

L. C. FOSTER.
 NON-REFILLABLE BOTTLE.
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940,962.

Patented Nov. 23, 1909.

Fig. 1.

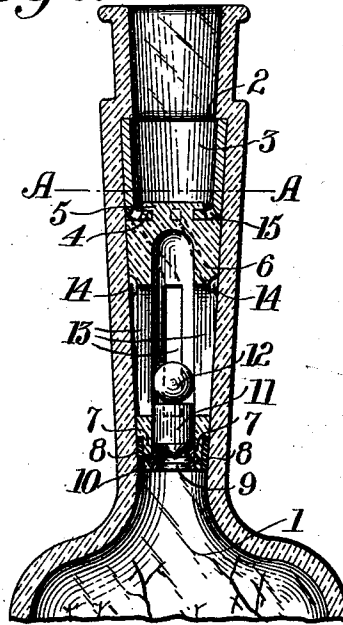


Fig. 2.

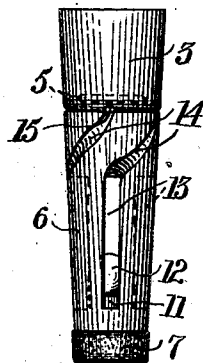
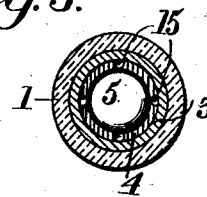


Fig. 3.



Witnesses

W. E. Jones
W. B. Blackwood

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Langdon C. Foster
W. P. Deane

Attorney

UNITED STATES PATENT OFFICE.

LANGDON C. FOSTER, OF FULTON, NEW YORK.

NON-REFILLABLE BOTTLE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LANGDON C. FOSTER, a citizen of the United States, residing at Fulton, in the county of Oswego and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to non-refillable bottles and other analogous vessels, and its object is to provide a device of this kind which shall be inexpensive in construction, will require but slight change in the form of the ordinary bottle, and will be effectual in returning the closing valve to its seat upon a slight inclination of the bottle from a horizontal position, thereby preventing the introduction of liquid by tilting the bottle and pouring the liquid past the valve.

To this end my invention is embodied in preferable form in the device hereinafter described and illustrated in the accompanying drawings.

In these drawings, Figure 1 is a vertical section in elevation of a bottle showing my improvements applied thereto; Fig. 2, is a detail elevation of the valve guard plug removed from the bottle, and Fig. 3 is a section on the line A—A of Fig. 1.

Referring to the drawings, 1 is a bottle of ordinary form except that it is provided in its neck a short distance below its mouth with an interior annular shoulder 2. Within the bottle below this shoulder is adapted to be inserted the valve guard plug. This plug comprises a cup-shaped locking member 3 of malleable or ductile metal which is adapted to be engaged with the shoulder by expanding the metal by a suitable tool outwardly against the neck of the bottle under the shoulder. The plug is preferably formed in two parts for facility of manufacture and to this end the lower edge of the locking member is crimped or spun inwardly to form a base flange 4, which tightly engages a head 5, projecting from the upper end of a hollow valve cage member 6. This member 6 is preferably made of porcelain or glass and its outer wall tapers to conform to the shape of the bottle neck while its inner wall is straight and of true cylindrical form. At its lower end this cage member is provided with a reduced stem portion 7 on which is fitted a sealing member consisting of an annular rubber gasket 8 adapted to be forced into tight sealing contact to form a

closure between the bottle and guard plug to prevent the passage of liquid. Within the hollow stem 7 is mounted a metal sleeve 9 having a portion thereof forced annularly into an interior groove 10 in the stem in order to lock the sleeve firmly in place. This sleeve forms a seat for a valve 11 which is preferably cone shaped at one end in order to more effectually fit the seat and close the opening and cylindrical at its upper end in order that it may fit the cylindrical wall of the cage member and be guided thereby in a straight movement toward and away from its seat. Above the valve 11 is mounted a valve weight 12 consisting of a ball and adapted to move in the channel of the valve cage to more effectively and quickly return the closing valve to its seating position.

In the wall of the valve holding member are formed slots 13 which at their upper ends communicate with spiral grooves 14 cut on the periphery of the cage member and leading to ports 15 cut through the flange 4 of the cup-shaped member 3.

To assemble the parts of the device the cup member 3 having been crimped over the head of the cage member 6, the ball 12 and valve 11 are inserted in the cage member and then the valve seating sleeve 9 driven into place. The compressible gasket 8 is then applied to the stem portion 7 and the plug forced into the bottle. When the upper edge of the cup passes below the shoulder 2 of the bottle a suitable tool is inserted into the cup and the wall of the latter expanded outwardly against the wall of the bottle so as to lock the edge of the cup member under the shoulder. The gasket at the other end of the plug forms a tightly sealing closure against the passage of the liquid. In pouring liquid from the bottle, it will pass up through the hollow stem and through the slots 13 into the grooves 14, from whence it will escape through the holes 15 in the bottom of the cup member and thus out from the bottle. Should an attempt be made to pour or force liquid into the bottle, the valve 11 will be carried to its seat closing the entrance to the body of the bottle. The rolling weight 12 will assist this movement of the valve. Both the ball and the conical valve being confined by the straight cylindrical wall of the cage will not be afforded any lateral play, and hence it will be impossible by tilting the bottle to a position between a vertical and a horizontal line to

dislodge the valve and permit the passage of the liquid past the valve into the bottle since in any position above the horizontal line the valve will be at once carried back in a straight line to its seat. The curved form of the grooves 14 prevents the insertion of an instrument for the purpose of dislodging the valve, and the grooves also form a trap preventing any passage of the liquid when the bottle is in a horizontal position.

It is clear that changes in the details of the structure of the device may be made without departing from the principle of my invention.

Having thus described my invention, what I claim is:—

1. A non-refillable bottle having an interior shoulder in the neck thereof, a plug adapted to be inserted into the neck of the bottle and having a ductile metal portion engaging said shoulder and having a member provided with an exterior spiral groove for the passage of liquid and having a valve seated within the grooved member and adapted to close the communication between the mouth and body of the bottle and a compressible gasket on the exterior of the plug and bearing against the inner surface of the bottle, substantially as described.

2. A bottle provided with an interior shoulder, a plug having a metallic ductile cup-shaped member engaging said shoulder, and having an exit port in the bottom of said cup, said plug having below said cup member a tortuous exit passage leading to the port and to the interior of the plug and a compressible sealing gasket between the lower end of the plug and the bottle, and a valve in said plug, substantially as described.

3. A bottle provided with an interior plug having a ductile metal cup-shaped locking member, a hollow valve cage member secured to said locking member and communicating with the interior of the body of the bottle, a valve seated in said cage member, said cage member having slots in its wall and tortuous exterior grooves leading from said slots, said locking member provided with ports registering with said grooves, and a sealing gasket on the lower end of the plug, substantially as described.

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

LANGDON C. FOSTER.

Witnesses:

JOS. H. BLACKWOOD,

M. E. JONES, Jr.