

No. 824,336.

PATENTED JUNE 26, 1906.

P. A. BROCK.
NON-REFILLABLE BOTTLE.
APPLICATION FILED FEB. 20, 1906.

Fig. 1.

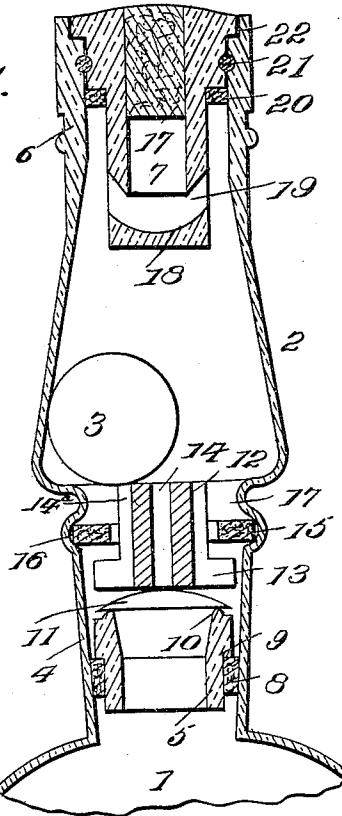


Fig. 3

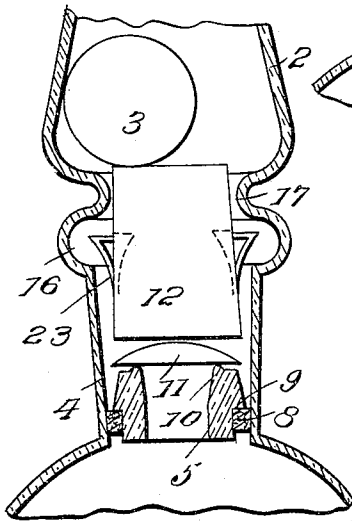
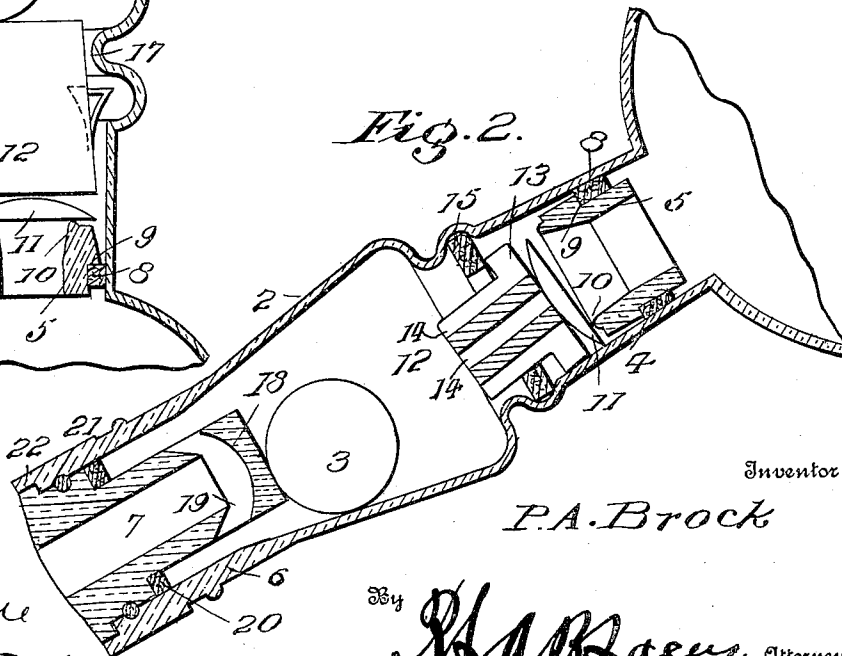


Fig. 2.



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UNITED STATES PATENT OFFICE.

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NON-REFILLABLE BOTTLE.

No. 824,336.

Specification of Letters Patent.

Patented June 28, 1906.

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To all whom it may concern:

Be it known that I, PETER ANTHONY BROCK, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to means for preventing the reuse of bottles and like receptacles, thereby protecting the consumers and the party or concern marketing a particular brand of goods alike.

The invention consists of a bottle or like necked receptacle of peculiar formation and valve and guard means of novel construction and arrangement located therein; the neck having a tapered portion intermediate of its ends to form a chamber in which a ball-weight is placed and adapted to hold the valve seated until the bottle or receptacle is tilted to a point to bring its mouth in a lower plane than the bottom before the valve will leave its seat and admit of the contents being poured off. Hence it is practically impossible to refill the bottle by horizontal immersion thereof in a liquid.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which—

Figure 1 is a vertical central section of the upper portion of a bottle embodying the invention. Fig. 2 is a view similar to Fig. 1, showing the bottle tilted to a position to admit of the unseating of the valve and the pouring off of the liquid contents. Fig. 3 is a view similar to Fig. 1 of a modification.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The body 1 of the bottle or similar receptacle may be of any size or shape, and the neck thereof is enlarged intermediate of its ends,

as shown at 2, and upwardly tapered to provide a chamber the inner walls of which are flared toward the body at such an angle to insure the action of a ball-weight 3, holding the valve seated until the bottle is tilted to such an angle with reference to the horizontal as to prevent filling of the bottle by immersing the same in a liquid. The inner end 4 of the neck is slightly tapered, the purpose being to hold the valve-section 5 in place therein by a wedge action. The outer end 6 of the neck is adapted to receive a guard-section 7, which is retained in place by any securing means commonly employed for this purpose.

The valve-section 5 is tubular, and its lower end is reduced and receives a gasket or packing 8, of cork, rubber, or like material, so as to secure a tight joint between it and the portion 4 of the neck when the part 5 is properly positioned therein. The shoulder 9, formed at the base of the reduced end of the valve-section, limits the movement of the packing 8. A raised valve-seat 10 is provided at the upper end of the valve-section to insure a firm and square seating of the valve. The valve-section is of a slightly less diameter than the opening in the outer end portion 6 of the neck, so as to pass therethrough when placing it in position within the neck. The tapered construction of the inner portion 4 prevents the passage of the valve-section into the body of the bottle or receptacle and enables compression of the packing 8 upon application of pressure to the valve-section when forcing the same into the inner end portion of the neck. The diameter of the valve-section is slightly greater than the opening at the inner end of the tapered part 4, thereby preventing the slipping of the valve-section into the bottle when placing it in position.

A valve 11 is provided for cooperation with the valve-section 5 and is preferably of plano-convex form and is arranged with the flat side facing the valved section 5 and with the convex side facing toward the mouth or open end of the bottle. The valve and its seat are ground to insure a firm closure being had, so as to prevent filling of the bottle by pouring liquid therein when in an upright position. The plano-convex form of the valve enables the latter to tilt when the bottle is turned to pour off the contents thereof, it being remembered that the center of gravity is be-

yond the plane of the flat side of the valve. Provision is had for ample tilting of the valve when unseated by the raised seat 10, which is arranged adjacent to the inner wall of the valve-section. The convex side of the valve facing outward enables application of the seating force of the weight 3 and float-piece 12 upon a central point, whereby as a result the pressure is uniformly distributed upon the valve.

The float-piece 12 is preferably constructed of wood, although any buoyant material may be employed, the purpose being to have said part 12 of such specific gravity as to be buoyant by a liquid when the bottle is inverted and immersed therein and with the result that the valve 11 is held seated by the floating action of the part 12 when the liquid reaches the same, thereby preventing refilling of the bottle by immersing its end in a liquid and exhausting the air therefrom or resorting to many ways practiced for refilling bottles in this manner. In the preferable construction the part 12 has an outer flange 13 at its inner end, and an opening 14 is provided centrally thereof. Grooves or channels 14^a are formed in the sides of the float-piece 12 to provide passages for the escape of the liquid when pouring the same from the bottle. The opening 14 likewise provides a passage for the same purpose. A retainer 15 is secured within the neck of the bottle above the valve and valve-section, so as to overhang the flange end of the float-piece and prevent outward displacement thereof when the bottle is tilted or inverted. The retainer 15 is of compressible material, such as cork or rubber, and is sprung into a groove 16, formed in the neck of the bottle intermediate of the chambered portion 2 and the inner portion 4. The groove 16 is formed by an outer crimp in the neck of the bottle and is located adjacent to the contracted portion 17 between the base of the part 2 and the crimped portion 16 at the upper end of the part 4.

The ball-weight 3 is located in the tapered portion 2 of the neck and normally exerts a downward pressure upon the float-piece 12, which in turn is transmitted to the valve 11. The flared walls of the chambered part 2 provide a series of inclined planes, which when the bottle is tilted from the vertical to the horizontal cause the ball-weight 3 to exert sufficient pressure upon the valve 11 to hold the same seated. The inclination of the inclined walls is such as to cause the ball 9 to exert an effective pressure to hold the valve seated until the bottle is tilted to such an angle with reference to the horizontal as to bring the mouth in a plane lower than the bottom, thereby preventing filling of the bottle by immersing the same in a liquid in an approximately horizontal position. The parts are of such relative proportions as to insure engagement of the ball-weight with

the upper end of the float-piece when the bottle is in an upright position or tilted to any angle between the vertical and the horizontal and to a point beyond the horizontal to some five or ten degrees, as may be determined upon.

The guard 7, secured within the outer end of the angle of the bottle, has a central opening 17, which is closed at its inner end by means of a concave wall 18, upwardly-inclined openings 19 leading outward from the longitudinal opening 17 to provide an escape for the liquid when the bottle is tilted to pour off its contents. By having the inner wall 18 concave a wire inserted through the longitudinal opening 17 is deflected upward through one of the lateral openings 19 and is thereby prevented from reaching the valve mechanism by means of which the bottle or like receptacle is safeguarded. The inner portion of the guard 7 is reduced to provide ample space between it and the sides of the neck portion 6 for the escape of the liquid. A packing 20, of cork, rubber, or the like, is slipped upon the reduced end so as to bear against the shoulder formed at the base thereof and provides a tight joint between the guard and the outer end portion 6 of the neck. Matching-grooves 21 are formed in the walls of the guard and part 6 to form a space in which locking means, such as a cement, is placed for securing the guard within the neck of the bottle. The outer end of the guard is formed with an outer flange which enters a rabbet or enlargement 22 at the outer end of the neck, thereby admitting of the outer end of the guard coming about flush with the extremity of the neck. After the bottle has been filled it is sealed by inserting a cork or other closure within the opening 17 of the guard, as indicated most clearly in Fig. 1.

It is to be understood that the bottle is filled preliminary to placing the valve and guard devices in position, and after the bottle has been filled the valve-section 5 is first placed in position through the neck, after which the valve, the float-piece, the ball-weight, and the guard are successively placed in position in the order named, the guard being secured in any manner, preferably by a cement joint filled into the matching-grooves 21. The stopper or like closure may be fitted to the guard either before or after the latter has been placed in position. To draw off the liquid contents of the bottle, it is necessary only to remove the cork or to break the seal, so as to have the opening 17 of the guard unobstructed, and upon tilting the bottle the contents thereof may be poured off in the manner well understood.

In the modification shown in Fig. 3 the float-piece 12 consists of a plug and is provided at its sides with spring-retainers 23, which are repressed upon forcing the inner

end portion of the float-piece past the contracted portion 17 of the neck, and it springs outward into the groove 16 after clearing the contracted part 17, thereby preventing outward displacement of the float-piece, as will be readily understood.

Having thus described the invention, what is claimed as new is—

1. In a bottle or like receptacle having a neck provided with a valve-seat, a valve located in the neck thereof and adapted to close downward upon the seat, a float-piece coöperating with said valve and adapted to be buoyed upward upon inverting the bottle and immersing the same in a liquid to hold the valve seated and prevent passage of the liquid thereby into the bottle, and retaining means coöperating with the float-piece to prevent outward displacement thereof when the bottle is inverted.

2. In a bottle or like necked receptacle having a groove upon the inner side of the neck some distance from the inner end thereof, a valve and coöperating seat located within the inner end of the neck below the inner groove thereof, a float-piece adapted to be buoyed upward to hold the valve seated upon inverting the bottle and immersing the same in a liquid, and retaining means coöperating with the float-piece and inner groove of the neck to prevent displacement of the float-piece when the bottle is inverted.

3. In a bottle or like necked receptacle having a groove upon the inner side of the neck some distance from the inner end thereof, a valve and coöperating seat located within the inner end of the neck below the inner groove thereof, a float-piece adapted to be buoyed upward to hold the valve seated upon inverting the bottle and immersing the same in a liquid, said float-piece having an outer flange and provided in its sides with grooves or channels, and a retainer sprung into the grooved portion of the neck and overhanging the flange of the float-piece to prevent displacement of the latter upon inverting the bottle.

4. In a bottle or like receptacle having a neck provided intermediate of its ends with a tapered portion forming a chamber whose inner walls incline, a valve and seat therefor arranged within the inner end portion of the neck, a ball-weight located in the tapered chambered portion of the neck and normally exerting a pressure to hold the valve seated when the bottle is in an upright position or tilted from such upright position, to a point below the horizontal, valve-retaining means arranged within the neck between the valve and the ball-weight and a guard secured within the outer end of the neck to prevent

tampering with the ball-weight or valve mechanism.

5. In a bottle or like receptacle having a neck provided with a valve-seat, a valve located in the neck thereof and adapted to close down upon the seat, a float-piece coöperating with said valve, and retaining means for preventing displacement of the said valve and float-piece.

6. In a bottle or like receptacle having a neck provided with a valve-seat, a valve located in the neck thereof and adapted to close down upon the seat, a float-piece coöperating with said valve, and retaining means for limiting the movement of the float-piece and valve.

7. In a bottle or like receptacle having a neck provided with a valve-seat, a valve located in the neck thereof and adapted to close down upon the seat, a float-piece coöperating with said valve, and retaining means for limiting the movement of the float-piece and valve and preventing their displacement.

8. In a bottle or like receptacle provided with a neck having a valve-seat, the combination of a downwardly-closing valve, a float-piece, a weight adapted to insure the continuous seating of the valve in all positions of the bottle from the vertical to a point of tilting beyond the horizontal, and means for limiting the outward movement of said float-piece and arranged intermediate of the weight and said valve.

9. In a bottle or like receptacle provided with a valve-seat, the combination of a valve arranged to close downward upon said seat, a float-piece having its inner end provided with an outer flange, retaining means for limiting the outward movement of the float-piece by coöperating with the flanged end thereof, and a ball-weight adapted to coöperate with the float-piece to insure the continued seating of the valve in all positions of the bottle from the vertical to the point of tilting beyond the horizontal.

10. In a bottle or like receptacle provided with a valve-seat, the combination of a downwardly-closing valve having a tilting edge, a float-piece for transmitting pressure to the valve and adapted to limit its tilting movement, retaining means for the float-piece, and a ball-weight adapted to insure a continued seating of the valve through the float-piece in all positions of the bottle from the vertical to a point of tilting beyond the horizontal.

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

PETER ANTHONY BROCK. [L. S.]

Witnesses:

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