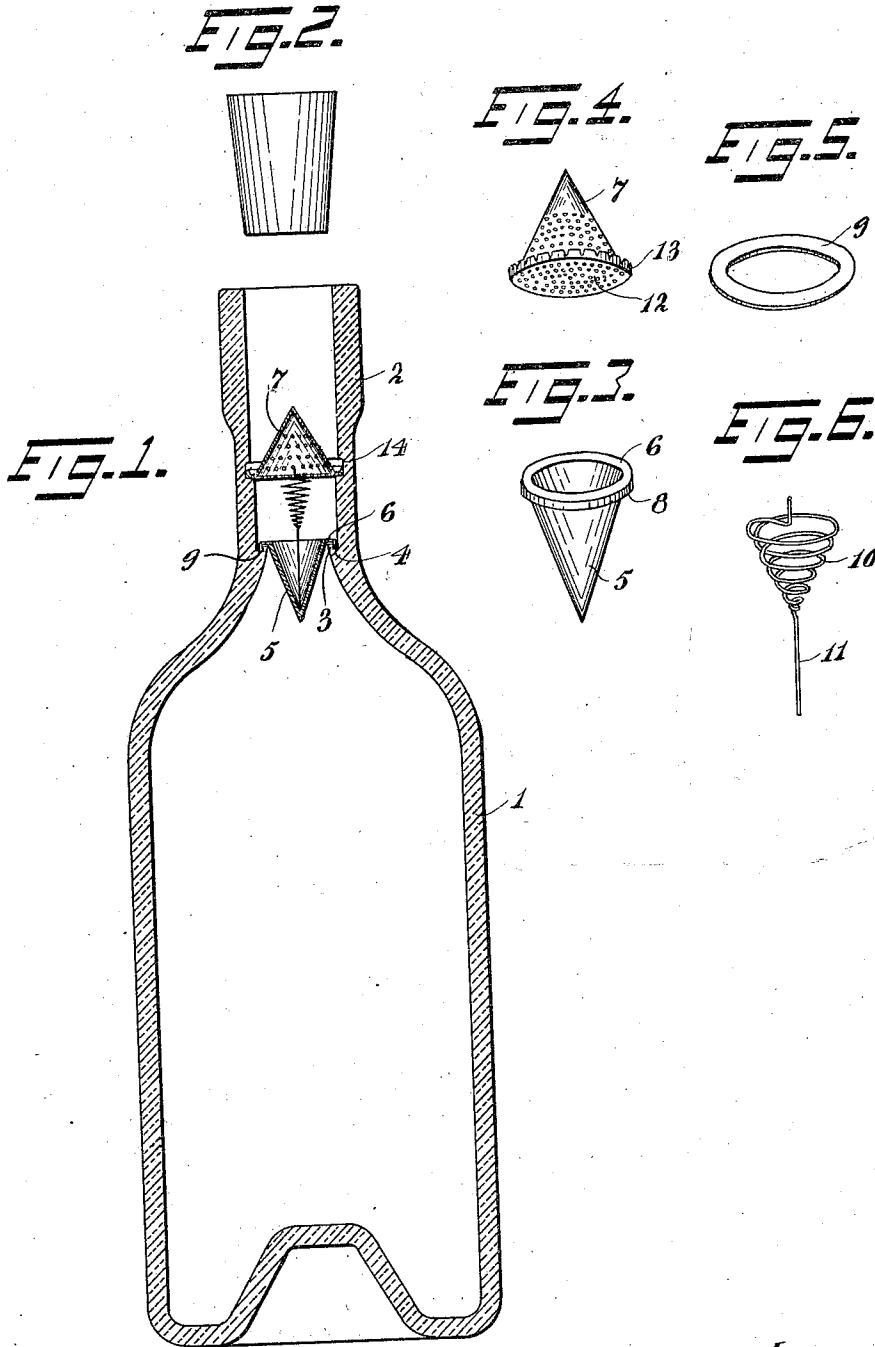


R. WILLIAMS.
NON-REFILLABLE BOTTLE.
APPLICATION FILED NOV. 24, 1909.

Patented Apr. 5, 1910.

953,880.



Witnesses:

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UNITED STATES PATENT OFFICE.

ROGER WILLIAMS, OF BROOKLYN, NEW YORK.

NON-REFILLABLE BOTTLE.

953,880.

Specification of Letters Patent.

Patented Apr. 5, 1910.

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To all whom it may concern:

Be it known that I, ROGER WILLIAMS, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to the class of bottles and closures generally known as non-refillable bottles and has for its object to provide an improved construction whereby the reuse of the bottle is absolutely prevented from any cause whatever tending to force liquid into the bottle after it has been once filled and emptied.

In the accompanying drawing illustrating an embodiment of my invention Figure 1 is a vertical section. Fig. 2 shows the cork or stopper. Fig. 3 shows the valve member. Fig. 4 is the locking member. Fig. 5 shows the washer, and Fig. 6 shows the retaining spring.

The bottle 1 is shown as having in the neck 2 an annular seat 3, that may have a groove 4 at its inner portion. A valve member 5 is shown as provided with an external flange 6 at one end of such diameter that the member will pass freely into the bottle until the flange rests upon the seat with the valve projecting down into the bottle. A suitable locking member denoted generally by 7 is permanently secured in the neck above the seat after the latter is placed in position in the filled bottle. A suitable spring is first placed on the valve to be engaged by the retaining member 7, and of sufficient strength to retain the valve seated even when the bottle is inverted, that is, will overcome the weight of the valve tending to unseat when the bottle is turned upside down.

In the construction illustrated the valve member 5 is shown as formed of a hollow cone provided with the flange 6 extending outwardly, which latter has a downwardly projecting edge or rim 8 that will be in position to enter the groove 4 in the seat 3. To insure a tight joint, a washer 9, shown in Fig. 5 is first placed in this groove in the seat for engagement with the flange portion 8 of the valve. The spring is shown in the form of a spiral spring 10 having a straight shank 11 arranged to project down into the cone valve 5 to retain it seated, the end of

the spiral portion engaging the locking member 7.

The locking or retaining member 7 is shown as comprising a hollow cone of perforated material preferably sheet metal having its open end closed by a disk 12 also of perforated sheet metal. The disk portion is provided with a flange 13 that is resilient to expand into a groove 14 provided in the bottle neck, whereby this member is permanently locked in this position. The spiral spring 10 will have its base engage the disk portion 12 of the locking member, while its shank 11 will project into the conical valve and retain it seated.

In the use of the device, when the bottle is filled the valve 5 is inserted to rest on the seat. Then the spring is placed with its shank in the valve bore and the locking member is pushed down into the neck until its flange 13 expands into groove 14, in which position it will engage the spiral spring causing the latter to retain the valve seated. The expanding of the flange of the locking member will permanently retain this member in the groove of the bottle neck and prevent its removal, while the conical shape of the locking member will prevent the insertion of wire to engage the valve tending to hold it open and prevent liquid passing into the bottle. To pour out the contents of the bottle it is simply inverted and the weight of the liquid on the valve will overcome the tension of the spring 10 causing the valve to move from its seat and permit all of the liquid to flow out. Immediately thereupon the spring will return the valve to its seat. Then upon liquid being poured into the neck it will simply strike the valve that is seated, which will absolutely prevent entrance of the liquid into the bottle. Should it be attempted to fill the bottle by pressure in an inverted position the liquid or gas that might be used would only force the valve more tightly against its seat preventing entrance of any liquid.

The valve 5 is advantageously made of glass or the like material and will not affect the liquid in the bottle.

The bore of the bottle neck above the groove 14 is made a little greater than that below, so that when the locking member 7 is inserted it will engage the lower wall of the groove that will form an abutment pre-

venting the further entrance of the member. The rim 13 is preferably provided with slits in its upwardly extending flange portion that will expand into the groove in the bottle neck.

5 Having thus described my invention, I claim:

10 The combination of a bottle having an annular seat at the lower portion of its neck, an annular groove in the neck above the seat, the bottle neck above said groove being of larger bore than the bore of the neck below the groove, a hollow conical valve member having a flange at its open end and
15 constructed to fit in the neck inverted with the flange engaging the said annular seat, a locking member comprising a hollow cone perforated for a portion only adjacent its large end and having a perforated disk clos-

ing such end, the locking member having resilient margin arranged to expand into the said groove when forced into the bottle neck and to be locked therein against removal upon insertion by the expansion of the resilient margin, and a coil spring secured
20 to the locking member and having its lower extremity projecting down into the cone valve when the member is in the locking position, the spring being of sufficient tension to retain the valve seated against its
25 own weight upon inversion of the bottle, but permitting the valve to be opened by the weight of the contents of the bottle when inverted.

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Witnesses:

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