(No Model.)

L. N. RALPH.

NON-REFILLABLE BOTTLE.

No. 585,965. Patented July 6, 1897.

Fig. 2.

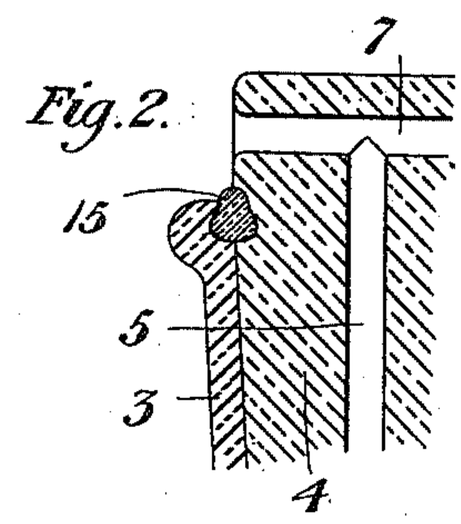

Fig. 1.

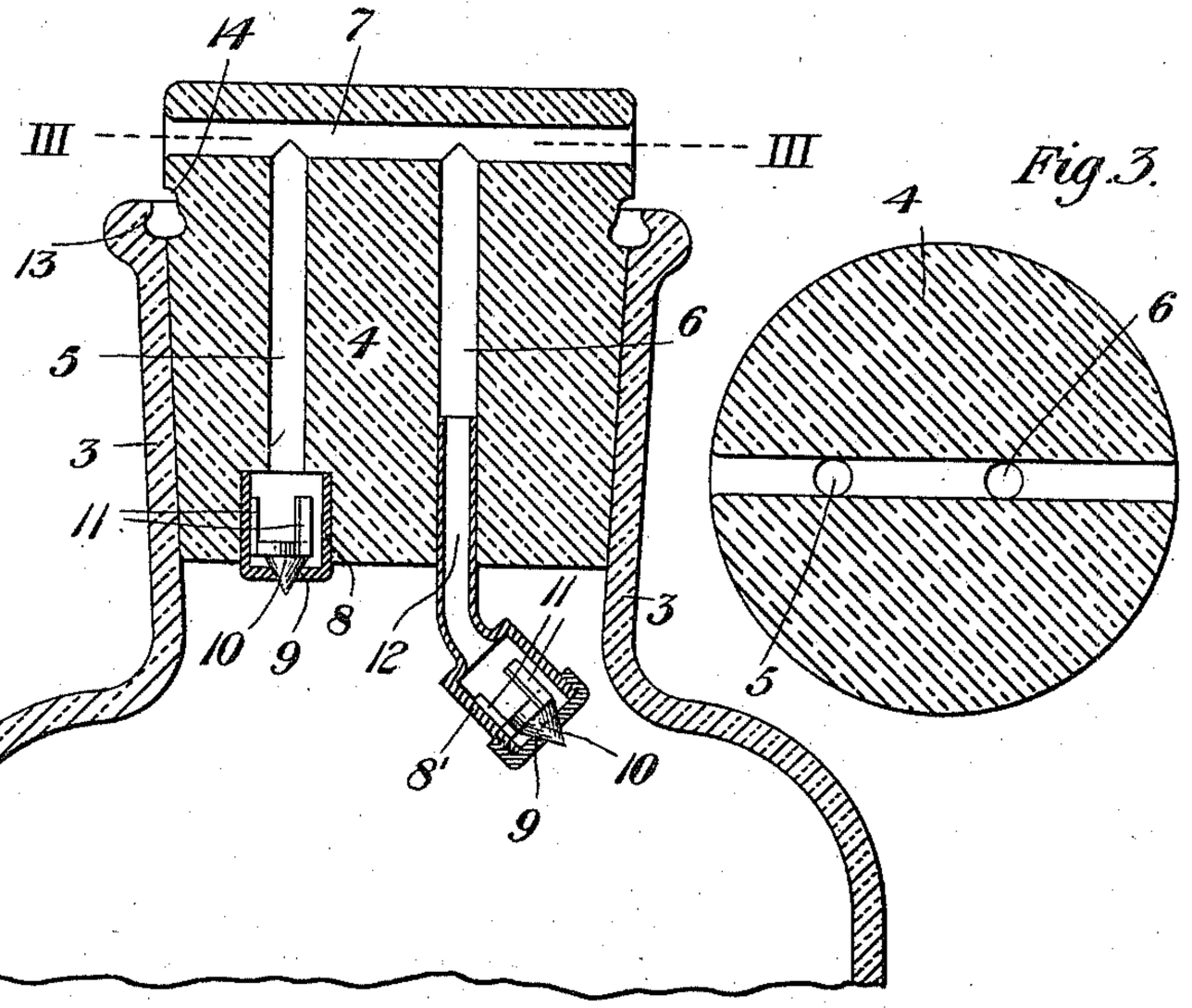

Fig. 3.

Fig. 6

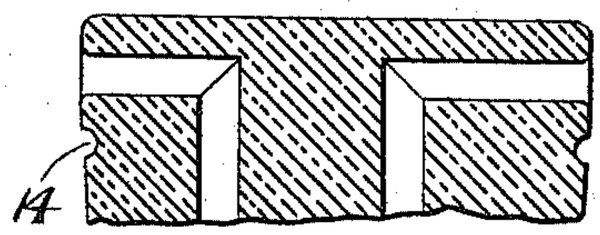

Fig. 5.

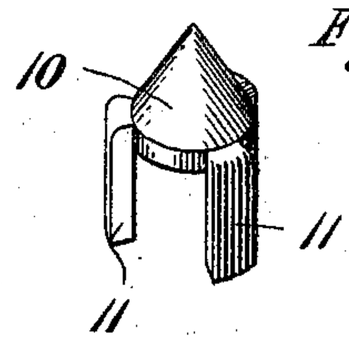

Fig. 4.

Fig. 7.

Witnesses:
Peter J. Edwards.
Frank S. Heisley.

Inventor:
Linton N. Ralph
by O. M. Clarke
Atty.

UNITED STATES PATENT OFFICE.

LINTON N. RALPH, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO FRANK S. HEISLEY, OF SAME PLACE.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 585,965, dated July 6, 1897.

Application filed November 12, 1896. Serial No. 611,913. (No model.)

To all whom it may concern:

Be it known that I, LINTON N. RALPH, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a new and useful Improvement in Non-Refillable Bottles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this application, in which—

Figure 1 is a vertical sectional view of a bottle neck and stopper made in accordance with my invention. Fig. 2 is a detail sectional view showing the manner of hermetically sealing the stopper and neck. Fig. 3 is a cross-section on the line III III of Fig. 2. Fig. 4 is a view similar to Fig. 1, showing the bottle tipped and in the act of pouring. Fig. 5 is a perspective detail view of one of the valves. Fig. 6 is a sectional detail view illustrating a modification. Fig. 7 is a sectional detail view showing a different construction of valve.

My invention consists of an improvement in bottles and stoppers therefor provided with a novel arrangement of valves arranged to open and allow the contents of the bottle to escape and to close against the entrance of fluid, thereby preventing the bottle from being refilled.

It also consists of a special arrangement of ports whereby the insertion of an instrument or any device to disarrange the valves is prevented, together with means whereby the stopper is seated within the neck against removal.

Referring now to the drawings, 2 represents the body of the bottle, provided with the usual neck 3.

4 is a stopper, preferably made of glass, provided with the two vertical ports 5 6, the port 5 being enlarged at its bottom to receive the valve and the port 6 extending with a uniform diameter to the bottom. A cross-port 7 extends laterally from side to side of the stopper at its top, with which cross-port the vertical ports communicate.

8 8′ are valve-casings provided with valve-seats 9 and check-valves 10, having suitable guide-wings 11, by which the valve is held in alinement with the seat. The valve-casing 8 is made in one piece and inserted within the opening at the base of the port 5, whereas the casing 8′ is provided with a neck 12, inserted within the port 6, preferably bent out of alinement with the center of the valve-casing, so that it will assume a more nearly vertical position when the bottle is tipped, as clearly shown in Fig. 4.

It is designed that my improved stopper is to be inserted in the neck of the bottle after the same has been filled and tightly sealed therein. For this purpose annular grooves 13 14 are made in the upper inside of the neck and around the stopper in such a position that when the stopper is inserted the grooves will be in register with each other, and the seal may be accomplished by fusing with a blow-pipe a thread of glass 15 in the cavity formed by the meeting grooves, thereby hermetically sealing the stopper and bottle-neck and effectually preventing the removal of the stopper.

In Fig. 7 I have shown a gate-valve 10′, hinged to the inside of the casing at 16, adapted to close upon the valve-seat 9′, and the advantage of such construction consists in the ease of operation and absence of liability to stick or become lodged within the casing, as is sometimes possible with a check-valve, however well made. If desired, this construction of gate-valve may be used in one or both of the casings 8 or 8′.

After having been filled and sealed the contents may be emptied from the bottle by tipping it into the position shown in Fig. 4, the valves falling by gravity from their seats, allowing the liquid to pass outwardly through the valve-casing 8 and through ports 5 and 7, as indicated by arrows *a*, while air will pass in through ports 7 and 6 and valve-casing 8′, as indicated by arrows *b*. The purpose of the cross-port 7 is to give a common opening for the ports 5 and 6 and to prevent access to the valves from the outside.

It is not necessary that the port 7 shall extend clear through, and it may reach in from each side to the ports 5 and 6, if desired, as shown in Fig. 6.

It is obvious that other methods of sealing the stopper within the neck may be employed, as, for instance, a cement may be used, and I do not desire to be confined to the method

of sealing shown and described, but to employ any other desirable means.

Having described my invention, what I claim is—

1. In a bottle, a stopper provided with a perforating cross-port, separate vertical ports leading downwardly therefrom, a gravity check-valve inserted in an enlargement of one of the vertical ports, and a gravity check-valve having the neck of its casing inserted in the other vertical port, substantially as set forth.

2. In a bottle-stopper provided with a perforating cross-port, separate vertical ports leading downwardly therefrom, and a gravity check-valve inserted in an enlargement of one of the vertical ports; a gravity-check air-inlet port having a deflected neck inserted within the other port, substantially as set forth.

In testimony whereof I have hereunto set my hand this 3d day of October, 1896.

LINTON N. RALPH.

Witnesses:

PETER J. EDWARDS,

C. M. CLARKE.