No. 632,575. Patented Sept. 5, 1899.

W. D. KILBOURN.

BOTTLE CLOSURE.

(Application filed Dec. 31, 1898.)

(No Model.)

Fig 1

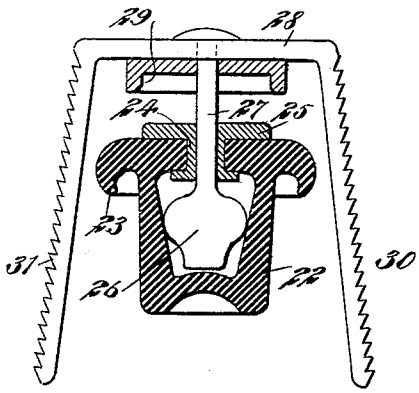


Fig 2

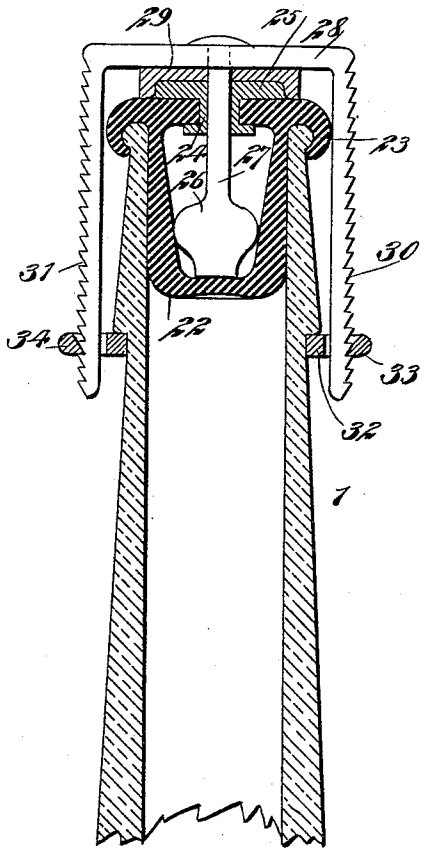


Fig 3

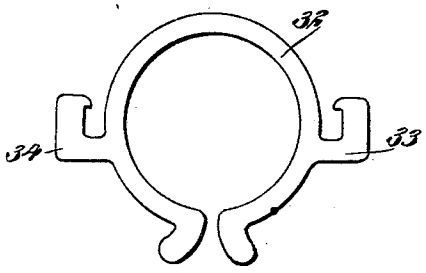


Fig 5

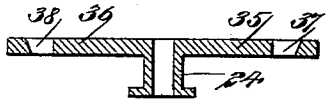
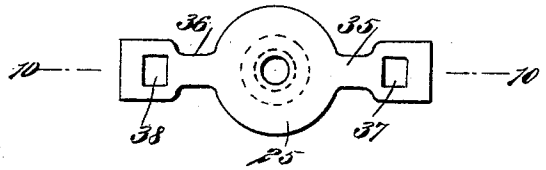


Fig 4



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WILLIAM DOUGLAS KILBOURN, OF PUEBLO, COLORADO.

BOTTLE-CLOSURE.

SPECIFICATION forming part of Letters Patent No. 632,575, dated September 5, 1899.

Application filed December 31, 1898. Serial No. 700,835. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DOUGLAS KILBOURN, of Pueblo, in the county of Pueblo and State of Colorado, have invented a new and Improved Bottle-Closure, of which the following is a full, clear, and exact description.

This invention relates to improvements in closures for bottles, particularly bottles for containing liquid under gas-pressure, and the object is to provide a closure of comparatively simple and inexpensive construction that will be held tightly in the neck of the bottle to hermetically seal the same, but which may be easily detached when desired.

I will describe a bottle-closure embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a partial section and partial elevation of a bottle-closure embodying my invention. Fig. 2 is a view similar to Fig. 1, but showing the closure in its sealing position. Fig. 3 is a plan view of a clamping-ring employed. Fig. 4 is a plan view of another form of clamping device, and Fig. 5 is a section on the line 10 10 of Fig. 4.

In carrying out my invention I employ a hollow closure 22 of yielding material—such, for instance, as soft rubber. This closure is closed at its lower end, and at its upper end it has an annular flange 23 to engage over the mouth of the bottle, as indicated in Fig. 2. A metal bushing 24 is seated in an opening through the top wall of the closure 22, and this bushing at its inner end has an annular flange which engages against the inner side of the top wall of said closure, and at its outer side it has a head or flange 25, which bears against the outer side of said top wall of the closure. In this instance a plunger is movable through the bushing 24. This plunger is shown as having an expanded head 26 within the closure 22 and as having a stem portion 27, which extends through the bushing 24 and engages with an anchoring piece or bar 28, extended transversely of the closure, and also connected to this anchoring piece or bar 28 is a cup-shaped disk 29, which will pass over the head 25 when the closure is in its sealing position, Extended from the anchoring piece or bar 28 are spring-arms 30 31, having ratchet-shaped teeth on the outer edge. Detachably connected to the neck of the bottle below the shoulder is a locking-ring 32, which is open at one side, so that it may be swung around the bottle-neck. At opposite sides lugs 33 34 are extended from the ring 32 and are designed to be engaged by the ratchet-teeth of the arms 30 and 31, respectively.

In using this device the closure 22 should normally be somewhat smaller than the opening in the bottle-neck, so that when it is inserted and the plunger is forced downward the said plunger will force the yielding material forming the closure outward and tightly against the inner side of the bottle-neck. Of course in forcing the plunger downward the arms 30 and 31 will be forced downward relatively to the ring 32, so that the teeth will engage with the inner bottom edges of the lugs 33 34. When it is desired to withdraw the closure, the lower ends of the arms 30 and 31 may be swung toward each other to disengage them from the lugs. Then the arms carrying the anchoring-piece and the plunger are to be moved upward, relieving the pressure of the closure 22 against the bottle-neck.

In lieu of the clamping-ring 32, having the lugs 33 34, I may extend arms 35 36 in opposite directions from the head 25 on the bushing 24, these arms being provided, respectively, with openings 37 and 38 for the passage of the arms 30 and 31. In using this modification it is obvious that the pressure of the closure 22 against the inner surface of the bottle-neck must be relied upon to hold the closure in position; but the teeth of the arms 30 and 31 by engaging with the walls of the openings 37 38 will prevent an upward movement of the plunger relatively to the closure.

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

1. A bottle-closure, comprising a hollow expansible stopper, a plunger movable in said stopper, an anchoring-piece to which the stem of the plunger is connected arms ex-

tended from said anchoring-piece having teeth, and a clamping-ring for engaging the said arms, substantially as specified.

2. A bottle-closure, comprising an expansible stopper, a plunger operating in said stopper for expanding the same, a ring for engaging around the neck of the bottle, and arms having connection with the plunger and adapted for locking engagement with said ring, substantially as specified.

3. A bottle-closure, comprising a hollow expansible stopper, a metal bushing in the upper wall of said stopper, a plunger having its stem portion movable through said bushing and also having an expanded or enlarged portion within the stopper, an anchoring piece or bar to which the stem of the plunger is connected, spring-arms extended from said anchoring-piece, the said arms being provided with teeth, and a clamping-ring with which the teeth of said arms are adapted to engage, substantially as specified.

4. A bottle-closure, comprising an expansible stopper, a plunger operating in said stopper for expanding the same, a spring-ring for engaging around the neck of the bottle, an anchoring piece or bar with which the plunger connects, and toothed arms extended from said anchoring piece or bar and adapted to engage with lugs on the spring-ring, substantially as specified.

WILLIAM DOUGLAS KILBOURN.

Witnesses:
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