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W. L. SCHULTZ.
NON-REFILLABLE BOTTLE.
APPLICATION FILED FEB. 16, 1907.

Fig. 1

Fig. 2

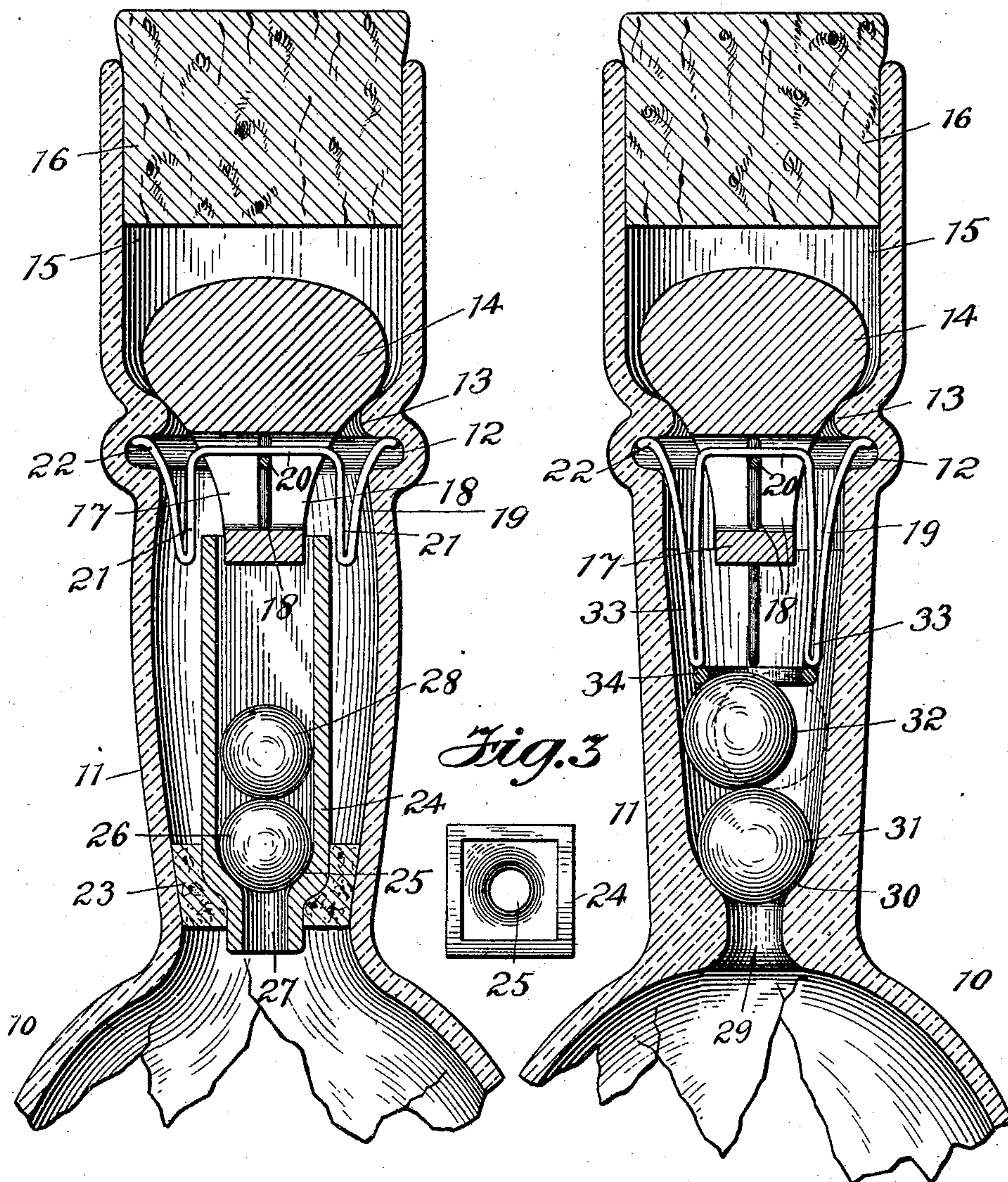
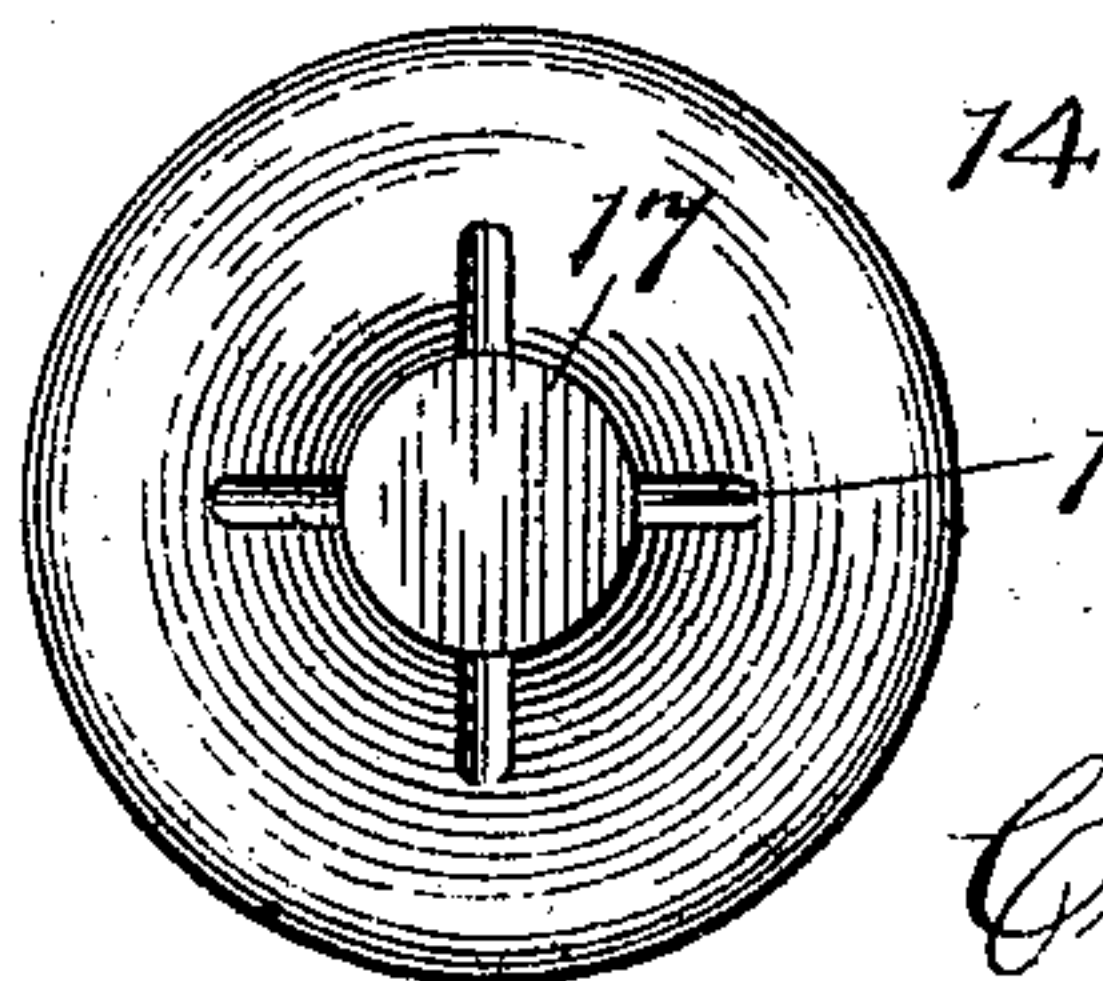


Fig. 3

Fig. 4



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NON-REFILLABLE BOTTLE.

No. 857,366.

Specification of Letters Patent.

Patented June 18, 1907.

Application filed February 16, 1907. Serial No. 357,685.

To all whom it may concern:

Be it known that I, WILLIAM L. SCHULTZ, a citizen of the United States, and a resident of New York, county and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a full, clear, and exact description.

This invention relates more particularly to non-refillable means for bottles having movable valves or devices in the bottle neck, and the main object of the invention is to provide simple and efficient means whereby the liquid may be readily poured from the bottle when filled, and in which the exit opening for the liquid in the bottle neck will be closed should an attempt be made to refill the bottle after it is either wholly or partly empty.

A further object of the invention is to provide simple and inexpensive means which may be readily applied to various forms of bottles, and which is adapted to be used in connection with bottles that contain liquid of various degrees of density.

The invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification, and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is a vertical section of the upper part of a bottle embodying one form of the invention. Fig. 2 is a view similar to Fig. 1, showing a slightly different form of means for preventing the refilling. Fig. 3 is a detail plan of a valve guide or chamber; and Fig. 4 is an inverted plan of the stopper valve or plug.

The body 10 of the bottle may have any suitable form of neck 11, and formed in the bottle neck and in the upper part thereof is a groove 12, and above the groove 12 is an inwardly-projecting rib 13, which is adapted to form a seat for a stopper-valve or plug 14.

This plug or valve 14 may be of any suitable material, and has its body portion somewhat smaller than the bottle mouth 15, and in the bottle mouth may be arranged the usual stopper 16 of cork or any other suitable material.

The valve or plug 14 has a pendent portion 17, which may be round or of any suitable form, and in which are vertical slots 18 which extend transversely of each other. In the slots 18 are arranged parts of a locking device 19, by which the said plug or stop-

per-valve 14 has a limited vertical movement in the bottle neck, so that the liquid may readily pass by the same when the valve is unseated, and by which locking device the said valve is positively held against removal from the bottle. This locking device 19 has two members 20 passing through the slots 18 and extending at right angles to each other, and each member has arms or depending parts 21 which project downward any suitable distance, and have their ends 22 bent upward and slightly turned so as to enter the groove 12 of the bottle neck. The locking device may be of spring metal wire, so that the plug 14 with its locking device may be forced past the rib 13, and when past said rib the ends 22 will spring outward into the groove 12 and rigidly hold the plug, but will permit the plug to have a limited movement outward. By this means the stopper-valve is positively held against removal, and by reason of the size and shape of the valve, a wire or other means cannot be employed to remove the locking device.

As an additional means to prevent liquid from being forced or otherwise made to enter the bottle after the same is once emptied, I provide a stopper or plug 23 of cork or other material near the body 10, and in the cork is arranged a valve guide or chamber 24. The chamber 24 may be rectangular for the greater part of its length, and near the inner portion thereof may be rounded and contracted, so as to provide a valve seat 25 for a float-valve 26, an opening 27 being arranged in the chamber, so as to communicate with the interior of the bottle. The valve 26 may be of cork, hollow glass or any other suitable material, which will readily float, and above the float-valve 26 is a heavier body or weight 28. The valve 26 and the weight 28 may be in the form of balls as shown, or any other suitable form, and by reason of the chamber 24 being rectangular, the liquid, when the bottle is in the proper position and the valve 26 away from its seat, will pass the valve 26 and weight 28. The guide 24 extends outward so that the pendent portion of the plug 14 may enter the mouth of the chamber, and the plug may extend within said chamber to any desired extent. The weight 28 serves to hold the float-valve 26 to its seat when the bottle is in its normal position, and should the plug 14 for any reason stick to its seat, the said weight may serve to en-

gage the pendent portion of the plug and unseat the same to permit the liquid to be poured.

It will be readily seen that as the bottle is tilted to pour the liquid therefrom, the liquid will pass into the chamber 24, and as the weight 28 will move toward the stopper-valve 14, the float-valve 26 will move from its seat, so as to permit the liquid to pass through the chamber 24. The tilting of the bottle will also unseat the plug 14, so that if the stopper 16 is removed the liquid may be readily poured. If, however, the bottle is restored to its normal position or substantially so, the weight 28 will force the valve 26 to its seat, and will thereby prevent any attempt to refill the bottle by forcing liquid through the bottle neck.

In Fig. 2 the guide or chamber 24 and stopper or plug 23 are dispensed with, and the valve and weight arranged so as to move directly in the bottle neck. In this case the neck has an opening 29 communicating with the body of the bottle, and above the opening 29 is a seat 30 against which is adapted to rest a float-valve 31, and above the float-valve is a weight 32. In this construction the members of the locking device have the parts 33 extended so as to project inward to a point adjacent to the weight 32. A ring 34 is secured to the parts 33 of the locking device, and serves as a guide and a lock for the weight 32, and limits the upward movement of said weight. The size of ring 34 should be such that the weight 32 cannot pass there-through, and is adapted to permit the weight to partly enter the same, so that the float-valve 31 may unseat to permit the liquid within the bottle to be poured. If the bottle is tilted only enough to let the float-valve 31 slightly unseat it may be possible under certain conditions to permit or cause very small quantities of liquid to reënter the bottle, but to prevent this the ring 34 is so arranged that the weight 32 will be guided by the ring, and limited in its movement away from the float-valve and will force and retain the float-valve to its seat as shown in Fig. 2.

From the foregoing it will be seen that simple and efficient means are provided whereby liquid of any suitable nature may be poured from a bottle, and after the bottle is empty or partly so, the said means will so act within the bottle neck as to prevent the bottle from being refilled.

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

1. The combination with a bottle having the neck thereof provided with a groove therein, of a stopper-valve arranged in the bottle neck and adapted to form a closure, a locking device having a part thereof fitting in the groove of the bottle neck and holding the valve against removal, a float-valve, a

weight arranged between the float-valve and the stopper-valve, seats for the stopper and the float valves, and means for limiting the movement of the weight.

2. In a device of the character described, the combination with a stopper-valve adapted to form a closure in the bottle neck, a locking device having a part thereof adapted to fit a groove in the bottle neck and hold the valve against removal, a float-valve, seats for the stopper and the float valves, and a weight arranged between the float-valve and the stopper-valve.

3. The combination with a bottle having a groove therein, of a stopper-valve arranged in the bottle and adapted to form a closure therein, a locking device having the ends thereof fitting the groove of the bottle and holding the valve against removal, a float-valve, seats for the stopper and the float valves, a weight arranged between the float-valve and the stopper-valve, and means for causing the weight to hold the float-valve to its seat under certain conditions.

4. In a non-refillable bottle, the combination with a bottle having an annular groove in the neck thereof, of a stopper-valve movable within the bottle neck and adapted to form a closure therein and provided with slots extending transversely thereof and at right angles to each other, a locking device comprising two members passing through the slots in the stopper-valve and having parts thereof extending inward within the bottle neck, said parts having the ends thereof projecting outward so as to enter the groove in the bottle neck thereby rigidly holding the stopper-valve from removal yet permitting it to have a limited movement, a float-valve, seats for the float and the stopper valves, a weight adapted to hold the float-valve to its seat, and means to cause the weight to hold the float-valve to its seat in certain positions of the bottle.

5. In a non-refillable bottle, the combination with a stopper-valve adapted to move within a bottle neck and form a closure therein and provided with a slot extending transversely thereof, of a locking device passing through the slot in the stopper-valve and having parts thereof extending inward, said part having the ends thereof projecting outward so as to enter a groove in the bottle neck thereby adapting it to rigidly holding the stopper-valve from removal yet permitting it to have a limited movement, a float-valve, seats for the float and the stopper valves, a weight adapted to hold the float-valve to its seat, and means adapted to cause the weight to hold the float-valve to its seat.

6. In a non-refillable bottle, the combination with a bottle having an annular groove in the neck thereof, of a stopper-valve movable within the bottle neck and adapted to

form a closure therein and provided with slots extending transversely thereof and at right angles to each other, a metallic locking device comprising two members passing through the slots in the stopper-valve and having parts thereof extending inward within the bottle neck, said parts having yielding spring ends projecting outward so as to enter the grooves in the bottle neck thereby rigidly holding the stopper-valve from removal yet permitting it to have a limited movement on the locking device, a float-valve, seats for the float and the stopper valves, a weight adapted to hold the float-valve to its seat under certain conditions, and means adapted to cause the weight to hold the float-valve to its seat.

7. In a non-refillable bottle, the combination with a bottle having an annular groove in the neck thereof, of a stopper-valve movable within the bottle neck and adapted to form a closure therein and provided with a slot extending transversely thereof, a locking device passing through the slot in the stopper-valve and having parts thereof extending inward within the bottle neck, said parts having yielding ends projecting outward so as to enter the grooves in the bottle neck thereby rigidly holding the stopper-valve from removal yet permitting it to have a limited movement on the locking device, a float-valve, seats for the float and the stopper valves, a movable weight adapted to hold the float-valve to its seat under certain

conditions, and a ring carried by the locking device and arranged adjacent to the weight and adapted to cause the weight in certain positions of the bottle to positively hold the float-valve to its seat.

8. In a non-refillable bottle, the combination with a bottle having an annular groove in the neck thereof, of a stopper-valve movable within the bottle neck and adapted to form a closure therein and provided with slots extending transversely thereof and at right angles to each other, a metallic locking device comprising two members passing through the slots in the stopper-valve and having arms or parts thereof extending inward within the bottle neck, said parts having spring ends projecting outward so as to enter the grooves in the bottle neck thereby rigidly holding the stopper-valve from removal yet permitting it to have a limited movement, a float-valve, seats for the float and the stopper valves, a movable weight adapted to hold the float-valve to its seat in certain positions of the bottle, and a ring carried by the locking device and arranged adjacent to the weight and adapted to cause the weight to hold the float-valve to its seat.

This specification signed and witnessed this 14th day of February A. D. 1907.

WILLIAM L. SCHULTZ.

Witnesses:

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