

C. E. TUCKER.
 NON-REFILLABLE BOTTLE.
 APPLICATION FILED APR. 13, 1911.

1,009,944.

Patented Nov. 28, 1911.

2 SHEETS-SHEET 1.

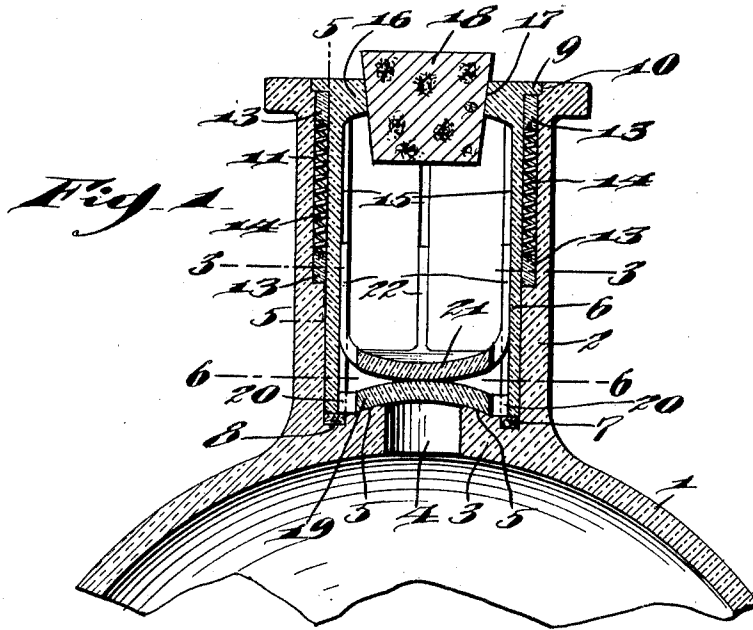
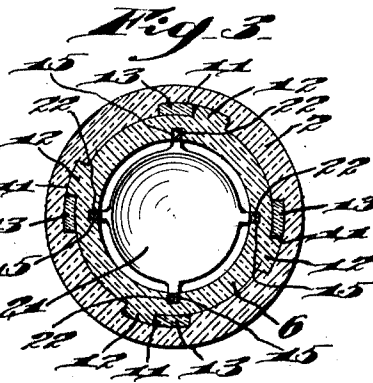
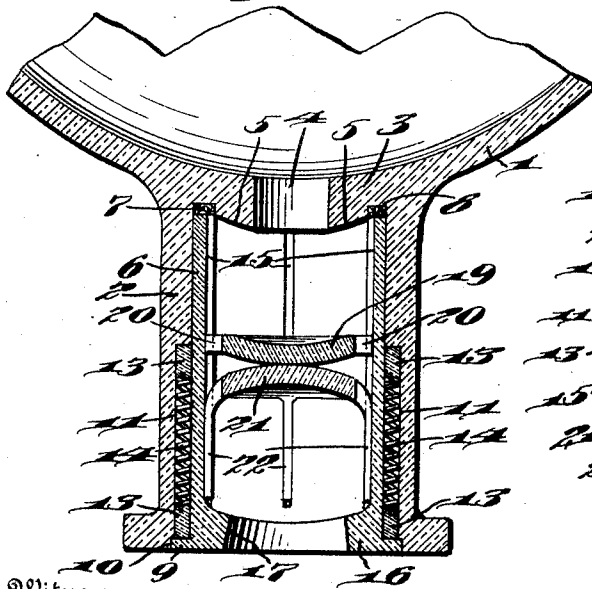


Fig. 2



Inventor

Witnesses

Thos. Rosenbaum
 R. H. Krenkel

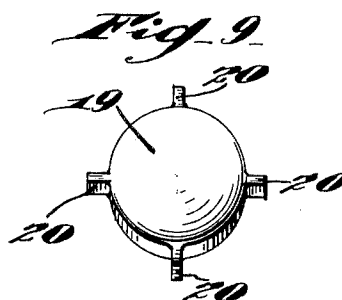
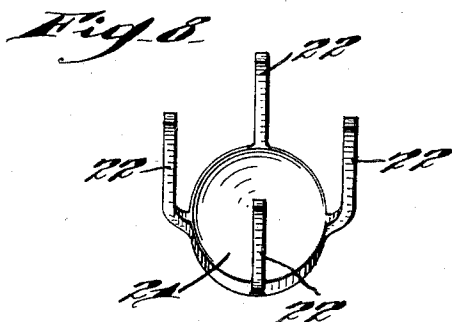
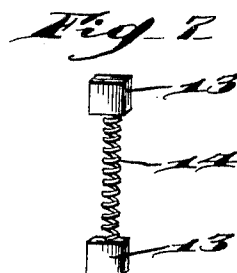
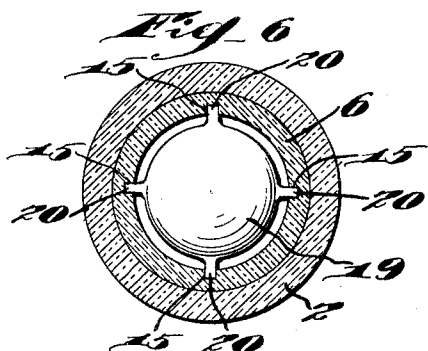
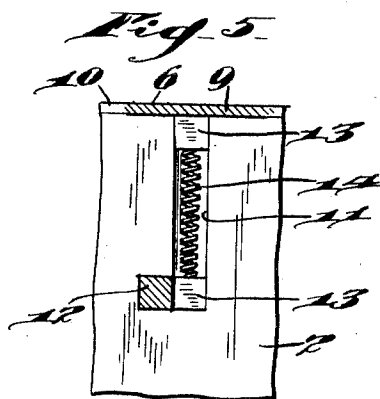
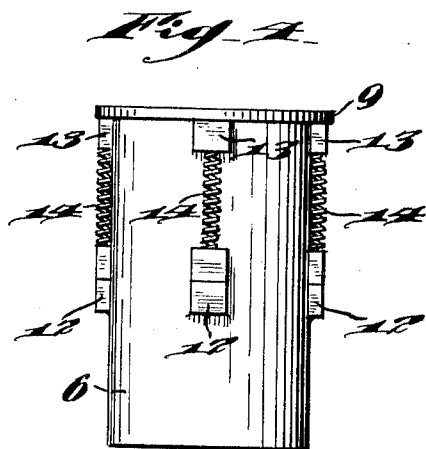
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UNITED STATES PATENT OFFICE.

CLARENCE E. TUCKER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO DAVID F. GRANT, OF PHILADELPHIA, PENNSYLVANIA, ONE-FOURTH TO EMORY S. TUCKER, OF WASHINGTON, DISTRICT OF COLUMBIA, AND ONE-FOURTH TO LUTHER L. TUCKER, OF WALTHAM, MASSACHUSETTS.

NON-REFILLABLE BOTTLE.

1,009,944.

Specification of Letters Patent.

Patented Nov. 28, 1911.

Application filed April 13, 1911. Serial No. 620,738.

To all whom it may concern:

Be it known that I, CLARENCE E. TUCKER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to improvements in non-refillable bottles, the object of the invention being to provide improved means for permanently locking a glass cylinder within a bottle neck, and providing in said cylinder improved means which permit the bottle to be readily emptied, and prevent refilling.

A further object is to provide improvements of this character which absolutely prevent any possibility of removal of the locking means without detection, and which will prevent fraudulent practices common in bottles as now made.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1, is a fragmentary view in longitudinal section showing the parts in normal closed position. Fig. 2, is a similar view showing the bottle inserted in position for pouring out the contents of the bottle. Fig. 3, is a view in section on the line 3—3 of Fig. 1. Fig. 4, is a side elevation of the glass cylinder 6. Fig. 5, is a fragmentary view in section on the line 5—5 of Fig. 1. Fig. 6, is a view in section on the line 6—6 of Fig. 1. Fig. 7, is a view of one of the locking devices, and Figs. 8, and 9, are detail perspective views of the baffle and the valve respectively.

1, represents a bottle having a neck 2 thereon, and an integral circular flange 3 at the juncture of the neck and the bottle, said flange forming a restricted opening 4, and having a convex upper face 5 serving as a valve seat.

6, represents a glass cylinder which fits snugly within neck 2, and at its lower end bears upon a ring or washer 7, which is seated in an annular groove 8 around valve seat 5. The upper end of this glass cylinder 6

is made with an annular external flange 9 to fit within a circular groove 10 in the upper end of the bottle neck.

The inner face of neck 2 is provided with a plurality of L-shaped grooves 11, four being shown and located at equi distant points around the interior of the bottle neck, and extending upwardly and communicating with the groove 10 of the neck. Cylinder 6 is provided with integral rectangular lugs 12, corresponding in number and in position to grooves 11, and of a size to fit within said grooves. As a locking means for said lugs 12 within the grooves 11, a pair of blocks 13 having a coiled spring 14 between them, is provided for each lug 12, as shown clearly in Figs. 4, 5, and 7. It is to be understood that the blocks 13 are of the same size as the lugs 12, and in assembling the parts they are positioned as shown in Fig. 4, one block bearing against the lug, and the other against the annular flange 9 on the cylinder, with the coiled springs 14 holding them in this position. When the cylinder is then positioned in the bottle neck, at first lugs 12 and the blocks 14 will all lie in the straight portion of the L-shaped grooves 11, but when cylinder 6 is given a partial rotary movement, lugs 12 will move into the shorter and horizontal portions of said grooves, moving from under the lower blocks 13, when said lower blocks 13 will be forced downward into the lower ends of the grooves by means of the springs 14, and prevent any return rotary motion of the cylinder. By this means, the lugs 12 are securely locked in the grooves, and cylinder 6 cannot be removed without detection. Cylinder 6 on its inner face is provided with four longitudinal grooves 15, which extend from the inner ends of the cylinder to a point near the outer end of the cylinder where said cylinder is provided with an internal flange 16, forming a restricted opening 17 for the reception of a cork or other plug 18.

A concavo-convex disk-like valve 19 normally fits the convex upper face 5 to seal the bottle, and is provided with a circular series of fingers 20, which move in the grooves 15 and guide the valve in its movement. On top of valve 19, an oppositely disposed concavo-convex disk 21 is positioned, and constitutes a baffle preventing access to the

valve. This baffle is provided with a circular series of guide fingers 22 movable in grooves 15, and of a length to engage flange 17 and properly limit the movement of the
5 baffle and the valve.

It will be noted that valve 19 and baffle 21 are both of a diameter appreciably less than the internal diameter of cylinder 6, so that when valve 19 is away from seat 5, the
10 liquid may freely flow out of the opening 4, and around the valve and baffle, escaping through the outlet 17 when plug 18 is removed.

It will be noted that the opening 18 is
15 larger than the opening 4, and this is designedly so, as it prevents the liquid from entering the bottle when the latter is in a horizontal position, because it prevents the fluid from finding a level in the neck, but
20 compels the valve to move to closed position when the liquid will otherwise flow into the bottle.

Various slight changes might be made in the general form and arrangement of parts
25 described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit
30 and scope of the appended claims.

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

1. The combination with a bottle, and a
35 neck thereon, and an internal annular flange in the neck forming a valve seat, of a cylinder fitting the neck, said neck having an L-shaped groove, a lug on the outside of said cylinder adapted to enter and fit said groove,
40 a downwardly spring pressed block adapted to rest in the longitudinal groove and hold the said lug in the lateral branch of said L-shaped groove, and a valve in said cylinder normally closing against said seat, sub-
45 stantially as described.

2. The combination with a bottle, and a neck thereon, and an internal annular flange in the neck forming a valve seat, of a cylinder fitting the neck, said neck having an
50 L-shaped groove, a lug on the outside of said cylinder adapted to enter and fit said groove, an annular shoulder on the upper end of said cylinder, a block positioned against said shoulder, a spring bearing
55 against said block, and a block at the lower

end of said spring held by the spring in the angle of the groove, whereby said lug is locked in the groove, and a valve in said cylinder normally closing against said seat, substantially as described.

3. The combination with a bottle neck having a circular series of internal L-shaped grooves therein, of a cylinder adapted to fit within the neck, a circular series of integral
65 lugs on the outside of said cylinder adapted to fit within the groove of the neck, said cylinder having an annular shoulder at its upper end, blocks bearing against said shoulder, blocks adapted to bear in said grooves, and lie in front of the lugs when the latter
70 are positioned in the shorter members of said grooves, springs between said blocks, and valve mechanism in said cylinder, substantially as described.

4. The combination with a bottle and a
75 neck thereon, said neck having an L-shaped groove, of a cylinder fitting the neck, a lug on the outside of said cylinder adapted to enter and fit said groove, and a spring-pressed block carried by said cylinder and
80 adapted to be positioned in the angle of the groove in the front of the lug when the latter is in the horizontal short member or branch of said L-shaped groove, and means
85 in said cylinder constructed to permit a flow of liquid through the neck in one direction only, substantially as described.

5. The combination with a bottle and a neck thereon, said neck having an L-shaped
90 groove, of a cylinder fitting the neck, a lug on the outside of said cylinder adapted to enter and fit said groove, said lug adapted to be moved down the L-shaped groove, and then moved when the cylinder is turned into the branch of said groove, a loose block
95 normally supported on said lug, a spring exerting downward pressure on said block whereby said lug moves from under the same, the latter will move downward in front of the lug, and means within said cylinder
100 for permitting a flow of liquid through said cylinder in one direction only, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of
105 two subscribing witnesses.

CLARENCE E. TUCKER.

Witnesses:

R. H. KRENKEL,
CHAS. E. POTTS.