

J. A. LAURY.
NON-REFILLABLE BOTTLE.
APPLICATION FILED JULY 20, 1912.

1,064,147.

Patented June 10, 1913.

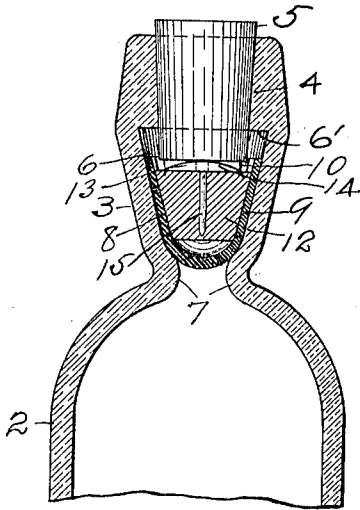


Fig-1-

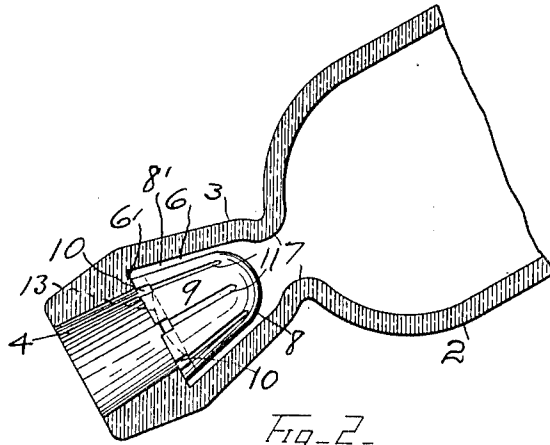


Fig-2-

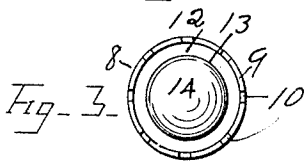


Fig-3-



Fig-5-

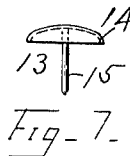


Fig-7-

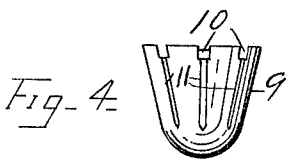


Fig-4-

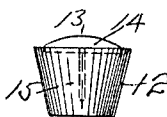


Fig-6-



Fig-8-

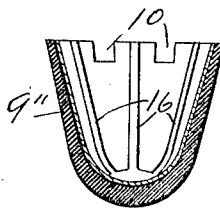


Fig-9-

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UNITED STATES PATENT OFFICE.

JOSEPH A. LAURY, OF SYRACUSE, NEW YORK, ASSIGNOR OF ONE-HALF TO FRANK J. CREGG, OF SYRACUSE, NEW YORK.

NON-REFILLABLE BOTTLE.

1,064,147.

Specification of Letters Patent.

Patented June 10, 1913.

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To all whom it may concern:

Be it known that I, JOSEPH A. LAURY, a citizen of the United States, residing at Syracuse, in the county of Onondaga 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 improvements in bottles, and has for its object to provide a novel, simple and effective device for rendering bottles non-refillable, after the original contents have once been withdrawn.

The features and parts of the invention will be understood from the detailed description which follows, and by reference to the accompanying drawing which forms a part of the specification, and in which—

Figure 1 is a broken sectional view of a bottle; showing my improvement applied in position to prevent the withdrawing of any of the contents, as when originally filled and sealed. Fig. 2 is a similar sectional view; showing the method of withdrawing the original contents from the bottle. Fig. 3 is a plan view of the gravitative stopper-valve. Fig. 4 is a side elevation of the same. Fig. 5 is a plan view of the core of the valve shown in Figs. 3 and 4. Fig. 6 is an elevational view of the same. Fig. 7 is an elevational view of the metallic shield for the valve. Fig. 8 is an elevational view; showing a modification of the gravitative stopper-valve. Fig. 9 is an enlarged sectional view; showing another modification of the gravitative stopper.

Similar characters of reference are assigned to corresponding parts throughout the several views.

In the drawing, 2 represents the body of a bottle or like receptacle which may be made in any suitable shape and of the usual materials, and 3 represents the neck of the bottle. The neck 3 is preferably hollow throughout, as usual, for filling and withdrawing the contents of the bottle. The interior of the neck 3 is first formed with a cylindrical opening or bore 4, which is adapted to receive the usual cork or stopper

5, for closing and sealing the bottle. Below the bore 4 there is an enlargement 6, the upper end of which terminates in an annular shoulder 6' which preferably extends at right-angles to the inner walls of the part 4. The enlargement 6 then tapers preferably as the frustum of a cone, and this tapering portion extends downwardly and terminates in an annular seat 7, which is preferably considerably smaller in diameter than any other portion of the neck, as shown in Figs. 1 and 2.

For the purpose of preventing the refilling of a bottle equipped with my improvement, I provide a gravitative stopper-like valve, which is light enough to float, and which will be generally designated by the numeral 8. The valve or part 8 in its preferred form comprises a rubber or like sheath or shell 9, which is preferably cone-shaped, having its smallest end closed, and its larger end open, and the open end is preferably serrated or notched to provide a series of openings 10, which may be arranged in any sort of spacing around the open end. The valve 8 when normal preferably conforms to and fits the lower portion of the cavity 6. The outer surface of the rubber shell 9 is preferably corrugated longitudinally, as at 11, and these corrugations coincide or connect at one end with the openings 10. The opposite ends of the corrugations 11 preferably terminate at a point distant from the seat 7, so that when the valve 8 is held against the said seat, as shown in Fig. 1, no liquid can escape from the bottle into the cavities of the neck. The shell 9 preferably consists of the usual soft or pliable rubber, like that employed for finger-stalls or nipples, and in order to maintain the valve 8 in its normal shape and prevent collapsing, I place a cork or similar light spongy or compressible core 12 inside of the shell, the top of the said core preferably lying below the bottoms of the windows 10, while the bottom of the core 12 is spaced a slight distance from the bottom of the shell, as shown in Fig. 1. The slight void or space below the core 12 permits the shell

to be more readily compressed into the seat 7, thereby conforming to, and producing a perfect seal at that point.

13 represents a shield, or armor for the top or exposed end of the core, which comprises a part resembling a tack, having a large concavo-convex head 14, and a tine 15. The head of the shield 13 is preferably substantially the same diameter as the part 4 of the neck of the bottle, and the shield is applied to the cork or core 12 by driving the tine through the center of the cork, as best seen in Fig. 1. The object of the shield 13 is to prevent the withdrawal of the valve 8 by means of a cork-screw or similar instrument. The metal comprising the shield 13 may be of any suitable kind, but is preferably non-magnetic, so as to prevent the use of a magnet for either withdrawing or otherwise tampering with the shield or valve. The peripheral edge of the tack 13 is preferably driven or sunken into the top of the cork 12, as shown in Fig. 1, so as to prevent the insertion of any instrument beneath its edges for withdrawing or displacing the said tack or cork.

In applying the valve 8 to the neck of the bottle, the shield is first applied to the cork 12, and the cork is then inserted in the shell, and the valve 8 is then forced through the opening 4 and disposed in the enlargement 6. The upper end of the valve 8 is preferably of larger diameter than the bore 4, and owing to the compressible nature of both the cork and the rubber, the valve 8 may be compressed sufficiently to pass through the port 4, and as soon as it reaches the cavity 6, the valve will expand, after which it will be impossible to remove or withdraw the said valve through the opening 4. The cavity 6 is preferably longer than the valve 8, and is so formed that, when the valve is forced down upon the seat 7 by the insertion of the outer stopper 5, the said valve will completely seal the lower portion of the cavity 6, as shown in Fig. 1.

To withdraw the liquid from the bottle, the cork 5 must first be removed, then by inverting the bottle, as shown in Fig. 2, the valve will be dislodged or freed from the seat 7 and will gravitate under the weight or force of the liquid until its upper end engages the shoulder 6'. As soon as the valve is shifted to the latter position the liquid will flow around the valve by reason of the clear space 8', and discharge through the windows 10 into the outer cavity 4. By providing a suitable number of the openings 10, the liquid will flow rapidly and continuously, and the flow will be facilitated somewhat by the provision of the corrugations 11. In practice, during the emptying of the bottle, air will pass in through certain of the openings 10, while the liquid will pass out through the remaining openings.

Owing to the peculiar and comparatively light construction of the valve 8, coupled with the disposition of the valve in the lower end of the cavity 6, it will be impossible to refill the bottle, because the slightest pressure of the liquid entering the mouth of the bottle, will force the readily floatable valve into its seat, and as the clear space around the valve, when it is in the discharging position shown in Fig. 2, is slight, it will be impossible for the liquid to enter the bottle, and at the same time allow the air which is confined in the empty body to escape.

In Fig. 8 I have shown a slightly modified rubber shell 9', which consists of forming the outer surface of the shell plain or smooth.

Fig. 9 illustrates still another modification, which consists principally of providing a rubber nipple or shell 9'', within which is disposed a basket-spring 16, which is intended to hold the shell to its normal shape. The spring 16 will allow the open end of the shell to contract sufficiently to be passed through the opening 4, and will then expand the shell to the proper extent for preventing the same from being withdrawn. The metallic part 16 may be applied to the rubber in any suitable manner, for carrying out the object of the valve.

Obviously some changes or modifications may be made in the parts of the device, within the scope defined by the appended claim without departing from the spirit of the invention.

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

In a non-refilling bottle, the combination with the body of a bottle, having a neck provided with a tapering enlargement arranged between the body and the mouth of the neck, of a cone-shaped valve comprising a rubber shell having one closed and one open end, the open end of said shell having openings arranged circumferentially, and the closed end of said valve adapted to be seated at the intersection of the neck and the body for preventing the passage of the liquid from the body into the neck, a compressible and expansible core for partially filling said shell, said core disposed below said openings and adapted to hold said shell in normal shape conforming to the shape of said enlargement, said valve having a greater diameter than the mouth of said neck, and capable of being compressed when forced through said neck, and adapted to expand after entering said enlargement to its normal size for preventing its withdrawal through the said mouth, said valve having a length less than the length of said enlargement, and adapted to gravitate from the smaller to the larger end of said enlargement for permit-

ting the withdrawal of the liquid from the
bottle, and a stopper for closing the mouth
of the neck and for holding said valve
tightly in the smaller end of said enlarge-
5 ment for preventing the withdrawal or leak-
age of the liquid during shipment and
storage.

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

JOSEPH A. LAURY.

Witnesses:

HOWARD V. RULISON,
HARRY DE WALLACE.

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