

UNITED STATES PATENT OFFICE.

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NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 684,498, dated October 15, 1901.

Application filed January 18, 1901. Serial No. 43,730. (No model.)

To all whom it may concern:

Be it known that I, JACOB M. DOOLITTLE, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in bottles, and relates more particularly to that class known as "non-refillable" bottles, having for the main object to construct a bottle of this class of
15 comparatively simple construction and un-refillable after once being filled and sealed, so an attempt to refill can be easily detected.

Briefly described, the invention comprises a bottle having a valve-seat on its upper end,
20 with a disk valve mounted on said seat, together with a cap having an opening leading out through the side thereof for a discharge, means for sealing the discharge-opening until it is desired to remove the original contents,
25 and means for sealing the cap to the bottle-neck, all of which will be hereinafter more specifically described, and particularly pointed out in the claims.

In describing the invention in detail, reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference will be employed for designating like parts throughout the several views of the drawings, in which—

35 Figure 1 is a side elevation of my improved bottle, partly in vertical section, showing the same sealed. Fig. 2 is a side elevation of the cap and a part of the bottle-neck, showing how the seal may be broken to remove the
40 original contents of the bottle. Fig. 3 is a detail side elevation of the bottle-neck. Fig. 4 is a top plan view of the bottle. Fig. 5 is an underneath plan view of the sealing-cap. Fig. 6 is a top plan view of the valve member
45 of the weighted disk valve. Fig. 7 is a vertical sectional view of the weighted disk valve. Fig. 8 is a detail perspective view of the sealing-plate carried by the cap for closing the discharge-opening. Fig. 9 is a detail
50 perspective view of the spring-clamp that locks the sealing-cap in position on the bottle. Fig. 10 is a detail side and sectional

view of the gasket placed between the sealing-cap and the top of the bottle-neck.

To construct a non-refillable bottle in accordance with my invention, I provide the
55 bottle 1, at the top of the neck 2, with an interior valve-seat 3, the interior wall of the neck above this seat being inclined for a purpose as will be described. The valve-seat 3
60 is adapted to receive a disk valve 4, having a weight 5 centrally suspended therefrom to hold the disk normally seated. The disk is provided with a series of prongs or lugs 6,
65 projecting at an incline upwardly from the disk 4, and these lugs or prongs are adapted to normally bear against the inclined wall above the valve-seat, so as to prevent undue
tilting of this valve. The bottle-neck 2 is provided exteriorly with a series of bayonet-
70 shaped slots 7, in one of which is placed a spring-clamp which is adapted to lock with the sealing-cap and hold the latter in position on the bottle. This spring-clamp has a
75 substantially T-shaped stem 8, the head of which is adapted to be dropped into grooves 9, provided therefor in the top of the bottle-neck opposite to one of the bayonet-shaped
80 slots or, in other words, at each side of one of the tops of these slots. The stem of this clamp carries two projecting spring-arms 10
11, the latter having its free end bent toward the former and adapted to pass beyond the same when compressed.

I seal the bottle after the disk valve has
85 been placed in position by means of a sealing-cap 12, preferably composed of glass and which is adapted to engage over the neck of the bottle, being substantially in the form of
90 a hood. This cap 12 need only be provided with a side passage 14, acting as the discharge-opening which communicates with the recessed lower end of the cap, thus permitting a considerable portion of the cap to be of
95 solid structure and preventing liability of breakage. The passage 14 is irregular in its course, which may be accomplished by providing an integral lip or projection in the cap directly below the opening 14 and projecting
100 upwardly at an incline, as shown at 15. This forms a tortuous or irregular passage, which prevents the insertion of a tool through the discharge-opening to engage with the weighted disk valve and hold the same open during a

refilling of the bottle, though it also strengthens the structure of the cap 12. The cap carries on its inner face a series of lugs 16, one for each of the bayonet-shaped slots 7, into which they are turned by a partial rotation of the cap. As the cap is thus being rotated the one of these lugs that engages in the slot having the spring-clamp engages the arm 11 and depresses the same until it passes out of engagement therewith, at which time this arm springs back to its former position, and thus prevents the return rotatable movement of the cap in order to effect its removal. A flexible gasket or washer 17 is placed between the cap, where the latter rests on the neck, and said neck in order to effect a tight seal and prevent the contents of the bottle escaping into the slots in the bottle-neck when said bottle is tilted. The discharge-opening 14 is sealed or closed by means of a plate or disk 18, having an extending stem 19 above the same and a somewhat similar stem 20 below. The stem 19 is corrugated, as at 21, and is molded into the glass cap 12, as shown in Fig. 1, while the stem 20 is bowed or curved, as shown, its free end extending outwardly from the cap with the back conforming to and lying within the curved line of the cap. This disk or plate 18 lies over the discharge-opening 14, sealing the same, and a perfect seal is effected around the edges of this plate or disk and the cap by placing a rim of glass 22 thereon, as shown in Figs. 1 and 2. The lower stem 20 forms a means by means of which the seal may be broken, and a convenient means of breaking this seal by stripping the same from the discharge-opening is shown in Fig. 2, in which the stem 20 is inserted through an eye provided therefor in a key 23. By rotating this key it will be observed that the metal strip of which the stem 20 and disk consists will be stripped from the discharge-opening. The contents of the bottle may then be readily removed, as it will be noted that the tilting of the bottle will partially unseat the weighted disk valve and permit the contents of the bottle to flow outwardly into the recess in the cap and through the discharge-opening. The stripping of the original seal from the cap will prevent the same being sealed in a like manner, rendering the bottle useless, since the cap is securely locked thereon.

Should it be desired, the sealing-cap 12 may be composed of porcelain or other non-transparent material, which will completely conceal the valve mechanism as well as fastening means which secures the cap to the bottle. The sealing plate or disk 18 may be provided on its inner face with a suitable coating which acids will not affect and is preferably provided on the outer face with a coating of porcelain or other material, so that the rim of molten glass which seals this plate will engage therewith and form an effective seal.

The sealing-cap may be composed of opaque glass, china, porcelain, or like material, so as to obstruct the view of the valve, while the

weight is preferably constructed of china or like material, the disk of red rubber, the locking-clamp of brass, and the gasket of rubber, though of course equivalent materials may be used for these parts, if desired, the aim being more especially to produce a bottle of merit effective in its purpose and of good quality of material in its several parts. The weighted disk and cap are constructed as specified and described to avoid the action of acids and the like that may be contained in the contents or liquid placed in the bottle, and the outlet or discharge passage is made irregular in pitch for three purposes—first, to avoid the insertion of any instrument to lift up the valve, to prevent liquid being forced into the recess in the cap, and to act as a shield to prevent the possibility of any fragments of glass from the breaking of the seal entering into the cavity of the bottle-neck. The glass overlap around the margin of the outlet-shield is fractured outwardly and not inwardly, thus projecting the small particles of glass away from the opening or outlet. No tool or key other than the wire key shown is required to break the seal, and in the absence of such a key a pair of pliers may be employed for breaking the seal. The broken seal, in case the bottle would be placed upon the market with this seal broken, would indicate that the original contents had been removed, or when the bottle was placed upon the market with the seal unbroken it would be an evidence of the genuineness of the contents.

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

1. In combination with a bottle having an interior valve-seat at the upper end of its neck and bayonet-shaped slots arranged around said neck, of a weighted disk valve to engage the valve-seat, a sealing-cap having lugs for engagement in the bayonet-shaped slots, means within one of said slots for engagement with the lug therein to lock the cap in position, said sealing-cap having a tortuous discharge-opening, a closure-plate having a stem molded into the sealing-cap, and breakable sealing means engaging the closure-plate and sealing-cap for securing the closure-plate in position to close the discharge-opening.

2. In combination with a bottle having an interior valve-seat at the upper end of its neck and provided with a series of exterior slots, of a weighted valve adapted to engage said seat, a sealing-cap having lugs for engagement with slots in the neck, a spring-clamp arranged within one of said slots for engagement with the lug therein to lock the cap in position, said sealing-cap having a tortuous discharge-opening, a sealing plate or disk carried by the stopper for closing said discharge-opening, stems carried by said sealing-plate one of which is secured in the sealing-cap and the other is free to be engaged for stripping the sealing-plate from the opening, and a rim composed of fragile material

sealed to the plate and cap for holding the plate in position to close the discharge-opening, substantially as described.

3. In combination with a bottle having an interior valve-seat, a weighted valve normally engaging said seat, of a sealing-cap locked to the bottle-neck and provided with a tortuous discharge-opening, and a closure-plate having a stem molded in said cap, said closure-plate being adapted to cover the discharge-opening and be sealed over the same, substantially as described.

4. In combination with a bottle-neck having bayonet-shaped grooves in the upper end thereof, a sealing-cap having lugs to engage in said grooves, a spring-clamp arranged within one of the grooves for locking the cap in position, said cap having a discharge-opening, and a closure-plate for sealing the discharge-opening, said closure-plate having a stem which is molded in the cap and a separate stem adapted to be engaged to permit the stripping of the closure-plate from the discharge-opening.

5. In combination with a bottle-neck hav-

ing an interior valve-seat and a valve thereon, said neck provided with slots peripherally arranged around the same at the upper end thereof, of a sealing-cap provided with lugs to engage in said slots, a gasket or washer interposed between the cap and the top of the bottle-neck, a spring-clamp arranged in one of the slots for engagement with the lug therein to lock the cap in position, said cap having a discharge-opening protruding through the side thereof, a metal sealing-plate for closing the discharge-opening, said plate having projecting stems one of which is secured in the cap and the other of which is free to be engaged for stripping the plate from the cap, and a fragile seal for securing the plate in sealed position over the discharge-opening, substantially as described.

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

JACOB M. DOOLITTLE.

Witnesses:

JOHN NOLAND,
A. M. WILSON.