

F. LESSER.
NON-REFILLABLE BOTTLE.
APPLICATION FILED AUG. 18, 1906.

Fig. 1.

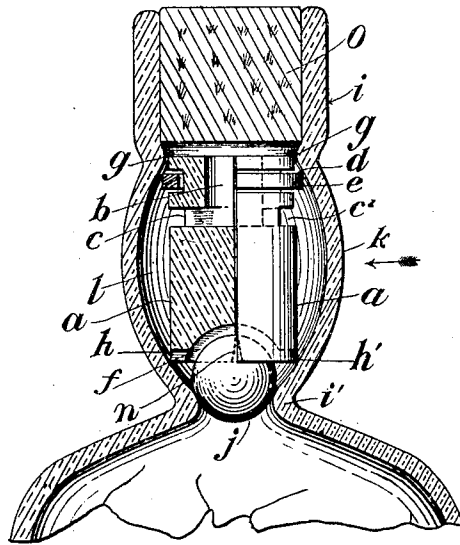


Fig. 4.

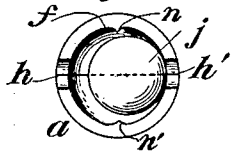


Fig. 5.

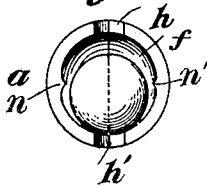


Fig. 2.

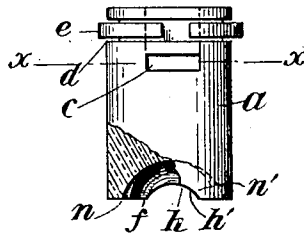
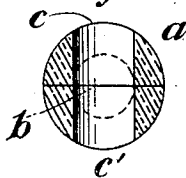


Fig. 3.



WITNESSES:

Cecil Long.
A. W. Gerking.

INVENTOR:

Felix Lesser
by J. Heister ATT'Y.

UNITED STATES PATENT OFFICE.

FELIX LESSER, OF PORTLAND, OREGON, ASSIGNOR TO LESSER MANUFACTURING COMPANY,
OF PORTLAND, OREGON, A CORPORATION OF OREGON.

NON-REFILLABLE BOTTLE.

No. 875,937.

Specification of Letters Patent.

Patented Jan. 7, 1908.

Application filed August 18, 1906. Serial No. 331,154.

To all whom it may concern:

Be it known that I, FELIX LESSER, a citizen of the United States, and a resident of Portland, county of Multnomah, and State of Oregon, have invented a new and useful Improvement in Non-Refillable Bottles, of which the following is a specification, reference being had to the accompanying drawings as constituting a part thereof.

This invention has for its object to obtain valve-like closure devices, made of glass and inexpensive to manufacture, inserted in the neck of the bottle to prevent the refilling thereof. I attain my object by the devices illustrated in the drawings, in which,

Figure 1 is a partial central section of a bottle embodying my invention, and showing my closure devices as they appear after the bottle has been filled, the left half of the protection stopper being shown in section; Fig. 2 is an elevation partly in section of the protection stopper, viewing the same as indicated by the arrow in Fig. 1; Fig. 3 is a plan section taken on a line $x-x$ of Fig. 2; and Figs. 4 and 5 are bottom views of the same in different positions.

The letters designate the parts described.

The protection stopper, a , is made of glass in cylindrical form. In its upper part it has a central vertical cavity b , and opposite lateral ports, c, c' , entering the base thereof. Near its upper end it is provided with a circumferential groove d , in which is inserted an expansion ring e , made of nickle-plated steel or other suitable resilient material, and which engages with a shoulder g , formed in the neck of the bottle and locks my closure devices irremovably in place. The base of the protection stopper has a concavity f , and semi-circular lateral ports, h, h' , in the bottom rim thereof. The neck i of the bottle is made to constitute a valve-chamber, also to provide a passage-way l , exteriorly of the protection stopper, establishing communication between the ports, c, c' , and the ports, h, h' , and thus providing for the discharge of the liquid and the simultaneous admission of air, in the act of pouring out the original contents of the bottle. The described passage-way l is conveniently obtained by making the neck portion k bulging. The base j of the neck is contracted, and together with the concavity f of the protection stopper constitutes a chamber for a

ball-valve j the contracted portion of the neck forming a valve seat.

It is apparent that in order to refill the bottle, both ports in the base of the protection stopper must be open to allow the confined air to escape and admit the liquid. The parts are however, so arranged that when holding the bottle in discharging position, the ball-valve j will roll in front of and close one or the other of the ports h, h' . This effect is obtained by providing the walls of the concavity f with ribs or protuberances n, n' . Thus, when the bottle is supported in horizontal position and the ports, h, h' , are alined in approximately a vertical plane, the ball-valve will drop on the lower port and close the same, as illustrated in Fig. 5. And if the bottle be turned approximately one quarter around, the ball-valve not being able to rest on the lower one of the protuberances n, n' will roll to one side and again close one of the ports h, h' . Said ports h, h' are made of such size that either one thereof alone will be insufficient in area to allow air and liquid to pass through simultaneously.

The bottle is filled with its liquid contents before my closure devices are inserted. After filling the ball-valve j is dropped in place and the protection stopper a is pushed down until the expansion ring e has passed and locked with the shoulder g ; thereupon the usual cork stopper o may be inserted. Upon removing the latter, the liquid contained in the bottle may be poured out by holding the latter nearly inverted. The pouring out of the original contents of the bottle is not interfered with, the pressure of the outflowing liquid driving the ball-valve into the concavity f and thus uncovering both ports h, h' .

The impossibility of refilling the bottle while in upright position or inverted is self evident. If an attempt be made to refill the bottle while laid on its side and immersed half way down in the liquid, to cause the latter to flow in below, and the air to escape above through the communicating openings, the ball-valve would close the lower of the ports h, h' , and thus compel the inflowing liquid to seek admission through the remaining uncovered port, in doing which such inflowing liquid would encounter the opposition of the air confined in the body of the bottle. It is also apparent how my devices

would frustrate any attempt to displace the ball-valve by inserting an instrument through the neck of the bottle.

For convenience of manufacture, the protection-stopper is best made in two halves or parts, *a, a* as shown in Fig. 1.

I claim:

1. The combination of a bottle, having a neck constituting a valve-chamber, the walls thereof made bulging and contracted at the base to provide a valve seat, a protection-stopper therein, comprising a cylindrical body having in its upper-end a central vertical cavity and lateral ports entering the base thereof, and in its lower-end a concavity and lateral ports therefrom into the valve chamber, a ball-valve in said lower-end concavity, and means adapted to irremovably lock the protection-stopper in place.

2. The combination of a bottle having a neck constituting a valve-chamber, the walls thereof made bulging and contracted at the base to provide a valve seat, a protection-stopper therein, comprising a cylindrical body having in its upper-end a central vertical cavity and lateral ports entering the base thereof, and in its lower-end a concavity and two lateral ports therefrom into the valve-chamber, a ball-valve in said concavity, protuberances on the walls of the latter arranged to cause the ball-valve to roll in front of and close one of said ports, when the bottle is held in approximately horizontal position, and means adapted to irremovably lock the protection-stopper in place.

3. The combination of a bottle having a neck constituting a valve-chamber, the walls

thereof made bulging and contracted at the base to provide a valve-seat, a shoulder near the top of the valve-chamber, a protection-stopper comprising a cylindrical body, the upper-end of which is made with a circumferential groove and a central vertical cavity having lateral ports entering the base thereof, and the lower-end of said stopper being made with a concavity having two lateral ports therefrom into the valve-chamber, a ball-valve in said concavity, protuberances on the walls of the latter arranged to cause the ball-valve to roll in front of and close one of said ports when the bottle is held in approximately horizontal position, and an expanding member in said circumferential groove of the protection-stopper, locking with said shoulder of the neck.

4. A protection-stopper for a non-refillable bottle comprising a cylindrical glass body, the upper-end of which is made with a circumferential groove to receive a locking member, and a vertical cavity having lateral ports entering the base thereof, and the lower-end of said protection-stopper being made with a concavity to receive a ball-valve, and having two lateral ports, and protuberances on the walls of said concavity, arranged to cause the ball-valve therein contained to roll in front of and close one of said ports when the bottle containing the closure devices is held in approximately horizontal position.

FELIX LESSER.

In the presence of—
CECIL LONG,
Z. J. GEISLER.