No. 746,103. PATENTED DEC. 8, 1903.

S. C. KINDIG & T. J. SPICER.

NON-REFILLABLE BOTTLE.

APPLICATION FILED JULY 20, 1903.

NO MODEL.

Fig. 1.

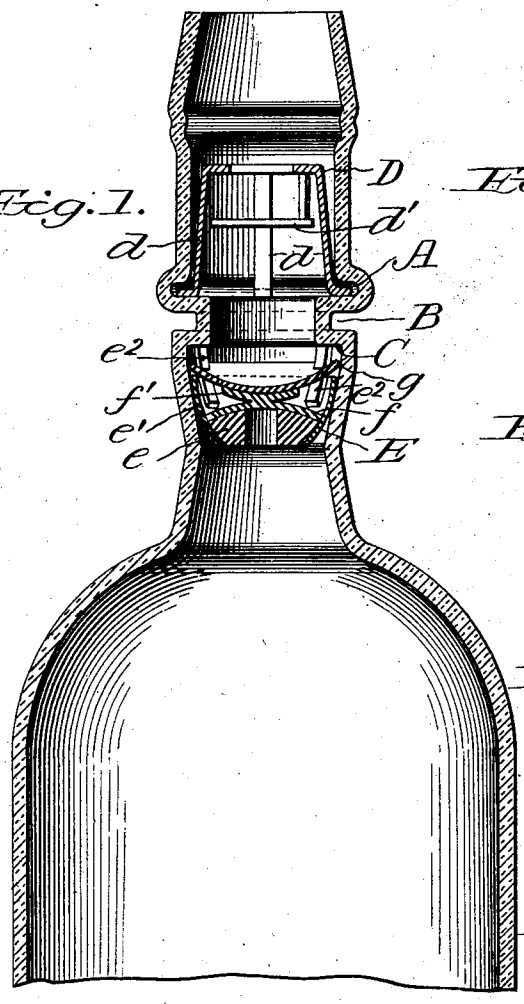


Fig. 5.

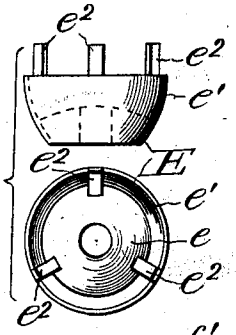


Fig. 6.

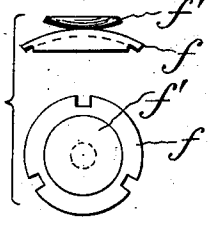


Fig. 4.

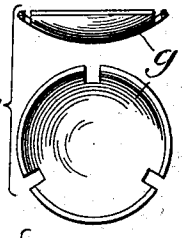


Fig. 5a.

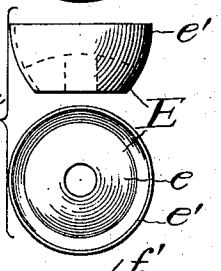


Fig. 4a.

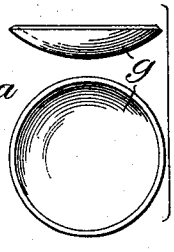


Fig. 2.

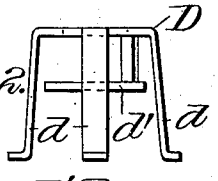


Fig. 3.

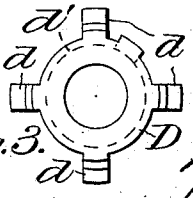
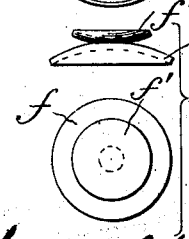


Fig. 6a.



Witnesses

C. N. Walker

J. W. Moore.

Inventors

Samuel C. Kindig,

and

Thomas J. Spicer

By Eugene C. Johnson, Attorney

No. 746,103. Patented December 8, 1903.

UNITED STATES PATENT OFFICE.

SAMUEL C. KINDIG AND THOMAS J. SPICER, OF BALTIMORE, MARYLAND.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 746,103, dated December 8, 1903.

Application filed July 20, 1903. Serial No. 166,314. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL C. KINDIG and THOMAS J. SPICER, citizens of the United States of America, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Non-Refillable Bottles; and we 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to non-refillable bottles; and it consists in the combination, with a bottle, the neck thereof being constructed to receive and retain a valve-guard and below the guard a valve which is so constructed as to permit the contents of the bottle being poured therefrom, the valve being constructed to effectually prevent the bottle being refilled, the invention residing more particularly in the construction of the valve, as specified in the claims.

In the accompanying drawings, which illustrate the invention, Figure 1 is a vertical section showing the construction of the neck of the bottle, the valve, and the valve-guard. Fig. 2 is a side elevation of the valve-guard detached. Fig. 3 is a plan view of the valve-guard. Fig. 4 shows a side elevation and a plan view of the upper member of the valve; Fig. 4^a shows similar views of another form. Figs. 5 and 5^a are side and end views of the lower member of the valve, and Figs. 6 and 6^a are side and plan views of an intermediate portion of the valve.

The neck of the bottle is made to provide an internal annular recess A, and below such recess there is an external recess B, the lower wall thereof providing a shoulder C, and the neck of the bottle below the shoulder converges to form a valve-seat. The valve-chamber is thus located between the shoulder and the contracted portion of the neck, which serves as the valve-seat. The construction shown not only provides a recess for the retention of the valve-guard and a shoulder which limits the movement of the valve when off of its seat, but it also provides externally a circumferential recess B, adapted to receive a cord or wire used in securing the cork, or the lower portion of a cap for the cork.

The valve-guard may be of any suitable construction. The same in practice is struck up from a single piece of sheet metal and comprises an apertured disk D, having depending portions *d d*, the lower ends being bent outward to engage the recess A. Attached to the disk D in such a manner as to extend below the same is a solid disk *d'*, the same being between the depending retaining members and is sufficiently near the apertured disk to prevent the insertion of a wire or tool, such as might be used in an attempt to hold the valve off of its seat in an attempt to refill the bottle.

The valve which is located in the valve-chamber below the valve-guard comprises a member E, consisting of a comparatively rigid part *e*, provided centrally with an aperture, and such part carries or has formed integral therewith a curved and upward-extending shell *e'*, of soft rubber or other pliable material. The part *e'* may be shaped as shown, (see Fig. 5^a,) being similar to a section of a hollow sphere. The second or intermediate member of the valve consists of a concavo-convex disk *f* and a disk *f'*, of like shape, but of less diameter. The two disks *f f'* are attached to each other centrally, the convex faces abutting, and in use the concave face of the larger disk *f* will overlie the upper and convex face of the member E of the valve. The upper concave face of the smaller disk *f'* provides a support for a disk *g*. The center portion of said disk bearing upon the disk *f'* tends to hold the disk beneath upon the part of the valve having an opening therethrough, the disk being of sufficient diameter to bear against the inner wall of the shell *e'*. The disk *g* is of sufficient size to overlie the upper edge of the shell, and in pouring out the contents of the bottle a part of the perimeter of the disk *g* will bear against the shoulder C, other parts being folded or crumpled by pressure on the convex side of the disk, which permits liquid to pass beyond the disk. The shell of the valve may be reinforced by curved ribs e^2, which are of sufficient length to engage the shoulder C when the apertured

member of the valve rests upon its seat, and when such ribs are present the pliable disks *f g* are each provided with notches registering with the ribs.

In pouring liquid from a bottle or other vessel to which our improvements have been applied pressure from within will force the disks toward the valve-guard to uncover the exit-opening through the rigid part which carries the shell, and such liquid as passes around the outer portion of the shell will bend or wrinkle the same, so that liquid may pass around the shell. Liquid also passing through the opening and around the disk *f* will bend the larger disk *g* and from thence pass the valve-guard. Should an attempt be made to refill the bottle, it will result in forcing the several pliable parts of the valve against the sides of the valve-chamber and the disk *f* tightly over the opening.

The construction shown provides a valve of a construction which will prevent the bottle being refilled and one which will fit even if there is a slight variation in the size of parts which are integral with the neck, and as the parts of the valve are pliable they may be readily inserted, and the valve-guard will prevent the same when in place from being tampered with. In practice the interior diameter of the neck of the bottle will be somewhat less than is usual for bottles of the same capacity.

In practice the disks will be made of soft rubber, and the shell can be molded as a portion of the thick part having the exit-opening therethrough.

Having thus set forth our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A non-refillable bottle having a neck with a converging portion to form a valve-seat and a valve-receiving chamber; and an inward-extending shoulder at the upper portion of the valve-chamber, in combination with a valve comprising a part having an opening therethrough and a pliable shell which extends upward to engage the side walls of the valve-chamber, and means for closing the opening through the shell-carrying part, substantially as shown.

2. The combination in a non-refillable bottle of a valve-receiving chamber, a valve-guard maintained within the neck of the bottle above the valve-receiving chamber, a valve comprising a part having an aperture therethrough and a pliable extension, a disk positioned within the extension to overlie the aperture through the part having the pliable extension, and a concavo-convex disk of greater diameter than the greatest diameter of the pliable extension, substantially as shown.

3. In a non-refillable bottle, a neck constructed to provide a valve-chamber having at its upper portion an inward-extending shoulder, in combination with a valve seated in said chamber and comprising a pliable disk of substantially the same diameter as the upper portion of the valve-chamber, a part comprising concavo-convex members connected to have their convex faces adjacent, and a part having an aperture therethrough, substantially as shown.

4. In a device of the character set forth, a valve comprising a substantially rigid member having an opening through its center and a shell of pliable material carried by the rigid member and extending above and beyond the same, and a disk located within the shell and adapted to close the opening when pressure is applied to the upper face of the disk.

5. In combination with an apertured member of a valve and its pliable shell, and reinforcing-ribs on the inner face of the shell, of disks having notches in their peripheries which register with the ribs, substantially as shown.

In testimony whereof we have affixed our signatures in the presence of the two witnesses.

SAMUEL C. KINDIG.
THOMAS J. SPICER.

Witnesses:
JOHN D. CRONMILLER,
H. FRANK VAN LILL.