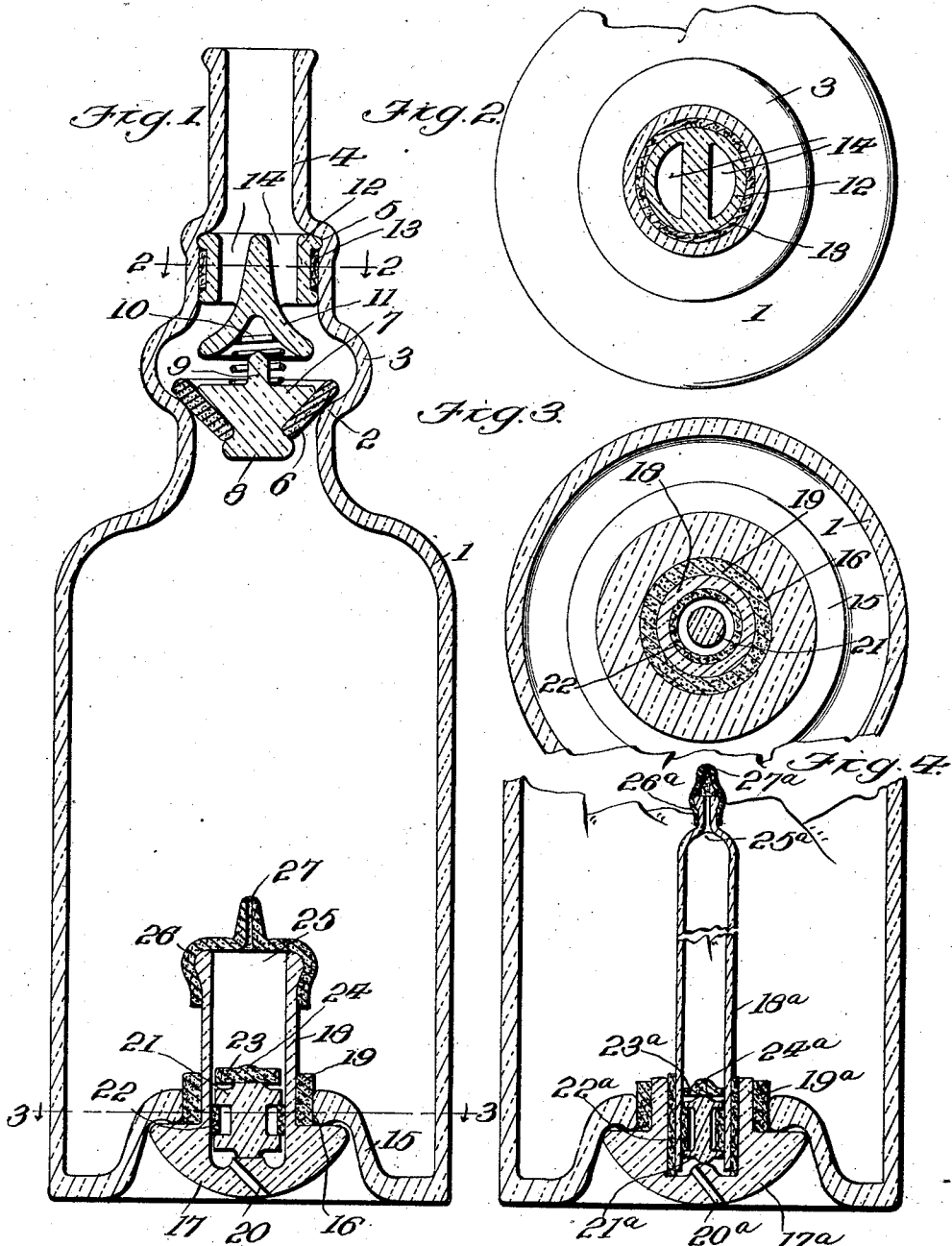


L. J. LOEFFELMAN.
NON-REFILLABLE BOTTLE.
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UNITED STATES PATENT OFFICE.

LEO J. LOEFFELMAN, OF ST. LOUIS, MISSOURI.

NON-REFILLABLE BOTTLE.

986,838.

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To all whom it may concern:

Be it known that I, LEO J. LOEFFELMAN, subject of the Emperor of Austria-Hungary, residing at St. Louis, State of Missouri, have
5 invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention has for its object a simple, durable and efficient construction of
10 non-refillable bottle, the parts of which are so arranged that the bottle may be easily filled with its original contents, and may be easily emptied, while at the same time the construction and arrangement of parts will
15 prevent the refilling of the bottle.

With this and other objects in view as will more fully appear as the description proceeds, the invention consists essentially in a bottle of this character provided with
20 an improved construction of valve and an improved arrangement of parts, whereby, as the bottle is tilted to pour out its contents, air will be positively forced into the body of the bottle so as to permit the liquid to
25 flow easily out and unseat the valve. And the invention also consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a longitudinal sectional view
35 of a bottle constructed in accordance with my invention; Fig. 2 is a perspective sectional view thereof, the section being taken on the line 2—2 of Fig. 1; Fig. 3 is a similar view on the line 3—3 of Fig. 1; and, Fig. 4
40 is a vertical longitudinal section illustrating a modification.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same
45 reference characters.

Referring to the drawing, the numeral 1 designates the body portion of a bottle which may be of any size or design and which is provided with a neck formed with an outwardly facing shoulder 2, an outwardly
50 bulged portion 3 above said shoulder, and a nozzle 4. At the base of the nozzle 4, the bottle is formed with an inwardly facing annular shoulder 5.

6 designates a valve seat which is preferably constructed out of a rubber ring of in-

verted truncated cone form, the said valve seat being adapted to rest on the shoulder 2, the outer or upper edge of the ring being of larger diameter than the shoulder, as
60 clearly illustrated in the drawing. A valve 7 of porcelain, glass or the like is adapted to rest on the valve 6, being shaped to conform to the interior surface of the valve seat and being preferably formed with a
65 bulged lower end 8 which is designed to project through the valve seat so as to assist in holding the valve in place except when it is unseated by the weight of the contents of the body portion of the bottle. 70
The valve seat 7 is also formed with a nipple 9 which projects upwardly, as shown, and it is designed to hold the lower end of an expansion spring 10 which is interposed between the valve 7 and the inverted cup-
75 shaped lower extension 11 of a baffle crown 12. The body portion of the baffle crown 12 is cylindrical, as shown, and is encircled by a packing 13 of rubber, cork or the like, the said body portion of the crown being there-
80 by held securely within the neck of the bottle and against the inwardly facing shoulder 5 thereof and being formed with outlet openings 14 which are two in number in the present instance. The flared lower ex-
85 tension of the crown manifestly serves as a deflector, so as to preclude the possibility of reaching the valve by inserting a wire or tool of any character down into the nozzle 4.

The bottom of the bottle is provided with a centrally disposed raised portion 15 in which an opening 16 is formed, said opening 16 being of sufficient diameter to admit the
90 passage therethrough of the valve 8 with its encircling valve seat 6 and the baffle crown 12. The opening 16 is filled with a stopper 17 which is preferably rounded on its lower surface so as to present no angles
95 whereby it may be grasped and withdrawn, said stopper in the embodiment of the invention illustrated in Fig. 1 being formed with an upwardly extending tube 18 which projects into the interior of the body portion 1,
100 a packing 19 of rubber, cork or the like encircling the tube and engaging the walls of the opening 16, whereby to securely hold the stopper in place. This stopper 17 is formed with an air inlet opening 20 and it contains a piston 21 of glass, porcelain or
105 similar substance which is provided with a packing ring 22 and which is designed to

fit tightly and yet move freely within the tube 15. Above the piston 21 is a preferably rubber disk or plug 23 which is preferably formed on its upper surface with a centrally disposed protuberance 24. So far as the upper end 25 of the tube 18 is concerned it is open; but it is normally closed by means of a nipple 26 of rubber or the like which is fitted thereover as clearly illustrated in the drawing and which is provided with a contracted outlet opening 27, the rubber normally holding this opening 27 closed, but yielding when air is forced upwardly in the tube 18 by the relatively upward movement of the piston 21.

From the foregoing description in connection with the accompanying drawing, it will be understood that any form of cork or other stopper may be inserted in the nozzle 4 and the bottle may then be filled with its contents, but only after the parts before described have been applied thereto. Before the bottle has been filled, the baffle crown is thrust through the opening 16 and worked up into the neck of the bottle so as to be securely held therein against the inwardly facing shoulder 5 thereof. The valve 7 is then applied, together with its valve seat, the parts being held together in this operation owing to the fact that the valve has the bulged lower extension 8 before mentioned. After the valve seat and its valve have been thrust up through the neck, the upper edge of the valve seat will manifestly spring out over the upwardly facing shoulder 2 so as to securely hold the valve seat in place with the valve in closed position thereon. The stopper 17 is then applied, and the packing 19 will then securely hold this part in place. In the operation of pouring out the contents of the bottle, the bottle is tilted for this purpose. The weight of the contents of the bottle has not enough tendency to unseat the valve 7 against the tension of the spring 10 without any pressure from the inside of the bottle, the spring 10 being stronger than the weight of the valve 7 and tending to hold the same against the shoulder 2 at all times. For this reason I provide the piston 21 in the tube 8. This piston 21 moving toward the open end 25 of the tube 18, will force air from the tube into the body of the bottle, giving the necessary pressure to unseat the valve 7. The contracted opening in the nipple 26 will, of course, permit the air to pass from the tube 18 into the body of the bottle, while at the same time the plug 23, with its protuberance 24, will fit up into the nipple and close the opening 25, should an attempt be made to force liquid through the opening 20 and by this way attempt to fraudulently fill the bottle.

It is to be understood that my invention is not limited to the exact arrangement and proportions of the parts hereinbefore de-

scribed and illustrated in Figs. 1 to 3, but that various modifications may be made without departing from the scope of the invention as defined in the appended claims, and for example reference is to be had to Fig. 4, wherein the body portion and valve structure of the bottle are the same as the body portion and valve structure illustrated in Fig. 1, but the tube 18^a is not an integral part of the stopper 17^a, but is separate therefrom and is secured in a recess in the stopper by packing of any desired character. In this modification also the tube 18^a is more elongated than the tube 18 before described, and the opening 25 is formed by a somewhat elongated neck 25^a formed on the upper end of the tube. The nipple 26^a, with its contracted opening 27^a, is like the nipple first specified, as are also the air inlet opening 20^a, the piston 21^a with its packing 22^a, and the plug 23^a with its protuberance 24^a. As the operation of this modification is exactly like the operation in that embodiment of the invention first set forth, no further description is deemed necessary.

It is obvious that the crown 12 may, if desired, be positioned in the neck of the bottle through the mouth or top thereof, or may be formed therein in the manufacture of the bottle.

Having thus described the invention, what is claimed as new is:

1. A non-refillable bottle provided in its neck with an interior valve seat, a valve arranged to be held on said seat, the body portion of the bottle being formed in its bottom with an opening, a stopper fitting in said opening, a tube extending into the body portion of the bottle from said stopper, the stopper being formed with an air opening leading into the tube, and a piston mounted in the tube and arranged to positively force air from the tube into the body portion of the bottle when the latter is tilted to pour out its contents.

2. A non-refillable bottle provided with an interior valve seat, a valve arranged to be held on said seat, the body portion of the bottle being formed in its bottom with an opening, a stopper fitting in said opening, a tube leading into the body portion of the bottle from said stopper, a nipple closing the upper end of the tube and formed with a contractile opening, the stopper being formed with an opening leading into the tube, and a piston mounted to move freely in the tube between the opening and its nipple, for the purpose specified.

3. A non-refillable bottle provided with an interior valve seat, a valve arranged to be held on said seat, the body portion of the bottle being formed in its bottom with an opening, a stopper fitting in said opening, a tube leading into the body portion of the bottle from said bottle, the stopper being

formed with an air inlet opening leading into the tube, a nipple closing the upper end of the tube and formed with a contractile opening, a piston movable in the tube, and a plug interposed between the piston and the nipple for the purpose specified.

4. A non-refillable bottle provided with an interior valve seat, a valve arranged to be held on said seat, the body portion of the bottle being formed in its bottom with an opening, a stopper fitting in said opening, a tube leading into the body portion of the bottle from said bottle, the stopper being formed with an air inlet opening leading

into the tube, a nipple closing the upper end of the tube and formed with a contractile opening, a piston movable in the tube, and a plug interposed between the piston and the nipple, said plug being formed with a protuberance adapted to close the contractile opening of the nipple.

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

LEO J. LOEFFELMAN. [L. s.]

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
