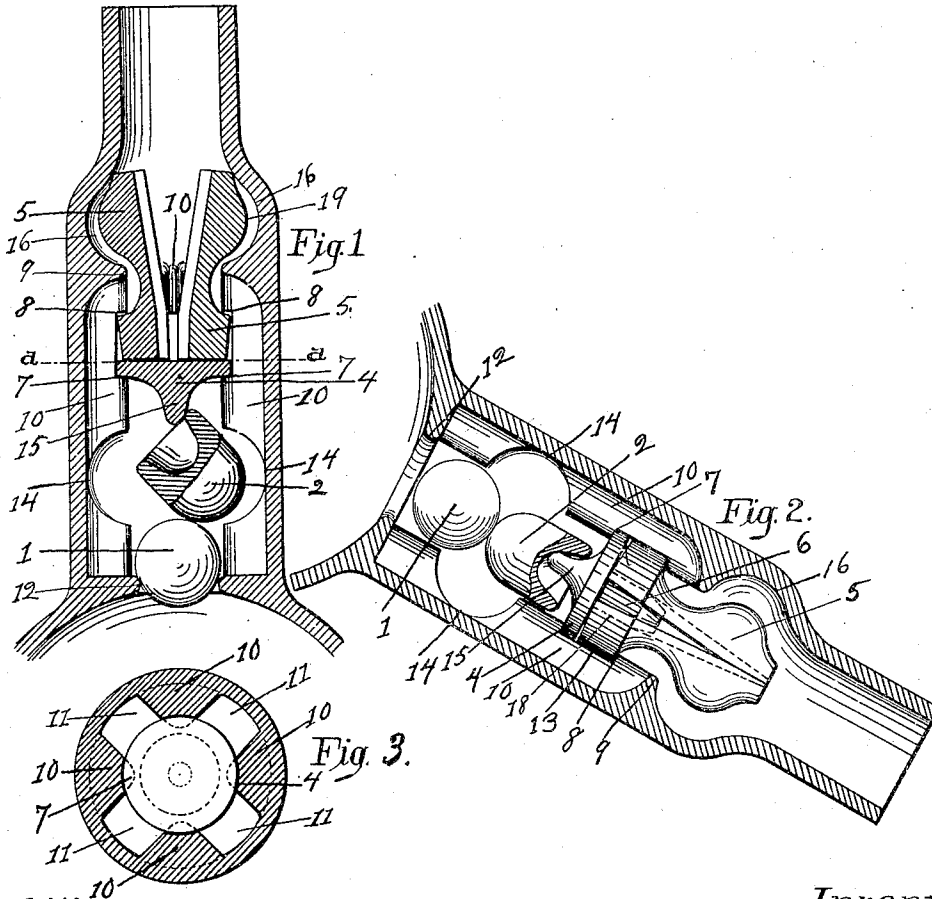


J. BJORKLUND.
NON-REFILLABLE BOTTLE.
APPLICATION FILED JAN. 8, 1909.

946,954.

Patented Jan. 18, 1910.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN BJORKLUND, OF HARTFORD, CONNECTICUT.

NON-REFILLABLE BOTTLE.

946,954.

Specification of Letters Patent.

Patented Jan. 18, 1910.

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To all whom it may concern:

Be it known that I, JOHN BJORKLUND, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

The object of my invention is to provide a device of the class specified which has features of novelty and advantage.

Figure 1 is a vertical sectional view of the neck of the bottle, containing the improvement, on the line of the bottle's diameter. Fig. 2 is a similar view of the bottle inverted. Fig. 3 is a sectional view of the bottle on the line *a a*.

Near the top of the neck of the bottle at —16— is an annular recess. At the point —9— is an annular collar, extending downward from which are series of alternate ridges —10— and the grooves —11— preferably four of each. These ridges project from the inner surface of the neck of the bottle, and are shown in Fig. 3. They are partly cut away at —13— forming the shoulders 7 and 8. There are also cut into these ridges circular recesses —14—. At the lower end of the neck of the bottle is situated the valve seat —12—. When the bottle is in its upright position as shown in Fig. 1, the ball —1— lies in the valve seat —12—, effectually closing the aperture and preventing any liquid from being forced into said bottle below said valve seat. The cup —2— rests upon the ball —1— and helps retain the ball in its place in the valve seat.

After the ball —1— and the cup —2— are placed in the positions as shown in Fig. 1, the plate —4— is then inserted in the bottle and pressed down to a horizontal position resting on the shoulders —7—. The plate —4— may have a plane lower surface or may have a boss —15— projecting therefrom. Above the plate —4— is a stopper —5— which is next inserted in the bottle. It is composed of two parts of semi-circular shape and, when inserted in the bottle, these two parts are placed in the position shown in Fig. 1 with their shoulders underneath the shoulders —8—. In the lower end of the two parts of the said stopper are recesses in-

dicated by the line —18—. When the stopper is first inserted as stated it is in the position shown in Fig. 1 with the semi-annular ridges —19— in the recesses —16— and the two parts of the stopper separated at its upper end. A wedge —6— is then inserted in this opening between the two parts of the stopper and is driven down to the plate —4—. The insertion of this wedge forces the two lower ends of the two parts of the stopper into the recesses —13— and causes the upper end of the parts of the stopper to come firmly together. It is apparent that the stopper cannot now be removed without breaking the bottle.

When the bottle is inverted, as shown in Fig. 2, the cup —2— slides into the position shown in that figure allowing the valve —1— to withdraw from the valve seat, thus permitting the liquid to issue from the bottle through the passages —11—. When the bottle is again turned toward its vertical position the cup in Fig. —2— will dip into one of the recesses —14— as soon as the bottle approaches a horizontal position and force the bottle —1—, into the valve seat. It is aided in this respect by the boss —15—, along the inclined surface of which the rim of the cup moves and it is forced thereby against ball —1—, thus making said valve doubly effective.

In most so called non-refillable bottles when the bottle is in a vertical position, by shaking the same vertically the valve can be released so as to allow the bottle to be refilled. In my device the valve cannot be moved while in a vertical position as the cup —2— drops into the recesses —14— in such a way as to prevent the valve from being moved by shaking the bottle.

Claims.

1. In a non-refillable bottle, a valve seat, a valve in the neck thereof, a cup normally above said valve adapted to hold said valve in its valve seat, and to release said valve when bottle is inverted, a wedge above said cup, a stopper composed of two parts adapted to receive said wedge.

2. In a non-refillable bottle, ridges on the inner surface of the neck thereof, a valve seat and valve in said neck, a cup normally above said valve adapted to force said valve into said valve seat, a plate above said cup,

and a stopper; means for permanently binding said stopper in said neck substantially as described.

3. In a non-refillable bottle, a valve seat and a valve in the neck thereof, longitudinal ridges on the inner surface of said neck, recesses in said ridges, a cup above said valve adapted to enter said recesses, when the bottle approaches a horizontal position, and to force said valve into valve seat, a plate having a boss on its lower surface, a stopper above said plate adapted to be inserted into and held in position substantially in the manner described.

4. In a non-refillable bottle, a valve seat, a valve in the neck thereof, a cup adapted to release said valve and to bind it in its valve

seat, recesses in the neck of the bottle which contain the cup in its binding position and a stopper at some distance above said valve.

5. In a non-refillable bottle, a valve seat and a valve in the neck thereof, a cup adapted to release said valve and to bind it in its valve seat, recesses in the neck of the bottle which contain the cup in its binding position, a plate having a boss on its lower surface, a stopper above said plate held permanently in position.

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

JOHN BJORKLUND.

Witnesses.

VICTOR BJORKLUND,
ANNA A. BOLGER.