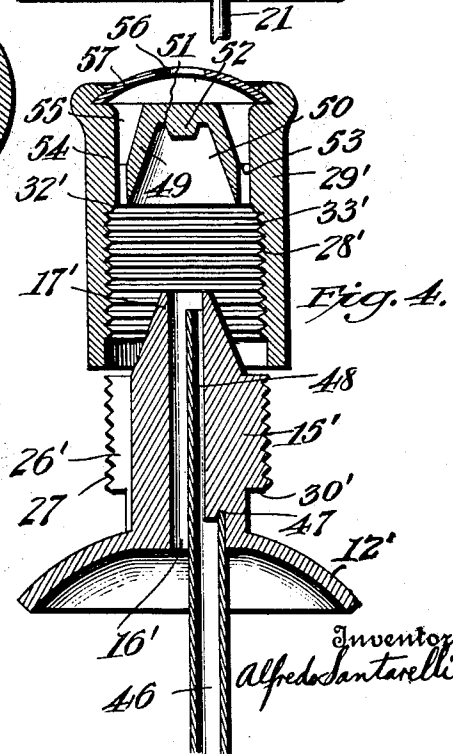
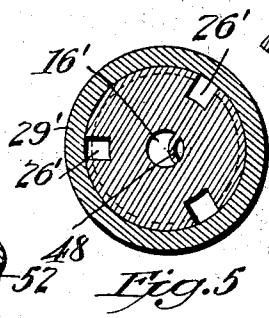
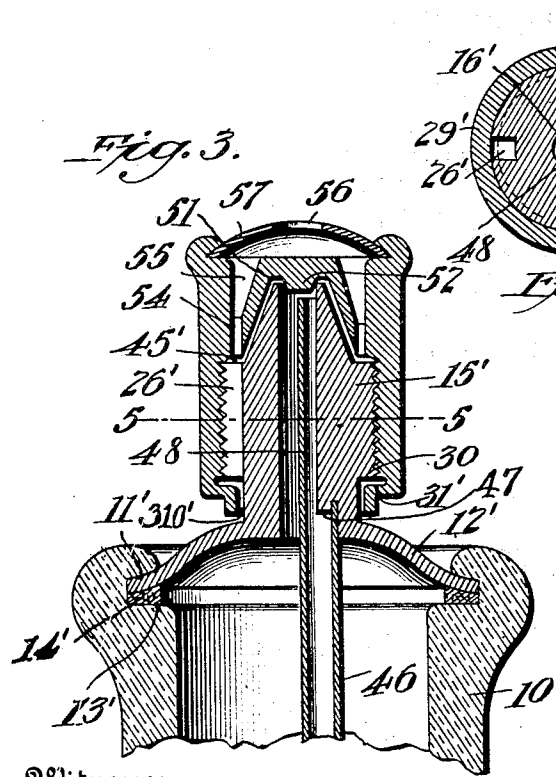
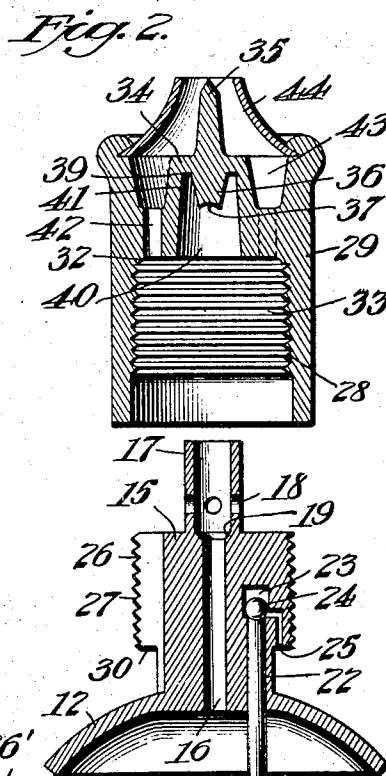
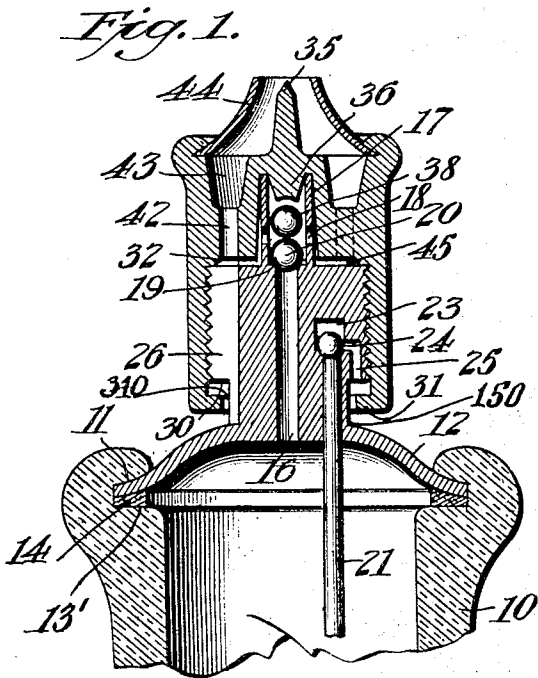


A. SANTARELLI.  
NON-REFILLABLE BOTTLE.  
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1,096,318.

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Witnesses  
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# UNITED STATES PATENT OFFICE.

ALFREDO SANTARELLI, OF NEW YORK, N. Y.

## NON-REFILLABLE BOTTLE.

1,096,318.

Specification of Letters Patent.

Patented May 12, 1914.

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*To all whom it may concern:*

Be it known that I, ALFREDO SANTARELLI, a subject of the King of Italy, and resident of New York, New York county, State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to non-refillable bottles and more particularly to a spout suitable for bottles for dispensing perfumery, toilet waters, etc., and which will tend to prevent the refilling of such bottles.

One of the objects of the invention is to provide an inexpensive and reliable stopper for use on such bottles and one which may be readily fitted in position in the neck of the bottle and permanently secured therein.

Other objects and the novel features of the invention will be apparent from the following description taken in connection with the drawing, in which,

Figure 1 is a vertical sectional view of the stopper and so much of the neck of a bottle as is necessary to show the application of the stopper thereto; Fig. 2 is a sectional view of the stopper showing the cap and supporting body portion of the same separated; Fig. 3 is a vertical sectional view of another stopper embodying my invention; Fig. 4 is a sectional view showing the parts of the stopper illustrated in Fig. 3 separated, and Fig. 5 is a cross sectional view along the line 5—5 of Fig. 3.

Referring to Figs. 1 and 2 of the drawing, 10 designates the neck of a bottle for perfumery and the like which has at its upper end and near the mouth of the bottle an internal groove 11 into which the dished portion 12 of the cap supporting member is sprung. The dished part 12 is made of resilient metal and is formed integral with the lower end of a cap supporting body 15 which has a central longitudinal discharge passageway 16 opening into a tubular portion 17 at the upper end of the body portion 15. The internal groove 11 is so formed as to provide a shoulder 13 to support an annular disk 14 of cork or similar material which will swell or expand when damp or moistened and clamp the edge of the dished portion 12, which rests thereon, against the top wall of the groove 11 when the edge of the part 12 is sprung in place. The tubular part 17 on the body 15 has a series of circular discharge openings 18 near its attached end and a seat 19 is provided

at the end of the passageway 16 adjacent the tube 17 for the ball valve 20 which closes the said passageway 16 when the bottle is in an upright or nearly upright position. A vent tube 21 is attached to the body portion 15 and extends into the neck of the bottle and below the groove 11. The tube 21 also fits in a passageway 22 in the body portion 15 which opens into a valve chamber 23 within which there is a ball valve 24 controlling the passageway 22, and closing the communication between the tube 21 and chamber 23 when the bottle is in a nearly upright or upright position, but when the bottle is inverted or tilted, in pouring out the contents, the valve will unseat and permit air from the outside to enter the bottle through a restricted duct which communicates with the valve chamber 23 and has an opening to the atmosphere in the shoulder 30. The valve 24 may be inserted in the chamber 23 in any suitable manner, as for instance, by casting it therein or by inserting it through an opening cut through the wall of the chamber from the outer side, which opening may afterward be sealed or plugged. The body portion 15 is provided with a series of longitudinal grooves 26 in its outer surface which extend across threads 27 formed on part of the outer surface of the body 15 beginning at the upper edge thereof to receive similar internal threads 28 on the cylindrical cap portion 29. The cap 29 is so constructed that when the parts are screwed together the lower edge of the cap 29 may be spun under the shoulder 30 of its supporting body 15 and form a flange 31 to lock the parts together, as shown in Fig. 1. The inner edge of the flange 31 does not quite touch the reduced section 150 of the body, thus leaving an annular opening 310 for the escape of fluid and entrance of air. The flange 31 conveniently prevents the detachment of the cap but allows a slight vertical adjustment of the same. The downward movement of the cap is limited by the threads 27 and upper edge of the body portion which engage the shoulder 32 at the top of the cylindrical cavity 33 in the cap. A transverse wall 34 is formed intermediate the ends and on the interior of the cylindrical cap 29, the cavity being below the wall. At its opposite sides the wall 34 is provided with the projections 35 and 36. Both projections are tapering in form and the projection 36 extends into the cham-

ber 40 and has a concave seat 37 to support a second ball 38 which fits within the tube 17. When the bottle is upright or nearly so the ball valve 20 supports the ball 38, and additional weight is thereby provided to seat the valve 20. When the bottle is inverted the ball 38 slides down the tube a short distance and seats in the concavity 37 and will support the ball 20. The two balls within the tubular portion 17 thus provide a valve which will wear less than a single ball valve, as the point of engagement between the two balls will shift slightly and prevent the continuous wear at any one point. The projections 35 and 36 are formed on the central boss 39 of the wall 34 and the tubular part 17 of the body portion fits in the chamber 40 formed in the said boss 39 and extends into the annular recess 41 between the projection 36 and the inner wall of the chamber 40, which latter communicates with the cavity 33. Apertures 42, three in the present instance, extend through the wall 34 near the wall of the cylindrical cap 29 and provide passageways for the liquid which may flow therethrough in either dispensing or attempting to refill, as will appear later. The openings 42 connect the cavity 33 with a flaring annular passageway or gutter 43, on the opposite side of the wall 34, which gutter communicates with a funnel-shaped spout 44 securely set in the groove in the mouth of the cylindrical part 29. The projection 35 extends into the funnel-shaped spout 34 and will prevent the insertion of any appliance such as a syringe to refill the bottle. The openings 42 in the transverse wall 34 may or may not register with the grooves 26 in the body part 15. An attempt to refill the bottle by pouring liquid into the mouth of the spout 44 will fail because the liquid will flow into the annular gutter 43, through the openings 42 into a chamber 45 between the inner end of the body part 15 and the wall 34, downwardly through the grooves or channels 26 and out of the cap through the annular opening 310. It will thus be seen that this construction tends to prevent the refilling of the bottle.

The stopper illustrated in Figs. 3, 4 and 5 is in many respects similar to the one just described, the views merely showing another embodiment of my invention. The dished part 12' is set in the internal groove 11' in the neck 10' of the bottle in the same manner as shown in Fig. 1, by the use of the annular expansible cork washer 14' which is supported by the shoulder 13'. The dished portion 12' is of resilient material and formed integral with the lower end of the body 15' which has the central discharge passageway 16' extending longitudinally therethrough. At the upper end of the body portion 15' and formed integral

therewith there is a tapering tubular part 17'. The body portion 15' is formed of two integral parts of different diameter as in the construction shown in Figs. 1 and 2 and are joined by the shoulder 30'. The portion having the larger diameter has the transverse grooves 26' extending across the threads 27' thereon. The threads 27' are formed to take the threads 28' on the interior of the cavity 33' in the cylindrical cap portion 29' and when the parts are screwed together the upper edge of the body 15' abuts against the shoulder 32' and limits the further movement of the parts together, leaving a cavity 45' between the two parts. The lower end of the cylindrical cap is of suitable soft metal and is bent inwardly in any suitable manner to form the flange 31' which abuts against the shoulder 30' and limits the movement of the cap in the opposite direction and prevents the separation of the cap and body part of the stopper. An annular opening 310' is left between the inner face of flange 31' and the body 15', to permit the passage of liquid through the cap from the grooves 26'. There are no valves in the construction shown in Figs. 3, 4, and 5 and no valve seats. An air vent is provided by the tube 46 which extends down into the neck of the bottle and at its upper end is attached to the body 15' at the shoulder 47. The rest of the grooved wall 48 of the tube extends upwardly into the passageway 16' and terminates near the upper end thereof. The tube forms a passageway for the air which may enter the bottle, when the same is inverted, through one of the grooves 26', cavity 45', into the tube 17' and down the tube 46. There is a transverse wall between the ends of the cylindrical cap member 29' which has the tapering portion or boss 49 forming a tapering cavity 50 to receive the tapering tubular member 17' on the upper end of the body part 15'. An annular seat 51 is formed at the bottom of the cavity 50 by the central projection 52 which fits into the central opening in the tubular part 17' whereby the annular seat 51 receives the end of the tubular portion 17' and centers the body 15' therein. The wall also has a narrow annular portion 53 at its attached edge which has openings 54 therethrough to permit the discharge of the liquid from the bottle into the flaring annular passage or gutter 55. From the gutter 55 the liquid may flow through the opening 56 in the cap 57, which latter is secured in a recess in the mouth of the cylindrical cap part 29'. It will be clear that when the parts shown in Fig. 4 are secured together as shown in Figs. 3 and 5 any attempt to fill the bottle through the opening 56 in the cap 57 will fail because the liquid entering the opening 56 and flowing through the passages 55 and 54

will discharge into the chamber 45' and out through the grooves 26' in the body 15'.

It will be apparent from the foregoing that the provision of the vertical outlet grooves 26 and 26' in the body part 15 or 15' will act as bypasses and tend to prevent the refilling of the bottle through the discharge spout in the stopper thereof. The amount of liquid dispensed from the bottle may be regulated by the adjustment of the cap sections 29 or 29', as the case may be. The parts of the stopper may be cheaply made and of materials suited for the purpose. The body portion of the stopper when attached to the neck of the bottle will be so fitted in place that it will be maintained in its connected relation until the bottle is demolished.

As numerous modifications are contemplated I do not wish to be limited to the details as shown and described, except as required by the appended claims.

What I claim is:

1. In a stopper for bottles, the combination of a body portion having a supporting flange attached thereto and adapted to fit in a groove in the neck of a bottle, and a member for securing and clamping the edge of the flange in the groove, said member being composed of material which will expand when moistened and clamp the said flange and member in the groove.

2. The combination with a container having an interior groove near the mouth thereof, of a closure therefor having a part fitting in the said groove, and means for securing the said part in said groove, said means comprising a material in the groove which will expand when moistened.

3. In a stopper for containers, the combination of a body part having a lateral supporting flange integrally attached thereto and adapted to yield and fit into an interior groove in the mouth of the container, and a washer in the groove for securing the edge of the flange in said groove, said washer being composed of a material which will expand when moistened and clamp both the flange and washer in the groove.

4. In a stopper for non-refillable bottles, the combination of a body part having a duct therein communicating with the interior of the bottle and means for attaching the body part to the neck of a bottle, a cap adapted to be adjustably attached to said body part, said cap having a transverse wall intermediate its ends which has an opening therein, one end of the cap having a discharge opening therein, said body part having a longitudinal channel extending to the lower end thereof and constituting a bypass for liquid introduced through the discharge opening in the cap and opening in said wall to refill the bottle.

5. In a stopper for bottles, the combina-

tion of a body adapted to close the mouth of a bottle and having means to secure the same in an internal groove in the neck of a bottle, a longitudinal passageway through the said body, and a cap connected to the body and having a transverse wall intermediate its ends provided with discharge openings, the inner ends of the discharge openings terminating nearer the neck of the bottle than the outer end of said longitudinal passageway.

6. In a stopper for bottles, the combination of a body part having a passageway therethrough and means for attaching the same to a bottle, a tubular portion on the body part and disposed at the outer end of the passageway therein, a cap part having a central recess adapted to receive the end of said tubular portion and a lateral outlet passageway, one of said parts having a bypass for liquid introduced into said outlet passageway for the purpose of refilling the bottle.

7. In a stopper for non-refillable bottles, the combination of a body portion adapted to fit the mouth of a bottle and having a liquid outlet and an air vent, said body having a shoulder intermediate its ends, a cap portion having a liquid outlet and an inverted flange cooperating with the shoulder on the body to prevent the removal of the cap, a transverse wall intermediate the ends of the cap, said wall having an opening therethrough, also a boss on one side thereof and a cavity on the side opposite, a part of said body extending into the cavity, one of said portions having a channel therein constituting a bypass for liquid introduced into the liquid outlet of said cap portion in attempting to refill the bottle.

8. In a device of the class described, the combination of a bottle having a groove in the neck thereof, a stopper for the bottle comprising a body having means for securing the same in the said groove and an outlet passageway, said body being threaded on its exterior above the flange and having grooves which extend across the threaded portion of said body, an internally threaded cap connected to said body and having inverted flanges at its lower edge to prevent the removal of the cap from the body, a wall intermediate the ends of the cap having a recess therein to receive a part of said body and into which recess said outlet passageway discharges, said wall having apertures therein for the discharge of liquid from the bottle and being adapted to discharge into said grooves when liquid is introduced into the outlet of said stopper.

9. In a stopper for bottles, the combination of a body portion provided with means for attaching it to the neck of a bottle and having a passageway therethrough, a cap part fitting said body part and provided

with a suitable outlet, one of said parts having a channel extending longitudinally thereof and constituting a by-pass for liquid introduced into the outlet in the cap for the  
5 purpose of refilling the bottle.

10 10. A stopper for use with a bottle having an interior groove near the mouth thereof, said stopper comprising a member having a part fitting in said groove, and means for securing and clamping said part in the

groove comprising an annular member disposed in the groove beneath the edge of said part and composed of material which will expand when moistened.

In testimony whereof I affix my signature 15  
in presence of two witnesses.

ALFREDO SANTARELLI.

Witnesses:

KANO GENO,  
A. M. BIAG.