

D. G. VRADENBURGH.
NON-REFILLABLE BOTTLE.
APPLICATION FILED JAN. 8, 1912.

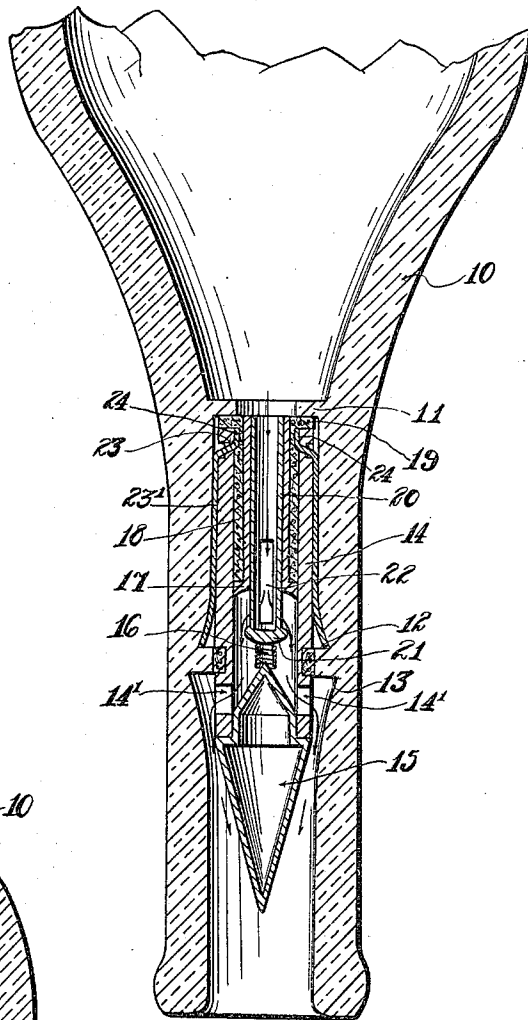
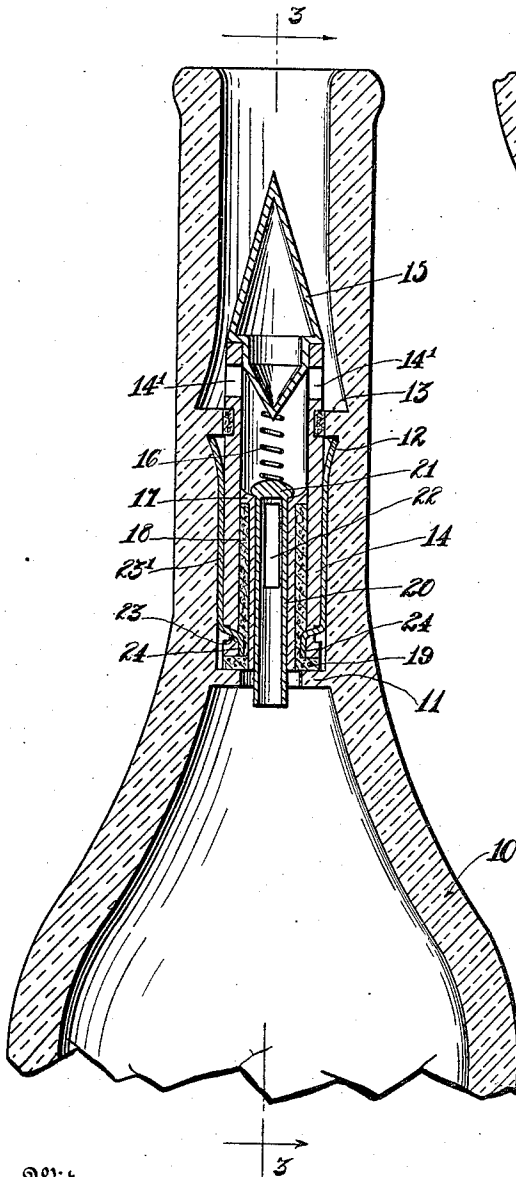
1,041,206.

Patented Oct. 15, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

Fig. 4.

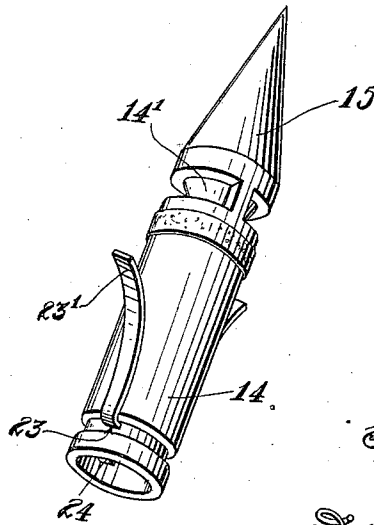
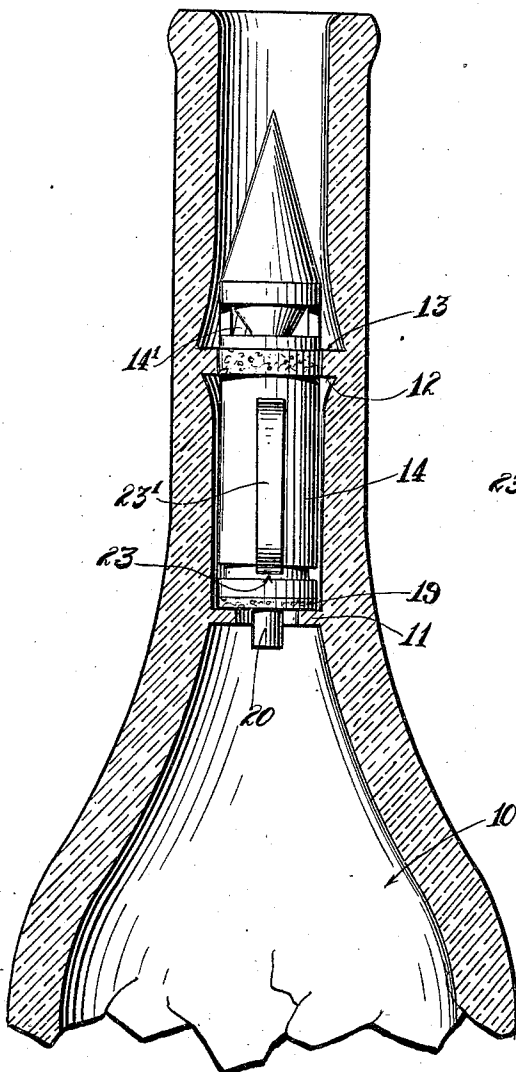
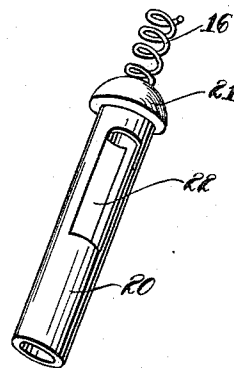


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

DAVID G. VRADENBURGH, OF MATTEAWAN, NEW YORK, ASSIGNOR OF ONE-HALF TO
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NON-REFILLABLE BOTTLE.

1,041,206.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DAVID G. VRADENBURGH, a citizen of the United States, residing at Matteawan, in the county of Dutchess, 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 and has for its object to provide a novel form of valve that will be positively held within the bottle neck against manual removal and will positively prevent refilling of the bottle while permitting of the free discharge of the bottle contents upon inverting the bottle.

A further object of the invention is to provide novel means for positively locking the valve within its casing so that forcing of the valve through its casing and into the bottle in order to facilitate fraudulent filling the bottle is positively prevented.

With the above objects in view the invention consists in certain novel details of construction and combination of parts herein-after fully described and claimed, it being understood that various modifications may be made in the minor details of construction within the scope of the appended claim.

In the accompanying drawing forming part of this specification:—Figure 1 is a longitudinal sectional view through a bottle neck and valve constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view through the bottle neck and valve showing the bottle in inverted position and the valve in open position. Fig. 3 is a longitudinal sectional view through the bottle neck taken on the line 3—3 Fig. 1 showing the valve casing in elevation. Fig. 4 is a detail perspective view of the valve casing. Fig. 5 is a detail perspective view of the valve.

Referring now to the drawing in which like characters of reference designate similar parts, 10 designates a bottle neck having arranged in its bore an annular inwardly projecting stop shoulder 11 this stop shoulder being formed adjacent to the body of the bottle and forming a seat for the hereinafter described valve casing. The bore of the bottle neck is further provided with an an-

nular groove 12 about in the center of the bore, this groove receiving the tips of the valve casing anchoring springs upon an attempted removal of the valve casing and frustrating the attempt. Between the groove 11, and discharge end of the bore, a frusto-conical chamber 13 is formed, this chamber permitting of the escape of the contents of the bottle through the valve casing into the discharge end of the bore as will presently be described.

Arranged in the bore of the bottle neck is a cylindrical casing 14 preferably formed of rigid material, and which adjacent to one end is provided with oppositely disposed oblong openings 14' which register with the frusto-conical chamber 13 of the bottle neck and permit of the escape of the contents of the bottle into the bore of the bottle neck. The upper end of the valve casing is closed by a rigid hollow stopper 15 having its opposite ends shaped conical, the intermediate portion of the stopper snugly fitting in the open end of the casing. The outer conical end of the stopper forms a guard which will deflect a valve removing tool toward the inner wall of the bottle neck and prevent access of the tool to the interior of the valve casing. The inner frusto-conical end of the stopper forms a seat for a helical valve controlling spring 16.

Arranged within the casing is a tubular valve seat 17 one end of which is flared and contacts with its outer periphery with the inner wall of the casing. A cork or similar tubular element 18 surrounds the valve seat and frictionally engages the inner wall of the valve casing, this cork element being equipped at an end remote from the flared end of the valve seat with a flange 19 which extends outwardly to the bore of the bottle neck, and bears upon the stop shoulder 11, this flange 19 forms a yielding stop which will cushion the shoulder 11 against shock during application of the valve casing in the bottle neck and prevent breaking off of the shoulder.

Slidably fitted within the tubular valve seat 17 is a tubular valve 20 one end of which is closed by a circular cap 21 the outer periphery of which contacts with the valve seat flange and when in this position will prevent liquid being forced under pressure through the openings in the valve casing and valve seat into the bottle. The spring

16 above mentioned bears against the valve cap and cushions the valve against shock when gravitating in the direction of the conical stopper 15 during inversion of the bottle. The valve is provided in its sides with outlet openings 22 which when the bottle is inverted and the valve moves in the direction of the stopper 15, registers with the interior of the valve casing beyond the valve seat and permits of the escape of the contents of the bottle through the openings 14' in the valve casing, the liquid thence escaping through the frusto-conical chamber 13 in the bottle neck to the discharge end of the bottle neck.

For positively preventing withdrawal of the valve casing from the bottle neck, and simultaneously preventing forcing of the valve seat through the valve casing in order to fraudulently refill the bottle, slots 23 are formed in the valve casing at diametrically opposite points thereof, and through each slot is engaged an end portion of a leaf spring 23', this end portion being bent at approximately a right angle to the main body of the spring to enter the slot, and thence being bent abruptly forwardly from the slot entering portion as shown at 24, this latter named bent portion penetrating the cork element 18 as clearly shown in Fig. 3. As above stated the flange of the valve seat contacts intimately with the inner wall of the valve casing, and upon forcing of the valve seat bodily through the valve casing in the direction of the springs 23, the flange of the valve seat will bind against the cork penetrating portions of the springs, the said penetrating portions as will be understood mutilating the cork during progress of the valve seat through the valve casing without performing their function of stops until

the flange of the valve seat has advanced up into engagement with the said cork penetrating portions. The free ends of the springs 23' as above stated will engage in the annular groove 12 formed in the bore of the bottle neck and positively prevent bodily withdrawal of the valve casing through the discharge end of the bottle neck.

What is claimed, is:—

A non-refillable bottle comprising a bottle having its neck internally provided with an annular slot, and further provided with an annular stop shoulder adjacent to said slot, a valve casing within the bore of the bottle neck seated upon said stop shoulder, a leaf spring extending externally along said casing and engageable in said annular slot whereby to prevent withdrawal of the casing, and having a portion projecting into said casing, said casing being provided with a discharge opening registering with the bore of the bottle neck, a valve seat in said casing having a flange contacting intimately with the inner wall of said casing, and engageable with that portion of said spring which projects into said casing whereby forcing of the valve seat bodily through the valve casing into the bottle is prevented, and a valve seating on said valve seat and gravitating in the direction of said cap during inversion of the bottle whereby to permit of the discharge of the contents of the bottle through said valve casing into the bore of the bottle neck.

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

DAVID G. VRADENBURGH.

Witnesses:

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