

UNITED STATES PATENT OFFICE.

JOSEPH D. LACROIX, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE WILSON DISTILLING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

NON-REFILLABLE BOTTLE.

1,032,915.

Specification of Letters Patent.

Patented July 16, 1912.

Application filed April 18, 1912. Serial No. 691,630.

To all whom it may concern:

Be it known that I, JOSEPH D. LACROIX, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Non-Refillable Bottles, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to improvements in so-called non-refillable bottles, the invention having reference to a novel construction of valve mechanism and operating weight-valve, and also to baffle mechanism preventing the insertion of a wire or other valve tampering implement into the bottle neck.

In the accompanying drawings—Figure 1 is a vertical sectional elevation of a bottle equipped with the present improvements in their preferred form. Fig. 2 is a similar view with the bottle neck in horizontal position. Fig. 3 is a similar view with the bottle in pouring position, that is to say, tilted below the horizontal; and Fig. 4 is a section on the line 4 of Fig. 1.

Referring to said drawings, 1 represents the bottle body and 2 the bottle neck secured thereto by a metal band 3, portions of which are spun over a shoulder 4 on the bottle neck and into depressions 5 on the neck portion of the bottle body, substantially as shown and described in Letters Patent to Lacroix and Switzer, No. 1,016,112, dated January 30, 1912. The mouth of the bottle neck is provided with a contracted pouring opening 6, and beneath the same with a valve chamber 7, in the lower end of which is suitably secured a flanged disk 8, having a central opening 9, and at its upper end a valve seat 10. On this valve seat 10 is seated a valve 11 of frusto-conical shape and on the latter in turn rests a frusto-conical weight 12. The inclination of the valve 11 is upward, while that of the weight 12 is downward. The construction and arrangement of the two relatively to each other, as well as the construction and arrangement of each of them with relation to the side walls of the valve chamber 7, is such that when the bottle is tilted from its upright position (Fig. 1) to the horizontal position (Fig. 2), valve 11 will have a tendency to tilt away from the valve seat, such tilting movement, however, being, up to this point, prevented by the

weight 12, which, it will be observed, is tilted toward the valve seat, thereby holding the valve 11 against its seat and closing the opening 9 through the valve seat. The parts continue in this position until the bottle has been tilted from the horizontal position shown in Fig. 2, toward the partially inverted position shown in Fig. 3, in approaching which, or in reaching which, the weight 12 will be tilted in the opposite direction, that is to say, away from the valve seat 10, thus permitting the valve 11 to tilt open, the liquid then issuing from the bottle moving the valve 11 bodily away from its seat. As the bottle is restored to vertical position, and nears horizontal position, weight 12 will again tilt toward the valve seat and thus move the valve 11 against its seat, as shown in Fig. 2. When the bottle reaches an upright position, the valve 11 and weight 12 will, of course, assume the positions in which they are shown in Fig. 1.

It will be observed that the opening and closing movements of the valve 11 are very abrupt or quick acting, which is a very desirable feature in non-refillable bottles, and it will also be observed that such movements are the result mainly of the peculiar construction and arrangement of the weight 12, which tilts in one direction or the other as it passes from horizontal to inverted position, or vice versa. In tilting to and from the valve seat, the weight 12 acts against the side wall of the valve chamber 7, while the valve 11 in tilting to and from its seat 10 does so by engagement, at a point at or near its upper end, with the side and upper walls of the valve chamber 7; such walls, for the purpose of permitting the passage of liquid past the weight 12 and also for the purpose of minimizing the surface area of contact between the weight 12 and said wall, being ribbed vertically and horizontally, as shown at 13, 14. Such abrupt or quick opening and closing movements of the valve are further secured by the peculiar construction of that portion, namely, the lower end, of the vertical wall of the valve chamber 7, with which the side of the valve engages in opening and closing, such portion of the wall being inclined as shown at 15, so that the engagement between the valve and the wall in the opening and closing movement of the valve will be at a point midway of the

length or height of the valve and not at either end.

It will be observed that the weight 12, in closing the valve, moves inwardly from the outer edge of the valve toward its center, and that in releasing the valve it moves in the opposite direction, its closing action upon the valve being cam-like.

In addition to the foregoing novel features, the construction shown has another novel feature, namely, that it renders the employment of a fixed and substantially central baffle member unnecessary. This result is obtained by making the weight 12 of greater width than the pouring opening 6 and by so shaping, proportioning and arranging said weight and opening relatively to each other that in all the positions of the bottle any wire or other implement introduced into the pouring opening 6 will be intercepted and prevented from passing down into engagement with the valve by the weight 12 which for better insuring such interception of the valve-tampering implement is provided with the vertical rib or flange 16. The elimination of such stationary and substantially central baffle member is one of considerable importance, in that its omission materially reduces the cost of production of the bottle neck.

The opening 17 is provided in the valve 11 for the purpose of preventing the formation of a partial vacuum in the bottle, due to the contraction of the liquid therein, if it be volatile, by reason of low temperatures. The opening is sufficient in size to provide for the entrance of air to the underside of the valve 11, so that air pressure on both sides thereof will be equal, but it is not large enough to permit the introduction of any substantial amount of liquid through it.

What is claimed is:

1. A non-refillable bottle having a neck in two parts suitably secured together one above the other, the upper one being provided with a contracted portion having a pouring opening and beneath said contracted portion with a larger valve chamber inserted in which are a valve seat, non-integral with the bottle body or neck, a tiltable valve seated thereon, and a tiltable weight resting upon said valve, said opening and weight being so shaped, proportioned and arranged relatively to each other that in all positions of the bottle a valve-tampering implement introduced into the bottle neck will be intercepted by the weight, the sides of said weight and the walls of the valve chamber being relatively inclined so that while the bottle is being inverted the weight will be tilted to valve-closing position until the bottle has passed beyond horizontal position and will then tilt away from valve-closing position.

2. A non-refillable bottle having a neck

in two parts suitably secured together one above the other, the upper one being provided with a contracted portion having a pouring opening and beneath said contracted portion with a larger valve chamber inserted in which are a valve seat, non-integral with the bottle body or neck, a tiltable valve seated thereon, and a tiltable weight resting upon said valve, said opening and weight being so shaped, proportioned and arranged relatively to each other that in all positions of the bottle a valve-tampering implement introduced into the bottle neck will be intercepted by the weight, the sides of said valve and the walls of the valve chamber being relatively inclined so that the valve will tend to tilt open while the bottle is being inverted, and the sides of said weight and the walls of the valve chamber being relatively inclined so that while the bottle is being inverted the weight will be tilted to valve-closing position until the bottle has passed beyond horizontal position and will then tilt away from valve-closing position.

3. A non-refillable bottle having a neck in two parts suitably secured together one above the other, the upper one being provided with a contracted portion having a pouring opening and beneath said contracted portion with a larger valve chamber inserted in which are a valve seat, non-integral with the bottle body or neck, a tiltable valve seated thereon, and a tiltable weight resting upon said valve, said opening and weight being so shaped, proportioned and arranged relatively to each other that in all positions of the bottle a valve-tampering implement introduced into the bottle neck will be intercepted by the weight, the sides of said weight being inclined so that while the bottle is being inverted the weight will be tilted to valve-closing position until the bottle has passed beyond horizontal position and will then tilt away from valve-closing position.

4. A non-refillable bottle having a neck in two parts suitably secured together one above the other, the upper one being provided with a contracted portion having a pouring opening and beneath said contracted portion with a larger valve chamber inserted in which are a valve seat, non-integral with the bottle body or neck, a tiltable valve seated thereon, and a tiltable weight resting upon said valve, said opening and weight being so shaped, proportioned and arranged relatively to each other that in all positions of the bottle a valve-tampering implement introduced into the bottle neck will be intercepted by the weight, the sides of said valve being inclined so that it will tend to open while the bottle is being inverted, and the sides of said weight and the walls of the valve chamber being relatively inclined so that while the bottle is being inverted the weight will be tilted to valve-closing position.

tion until the bottle has passed beyond horizontal position and will then tilt away from valve-closing position.

5 5. A non-refillable bottle having a neck in two parts suitably secured together one above the other, the upper one being provided with a contracted portion having a pouring opening 6 and beneath said contracted portion with a larger valve chamber
10 inserted in which are a valve seat, non-integral with the bottle body or neck, a frusto-conical tiltable valve 11 seated at its lower edge thereon, and an inverted frusto-conical tiltable weight resting upon said valve, said
15 opening and weight being so shaped, proportioned and arranged relatively to each other that in all positions of the bottle a

valve-tampering implement introduced into the bottle neck will be intercepted by the weight, the sides of said weight and the walls of the valve chamber being relatively inclined so that while the bottle is being inverted the weight will be tilted to valve-closing position until the bottle has passed beyond horizontal position and will then tilt away from valve-closing position.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

JOSEPH D. LACROIX.

Witnesses:

J. A. GRAVES,
P. N. TILDEN.