected to the annulus, and to the thread 17 is secured a stronger line 19 which extends upwardly beyond the mouth of the bottle. After the bottle has been filled in the regular way the valve mechanism with the valve in its sealed position is inserted and secured permanently in place and the line 19 will be secured with the outer end projecting from the bottle, as by means of the stopper 20 of any suitable form. When the bottle is to be emptied and the stopper 20 has been drawn, a pull upon the line 19 will cause a breakage of the thread 17, thereby unsealing the valve 14. By providing the lighter portion of the flexible connection it is assured that the breakage will take place adjacent the valve.

As one means for seating the valve and holding it closed, we provide a plurality of independent slidable weights 21 on the outside of the valve and adapted to be guided for slidable movement by any suitable means within the neck of the bottle toward or from the valve. We show and prefer to employ at least three of such slidable weights and arrange the guiding means at an inclination to the axis of the neck, whereby at least one of said weights will slide along its guiding means into closing or locking coöperation with the valve when the bottle is tilted toward or to its upright position. The guiding means illustrated for the slidable weights comprises a plurality of fingers 22 suitably connected at their lower ends within the bottle neck, as for example, upon the annulus 12 and extending upwardly therefrom, each with its upper end disposed substantially in vertical alinement with the bottom of the next finger. The weights are

shown provided with a longitudinal bore 21' through which a corresponding finger extends. The weights are limited in their outward or upward movement by contact with the inner wall of the neck and are free to slide downward against the valve in the opposite direction.

We provide on the inner wall of the neck a series of projections or shoulders 23, each adapted to cooperate with a lug 24 secured to each of the weights. The lower end of the bore 21 is wider than the thickness of the finger 22 whereby in case it should be attempted to refill the bottle by agitating it within a body of liquid, the agitation will cause the weights to fly outwardly in lines parallel to the axis of the neck, the wider portion of the bore permitting such movement, and the lugs 24 will, therefore, engage the shoulders 23 and prevent displacement of the weights far enough from the valve to permit such refilling. When, however, the bottle is tilted for pouring therefrom, the weights will all be guided along the diagonal fingers in such a manner as to slide past the shoulders 23 without obstruction.

At 25 we provide a guard in the form of a diaphragm secured permanently in the bottle neck and including a hollow body portion 26, the upper and lower ends of which are solid but provided with a series of holes 26' adjacent such ends on opposite sides of the flange 27 whereby the liquid may be admitted into and through said body 26 from the interior of the bottle. This guard 25 will prevent ordinary tampering with the valve mechanism, but as an additional safeguard we prefer to employ a screen or reticulated disk 28 just between said guard and the valve.

Should it be undertaken to refill the bottle by convection or otherwise while the bottle is submerged within an inferior liquid, such attempt will be prevented by connecting permanently to the upper surface of the valve a layer of cork 29, the buoyancy of which will tend to swing the valve on its hinge 15 to the closed position and so maintain it.

As an alternative means for operating the valve and keeping it closed when the bottle is tilted to or toward its upright position, we show in Figs. 5 and 6 a weight 30 carried upon a curved arm 31 having swivel connection at 32 with the under or inner face of the valve. The arm or stem 31 is guided within a cross arm or spider 33 which tends to keep the weight in the position indicated in Fig. 5, and, as a fulcrum, insures that the weight, when the bottle is tilted toward its upright position, will draw the valve closed, the action upon the valve being due to the

combined leverage of the stem upon the spider 33 and the pull of the weight on the stem through said spider. Said spider being connected to the annulus 12 provides a means whereby the weight means for the valve has slidable movement toward or from the annulus. The weight 30 connected as indicated will be free to swing around in any position of the bottle when tilted, whereby the weight will be in position to perform its closing function as just described.

The several parts of the improvement may be made of any suitable materials of a sanitary and durable nature, and they may be made of various sizes or relative proportions without departing from the spirit of the invention. It is to be noted, furthermore, that the valve mechanism may be set in place at any time or by any means well understood in the bottle art.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In a bottle having a neck, the combination of an annulus secured in said neck, a valve hinged to said annulus and adapted to close the neck, a thread extending through the adjacent parts of the valve and annulus opposite the hinge and sealing the valve closed, and a line of greater strength than the thread connected to the thread and extending thence beyond the mouth of the bottle, substantially as set forth.

2. In a non-refillable bottle having a neck, the combination of a valve secured within the neck and adapted to close the same, and means to normally hold the valve closed, said means including a plurality of weights and a plurality of guiding fingers on which the weights are adapted to slide, each of said fingers at its outer end being substantially in vertical alinement with the lower end of the next finger.

3. In a non-refillable bottle having a neck, a valve within the neck and adapted to open or close the same, a plurality of weights on the outside of the valve adapted to hold it closed, diagonally arranged guiding means within the neck for said weights, and a series of shoulders within the bottle neck adapted under certain conditions to be engaged by the several weights.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALFRED W. BUTTERFIELD.
ERNEST RAAFLAUB, SR.
JAMES A. PATHE.

Witnesses:

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