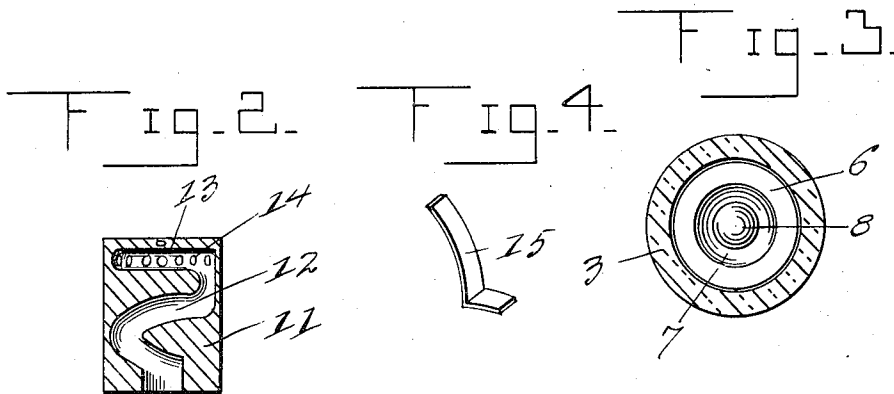


1,064,638.

Fig. 1



Witnesses
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UNITED STATES PATENT OFFICE.

EMERY GRAVES, OF SYRACUSE, NEW YORK.

NON-REFILLABLE BOTTLE.

1,064,638.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed March 26, 1913. Serial No. 757,026.

To all whom it may concern:

Be it known that I, EMERY GRAVES, 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; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to non-refillable bottles, having particular reference to that type of such devices in which a ball check valve is employed.

As its principal object this invention contemplates the provision of a non-refillable bottle in which simple but effective means are provided for preventing the tampering with the ball valve in the endeavor to refill the bottle.

A further object of this invention is to construct the bottle and valve apparatus therefor with such regard to proportion, number and arrangement of parts that the device may be cheaply manufactured, and will be efficacious and durable in its operation.

The above and additional objects are accomplished by such means as are illustrated in the accompanying drawings, described in the following specification and then more particularly pointed out in the claim which is appended hereto and forms a part of this application.

With reference to the drawings, wherein I have illustrated the preferred embodiment of my invention as it is reduced to practice, and throughout the several views of which similar reference numerals designate corresponding parts:

Figure 1 is a longitudinal section taken approximately central of the bottle. Fig. 2 is an elevation taken on the plane face of one of the two planoconvex members arranged in the upper portion of the bottle neck. Fig. 3 is a section on line 3—3 of Fig. 1; and Fig. 4 is a detail view of a locking spring.

Proceeding now to the description of the drawings, the preferred embodiment of my invention includes a bottle 1 of the customary structure, from the breast 2 of which extends a neck 3. The neck of the bottle is blown to produce an annular groove ad-

jacent its mouth to provide a seat for a cork washer 4. Adjacent its lower end the bottle neck 3 is equipped with an inwardly projecting annular shelf 5 arranged to support a cored casting 6 which may be made of porcelain or any other suitable plastic or metal substance. The casting 6 is substantially cylindrical and carries an integrally formed boss 7 projecting from its lower end. The member 6 is cored as at 7' to produce an escape opening for the fluid and is adapted to receive in the chamber 7 a ball valve 8. The chamber 7 is substantially frustoconical and is formed with the smaller end at the lower portion of the casting, being arranged to serve as a valve seat for the ball 8. An opening 9 communicates with the opening 7 for an obvious purpose. A cork washer 10 may be interposed between the member 6 and the shelf 5 to prevent leakage of the liquid.

Mounted on the upper portion of the casting 6 are a pair of semicylindrical cored castings one of which is illustrated in detail in Fig. 2 and designated as an entirety by the numeral 11. Each of the members 11 is cored to produce a serpentine fluid passage 12, communicant at its upper terminal with a cylindrical chamber 13, the wall of which is perforated as at 14 to permit the liquid to issue from the casting when the apparatus is arranged for dispensing of the liquid. The members 11 are similar in structure being thus formed to adapt the passages 12 and chambers 14 to registration when the two castings are in assembled position in the bottle neck. Intermediate the length of these members 13 is attached a substantially L-shaped spring 15 seated in a suitable recess formed in the castings and provided with a vertical leg inclined outwardly from the castings for a purpose to be hereinafter disclosed. At a point below the washer 4 the neck of the bottle is provided with an annular recess 16, formed to produce an annular shoulder 17 and the inwardly inclined annular wall 18. It will be apparent upon reference to Fig. 1 that the vertical legs of the spring 15 are arranged for sliding movement on the walls 18 of the recess 16 and are adapted upon upward movement of the castings 11 to engage the shoulder 17, thus being effectively guarded against any attempts to withdraw these castings from the bottle neck. The upper end of the castings

is provided with a common worm bore 9 adapted to receive a hook or similar instrument as will be disclosed hereinafter.

Supplemental to the above disclosures regarding the construction of the semicylindrical castings 11, it is desirable to emphasize the fact that while I have illustrated the cylindrical member of the bottle as being formed in two sections, and have described them in that manner, it may nevertheless be readily cast in one piece. It is also to be observed that this invention anticipates the formation of these members 11 in one piece, but it has been found desirable to illustrate and describe the mechanism referred to as consisting of two equal parts, in that this method of illustration and description is more comprehensive and explanatory.

The actual construction of the body being thus disclosed, it now remains to describe the operation of the device, and to enumerate the many advantages resultant from the peculiar construction of this device.

Briefly, the operation is as follows: In assembling the parts the washer 10 is disposed on the shelf 5 and the casting 6 is then placed within the neck with the boss portion projecting below the shelf 5 and with the main body portion of the member 6 on the washer 10. The ball 8 is then placed in the opening 7 and the two semi-cylindrical castings 11 placed in the bottle neck resting in their assembled position on the upper portion of the member 6. It will be seen that in placing the castings 11 in the bottle, the springs 15 will expand and engage the wall 18 of the recess 16. In the sealed position of the castings 11, the openings 14 are sealed by the washer 4, the top of the castings being disposed at a lower level than the top of the bottle, thus providing a chamber at the upper portion of the neck for the reception of a cork 20. When it is desired to dispense the liquid from the bottle the cork 20 is removed and a hook or similar instrument is inserted in the worm bore 19 by which means the castings 11 are drawn upwardly to bring the top of the castings flush with the top of the neck simultaneously withdrawing the openings 14 from sealed engagement with the washer 4. It will be seen that when the castings 11 are drawn up into dispensing position, the spring 15 will engage the shoulder 17, thus preventing further withdrawal of the castings. To dispense the fluid it is only necessary to invert the bottle, thus unseating the

ball 8 and allowing the passage of the fluid through the openings 9, the passage 7, and the perforations 14. It is desirable to emphasize the fact that by the provision of the serpentine fluid passage 12, all possibility of illicit tampering with the ball valve 8 is eliminated. It is also to be observed that the liquid in issuing from the bottle cannot come in contact with the spring 15 which may therefore be made of steel or other equally effective and durable material.

In reduction to practice, I have found that the form of my invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most practical; yet realizing that the conditions concurrent with the adoption of my device will necessarily vary, I desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of my invention, as defined in the appended claim.

What is claimed is:

The combination with a liquid receptacle having a dispensing neck, of an annular shelf formed interiorly of said neck adjacent its lower terminal, a valve seat mounted on said shelf, a valve arranged in said valve seat, a cored cylinder arranged within said bottle neck and adjacent the said valve seat, said cylinder being provided with a serpentine fluid passage communicating at its lower terminal with the said valve seat, and at its upper terminal with a plurality of perforations formed in the wall of the cylinder and adjacent the upper end thereof, an annular shoulder formed interiorly of the said bottle neck, a plurality of leaf springs carried by the said cylinder and adapted to engage the said shoulders in open position of the said cylinder, a sealing washer mounted interiorly of the said neck and adapted to seal the said perforations of the said cylinder in the closed position of said cylinder, said cylinder being adapted to be drawn upwardly to bring the said perforations out of engagement with the said last-mentioned portion.

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

EMERY GRAVES.

Witnesses:

CHAS. W. BULL,
FRANK R. LENNOX.