

L. ZUNDEL.  
NON-REFILLABLE BOTTLE.  
APPLICATION FILED MAY 25, 1912.

1,055,590.

Patented Mar. 11, 1913.

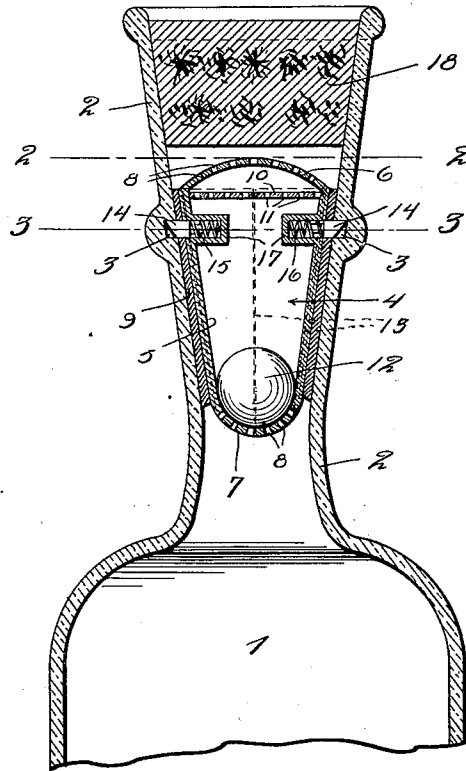


Fig. 1.

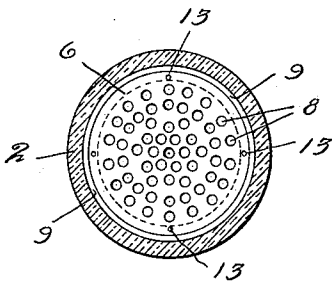


Fig. 2.

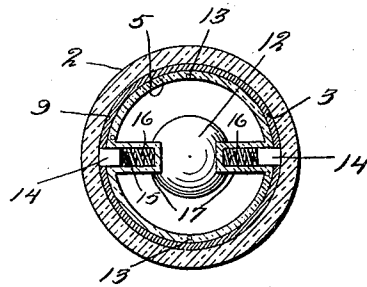


Fig. 3.

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# UNITED STATES PATENT OFFICE.

LOW ZUNDEL, OF LA GRANDE, OREGON.

NON-REFILLABLE BOTTLE.

1,055,590.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed May 25, 1912. Serial No. 699,761.

*To all whom it may concern:*

Be it known that I, LOW ZUNDEL, a citizen of the United States, residing at La Grande, in the county of Union and State of Oregon, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to improvements in bottles and particularly to that class of bottles known as non-refillable.

The object of this invention is to provide simple and inexpensive means to be applied to a bottle or similar receptacle after it has received its original contents and capable of preventing the substitution of another liquid for the original contents.

The invention consists in the novel construction and arrangement of parts as hereinafter illustrated, described and pointed out in the claims.

Referring to the drawings forming a part of this specification and in which like numerals are used to designate corresponding parts throughout the several views: Figure 1 is a sectional view of the complete device, Fig. 2 is a cross section on the line 2—2 of Fig. 1, and Fig. 3 is a cross section on the line 3—3 of Fig. 1.

Referring more particularly to the drawings, 1 designates a bottle provided with a neck 2, which I have shown as being of an inverted frusto-conical shape. Intermediate of the extremities of the neck is an annular groove or recess 3.

Within the neck 2 of the bottle and adapted to be retained in place by the groove 3, is a valve structure which I designate as a whole by the numeral 4. This valve comprises a shell or casing 5 of any suitable material having its upper and lower ends 6 and 7 formed with a plurality of perforations 8. Surrounding the casing 5 is a sheathing 9 of cork or other suitable material for forming a liquid-tight joint when the valve is forced into the neck of the bottle.

Within the casing 5 and adjacent its upper end is a plate 10 provided with a plurality of perforations 11 out of alinement with the perforations 8 in the end 6 of the casing 5. Disposed within the lower part of the casing is a ball 12 adapted to close the openings 8 in the lower portion 7 of the casing.

In order to facilitate the pouring of liquid from the bottle, the casing 5 is provided

with air passages 13 within the material of its walls. The air passages are preferably four in number, and are of sufficiently small diameter that liquid could not pass through them.

In order to retain the valve structure in place within the neck of the bottle, I provide plungers 14 adapted to engage the groove 3. These plungers are provided with reduced stems 15 and engaged by springs 16 seated in sockets 17 formed in the casing 5. After the valve structure is inserted, the bottle is closed by an ordinary stopper 18.

The operation of the device is as follows: The bottle being filled with liquid the casing 5 is inserted into the neck and pressed down until the spring-pressed plungers 14 engage the groove 3. This locks the valve in place, the cork sheathing making a liquid-tight joint with the neck. To pour liquid the bottle is tilted, thus unseating the ball 12 which will roll within the casing until stopped by the sockets 17. The liquid is then free to pass through the perforations 8 in the bottom of the casing, through the perforations 11 in the plate 10, through the perforations 8 in the top of the casing, and out.

It will be seen that liquid can not be introduced into the bottle, as the ball 12 closes the openings 8. By having the perforations 8 in the top of the casing and the perforations 11 in the plate 10 arranged in staggered relation, it is impossible to insert a wire within the casing to displace the ball.

It will be understood that various changes in the form, construction and arrangement of parts may be resorted to without departing from the spirit of the invention or limiting the scope of the sub-joined claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In combination with a bottle, a valve comprising a shell having its lowermost portion formed substantially semi-spherical and provided with perforations, a top plate provided with perforations, a partition plate provided with perforations in staggered relation to the perforations in said top plate, a ball within said casing; and means to secure said casing within the neck of the bottle.

2. In combination with a bottle, a valve structure comprising a tapered casing having imperforate walls, a substantially semi-

spherical bottom portion provided with a plurality of apertures, a top plate provided with a plurality of apertures, a partition plate provided with a plurality of apertures  
5 out of alinement with the apertures in said top plate, a ball within said casing of substantially the same radius as the semi-spherical portion of the casing, and means for securing said casing within the neck  
10 of the bottle.

3. In combination with a bottle, a valve structure comprising a shell having a bottom portion formed semi-spherical and provided with perforations, a top plate pro-

vided with perforations, an annular wall .5 provided with a plurality of openings extending longitudinally therethrough and establishing communication between the inside of the bottle and the atmosphere, a ball within said casing, and means to secure said  
20 casing within the neck of a bottle.

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

LOW ZUNDEL.

Witnesses:

ELSA NEWQUIST,  
COLSA C. EBERHARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."