J. F. FITZGERALD.

NON-REFILLABLE BOTTLE.

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950,479.

Patented Mar. 1, 1910.

Fig. 1

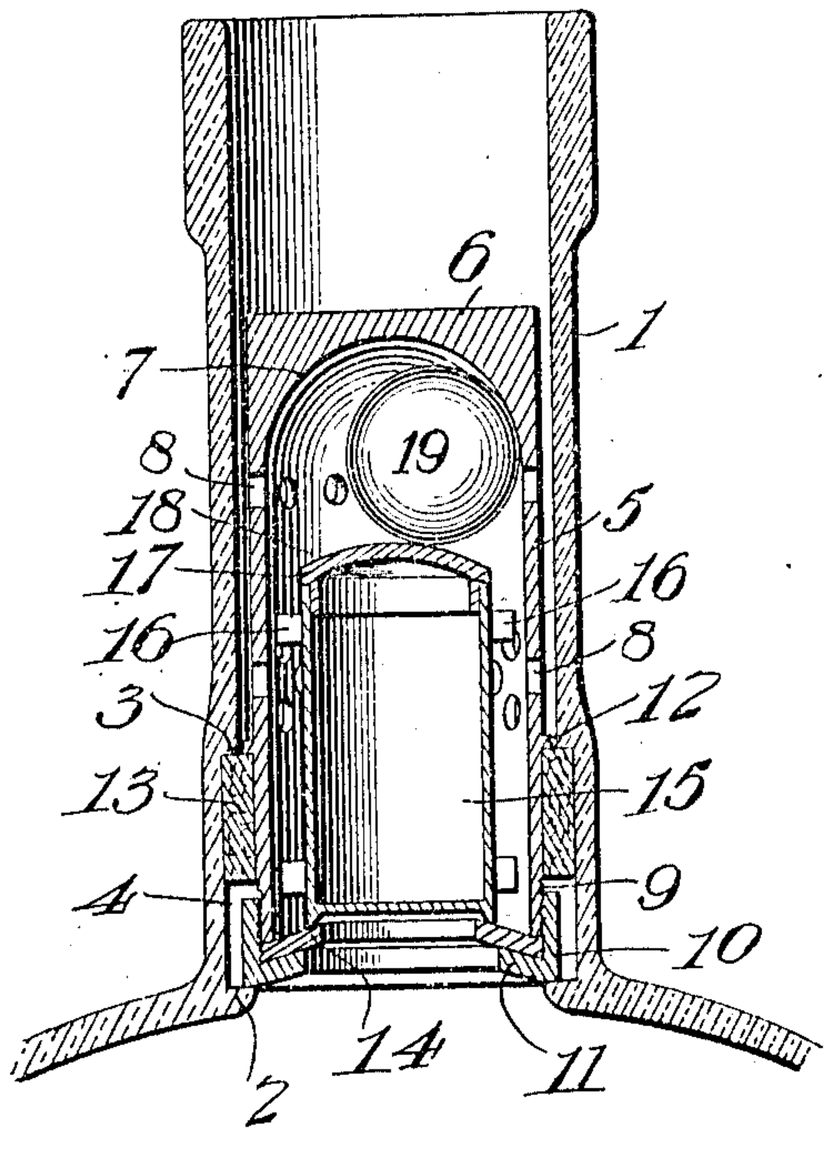


Fig. 2.

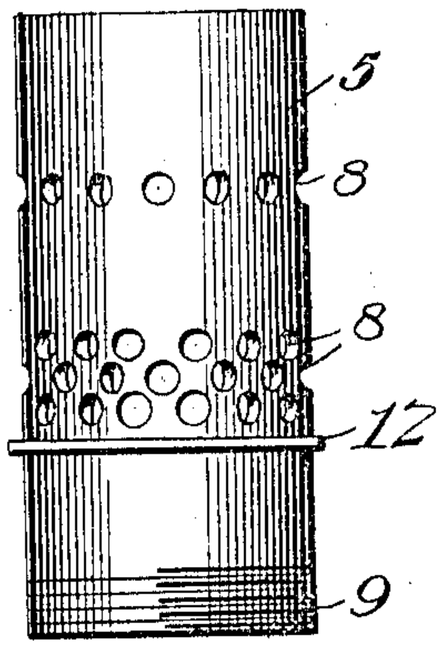


Fig. 3.

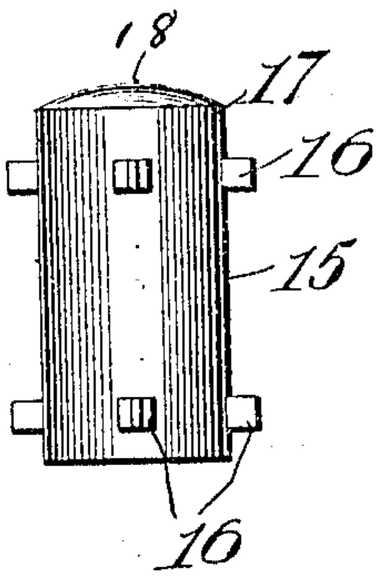


Fig. 4.

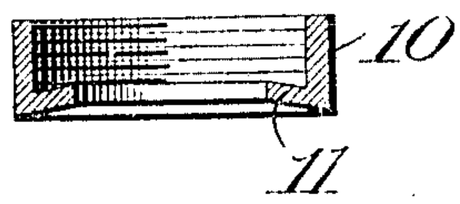
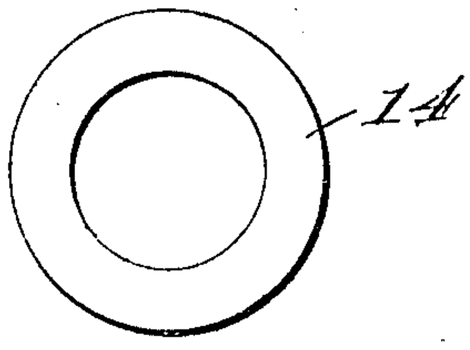


Fig. 5.



Witnesses

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NON-REFILLABLE BOTTLE.

950,479. Specification of Letters Patent. Patented Mar. 1, 1910.

Application filed November 22, 1909. Serial No. 529,504.

To all whom it may concern:

Be it known that I, JOHN F. FITZGERALD, a citizen of the United States, and resident of Albany, county of Albany, and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a full, clear, and exact specification.

This invention relates to non-refillable bottles, and its primary object is to provide a bottle neck with a closure so constructed as to permit the contents of the bottle to be freely decanted, but to effectually prevent the admission of liquid thereto, thus guarding against the unauthorized refilling of a bottle, after its original contents have been emptied therefrom.

A further object of the invention is to provide a bottle closure of novel construction, adapted to be readily applied to and secured within the bottle neck by simple and inexpensive self-locking means.

The construction of the improvement will be fully described hereinafter, in connection with the accompanying drawings, which form a part of this specification, and its novel features will be set forth and defined in the appended claims.

In the drawings: Figure 1 is a central longitudinal section of a bottle neck provided with my improved closure, parts of the latter being shown in elevation. Fig. 2 is a side elevation of the outer casing of the closure device. Fig. 3 is an elevation of the hollow cylindrical valve employed. Fig. 4 is a vertical sectional view of an internally threaded and flanged collar, fitting upon the lower end of the casing; and Fig. 5 is a plan view of an elastic washer adapted to be interposed between the collar and the lower end of the casing.

The reference numeral 1 designates the neck of a bottle, or like receptacle, formed at its base with an annular shoulder 2, and at a point a short distance above the shoulder 2, with a second annular shoulder 3, the space 4 between said shoulders constituting an annular recess or pocket for the purpose hereinafter explained.

The numeral 5 designates a hollow cylindrical casing open at its lower end, and closed at its upper end by a head or cap 6, the under surface 7 of which is of concave or semi-spherical contour. The casing 5 is formed with annular rows of perforations or apertures 8 for the passage of liquid, and said casing is formed at its lower end with external screw threads 9 for the engagement thereto of an internally threaded collar 10 provided at its lower edge with an internal upwardly projecting annular flange 11. The casing 5 is provided at a point above its lower end with an external annular rib or shoulder 12, and between said rib, and the upper edge of the collar 10 is confined a sleeve 13 of yielding material, preferably of cork or rubber. Between the lower end of the cylindrical casing 5, and the upturned flange 11 of the collar 10 is clamped an elastic washer 14, which assumes the inclined position shown in Fig. 1 when the collar 10 is screwed upon the threaded end of the casing, owing to the upward inclination of the collar flange 11. The inner elevated portion of the washer 14 serves as a seat for a float or hollow valve 15 which is of cylindrical form, and provided at diametrically opposite points on its exterior with projecting pins or lugs 16 which guide and center the float within the casing 5. The upper end of the float or valve is closed by a cap 17 the upper surface 18 of which is convex, and upon which is adapted to rest a weight 19 of spherical shape.

The utility and operation of the closure device constructed as thus described, will be readily understood. After the parts have been assembled, by placing the ball weight and the cylindrical float valve within the casing 5, slipping the sleeve 13 over the lower end of the casing and securing the washer 14 and collar 10 upon the casing, the entire device is inserted into the bottle neck, and pushed down until the collar 10 rests upon the shoulder 2 of the bottle neck, and the upper edge of the sleeve 13 engages below the shoulder 3 of the bottle neck. The sleeve yields sufficiently to permit its being forced down within the bottle neck and as soon as it passes the shoulder 3 it expands, filling the annular pocket 4 in the neck, as is obvious from the illustration in Fig. 1. Normally the ball weight holds the float valve upon its seat, which closes the bottle neck against the admission or discharge of liquid. When the bottle is turned sufficiently to move the float valve away from its seat, liquid will escape through the openings in the washer 14, and the openings 8 in the casing into the space between the casing 5 and the bottle neck for discharge through the mouth of the bottle.

It will be apparent that when the bottle is turned to an upright position, or to such an angle as will cause the ball weight to seat the hollow cylindrical valve the latter will close the bottle neck and prevent the ingress of liquid, and also that if liquid under pressure is injected into the bottle neck in whatever position it may be, the effect will be to force the hollow valve to its seat, thus prevent refilling of the bottle. As the ball 19 is loosely arranged between the convex surface 18 of the hollow valve, and the concave surface 7 of the casing, the ball will roll freely without binding at any point. The bottle mouth may be closed by any suitable cork or stopper.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. The combination with a bottle neck having parallel internal annular shoulders, of a closure comprising a cylindrical casing closed at its upper end and open at its lower end, and formed with liquid openings, a sleeve of yielding material encircling said casing and fitting below the upper shoulder of said neck, an internally threaded collar engaging threads at the lower end of the casing, and provided with an internal upwardly projecting annular flange, an elastic washer secured between the casing and said collar, and resting on said flange, a hollow cylindrical valve adapted to rest on said washer, means for centering said valve within the casing, and a ball weight loosely supported between said valve and the upper end of said casing.

2. The combination with a bottle neck provided with an internal annular recess, of a cylindrical casing, closed at its upper end, and open at its lower end, and formed with liquid openings, and with an external annular rib below said openings, a sleeve of yielding material, encircling said casing below said rib, a flanged collar detachably connected to the lower end of said casing a washer clamped between said collar and the lower end of said casing, and constituting a valve seat, and a hollow cylindrical valve, adapted to rest on said washer.

3. The combination with a bottle neck provided with an internal annular recess, of a cylindrical casing open at its lower end, and externally screw threaded, and closed at its upper end by a head or cap, concave on its under surface, and having liquid openings, a sleeve of yielding material encircling said casing and fitting within said recess, a collar screwed to the lower end of the casing, and having an upturned internal flange, a washer secured by said flanged collar, a hollow cylindrical valve adapted to rest on said washer, and having a convex upper end and a ball loosely supported between said convex end of said valve and the concave surface of the casing closure.

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

JOHN F. FITZGERALD.

Witnesses:
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