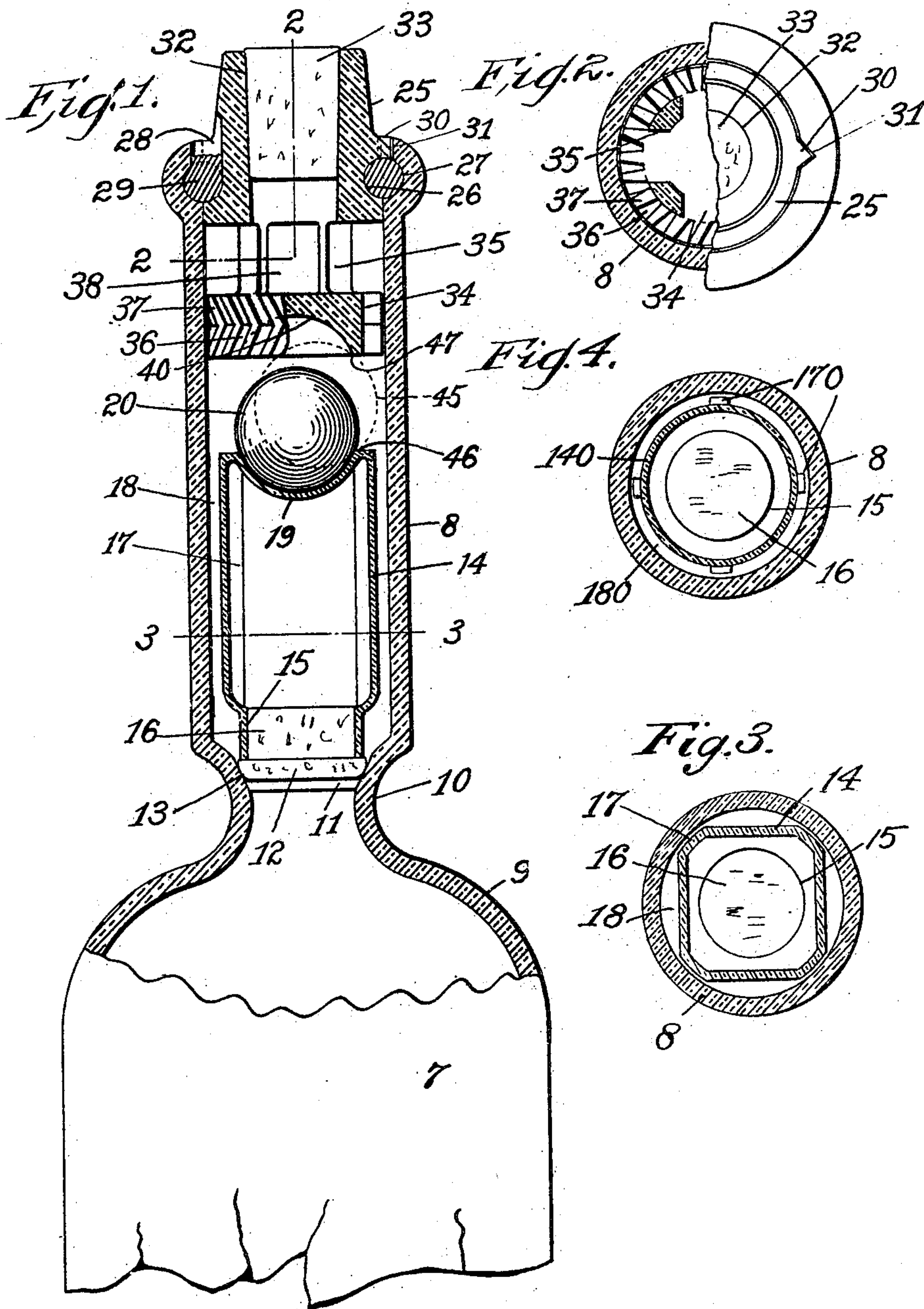


No. 798,266.

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G. M. CONRADSON.
NON-REFILLABLE BOTTLE.
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Witnesses:

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UNITED STATES PATENT OFFICE.

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NON-REFILLABLE BOTTLE.

No. 798,266.

Specification of Letters Patent.

Patented Aug. 29, 1905.

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To all whom it may concern:

Be it known that I, CONRAD M. CONRADSON, a citizen of the United States, residing in Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to and has for an object to provide an improved bottle of that class wherein after the same has been filled and the closure properly applied the contents of the bottle may be readily withdrawn, but may not be replenished.

In the drawings accompanying and forming a part of this specification, Figure 1 is a central vertical section of a bottle-neck embodying my improvements, some of the parts, however, being shown in side view. Fig. 2 is a section in the line 2 2 of Fig. 1, and Fig. 3 is a section in the line 3 3 of Fig. 1. Fig. 4 is a similar section with a somewhat different form of float.

A bottle-body (designated in a general way by 7) is shown as having a neck 8 connected to the breast 9 by the contracted portion 10, such portion 10 having upon its upwardly-projecting face a valve-seat 11, which may be ground down or otherwise given a conoidal shape to form a better seat for the valve, which valve is designated by the reference character 12 and may have its seat-engaging portion 13 substantially spherical or on spherical lines, since it is a well-known fact that a sphere engaging a conical valve-seat affords a secure valve and one seating at all points and being more accurate in its seat than many other forms of valve, particularly so when some play is given the valve-stem in its guide, since a sidewise movement will roll the valve on its seat rather than move one side from the seat, as would be the case with a valve of some other formation. The valve may, if desired, be made of some soft material, and cork may be used, if desired. The valve will be carried by a buoyant body or float 14, which in the present instance is shown as a glass body having a neck 15, in which a projecting portion 16 of the valve projects, such portion 16 serving to cork up or stopper the float, and not only serving as a connection between the float and the valve, but also as a closure for the float. The float is shown as angular in cross-section and having rounding corners 17, they being

located at a sufficient number of points about the perimeter of the float to guide the float in its reciprocation in a vertical line in the neck of the bottle, in this regard acting as a valve-stem and also affording a sufficient space 18 for the passage of the contents of the bottle around the float when the valve is unseated. The top of the float is shown as provided with a weight-seat 19, made in the present instance by depressing the top portion of the glass body, and in such seat a suitable weight 20 will be received when the bottle is in its normal position. The weight may be spherical and conform in shape to the depression 19 and may, if desired, be made of glass. The bottle of course will be filled before the valve and weight are placed in position. After the filling of the bottle such valve and its float and the weight will be placed in their proper positions, and then the closure of the bottle will be applied, which closure is shown as comprising a plug 25, adapted to fit the mouth of the bottle and having an annular groove 26 mating with an annular groove 27 in the mouth of the bottle. The plug may be provided with one or more openings 28 to permit the introduction of a seal 29, which seal may be some suitable cement or substance that cannot be melted by heat and will not dissolve in alcohol—such as plaster-of-paris. The plug may be provided with one or more projections 30 to be received by notches 31 in the mouth portion of the bottle, which will prevent the rotation of the plug within the mouth, which might be resorted to in an effort to remove the seal. The pouring-mouth of the bottle will be through the orifice 32 in the plug, and this may be closed by a suitable cork or stopper 33. The plug carries a plate 34 by means of a number of dependent portions 35, the perimeter of such plate having a close fit with the inner perimeter of the bottle-neck and is provided with a number of passages 36, such passages running in directions which are not straight—that is, the mouth of each passage is covered by the projecting point of one of the ribs 37, which will prevent the passage of a wire or other implement through such passages 36—for the purpose of interfering with the mechanism below. These passages, together with the passages 38 around the hanging members 35 and the passage 32, constitute such a labyrinth of windings that it will

be impossible to pass any wire, string, or other device down into the neck of the bottle to secure a hold upon the weight or the float.

The plate 34 has a chamber 40 in its lower portion to accommodate the ball when it is raised or pushed toward the mouth of the bottle by the liquid within the bottle. Upon tipping the bottle from its normal position the weight of the liquid against the valve will unseat the valve, and the float and weight will be carried forward, the weight finding accommodation in the chamber 40. When, however, the bottle is in an incline to its normal position, the weight will assume the dotted-line position 45, and by pressing down upon what might be regarded as an abutment portion 46 of the float and the abutment portion 47 of the plate the float will be pushed down and the valve seated. When the bottle is in such tilted position, the weight of the liquid seeking egress from the bottle will carry the valve from its seat and counterbalance any tendency of the weight to press the valve against its seat; but upon the exhaustion of the contents of the bottle or tilting the bottle back to a position where the liquid does not press against the valve the force of the weight pressing against the abutments 46 and 47 will seat the valve.

When the bottle is in its normal position, it will be impossible to refill the same, because the weight will hold the valve upon its seat. When the bottle is in an inverted position, it will be impossible to force liquid under pressure into the bottle, because the float will rise with the liquid and press the valve to its seat. This rising of the valve will only be enhanced if it is first sought to exhaust the air within the bottle to assist in the forcing of liquid under pressure into the bottle. If the bottle is tilted in an attempt to pass liquid into it, the weight will engage the abutments, as before stated, so that in whatever position the bottle is placed either the weight or the float will seat the valve and prevent the refilling of the bottle, and although the bottle is so securely safeguarded from refilling, yet in pouring the contents from the bottle there will be no restriction to the easy flow of the liquid, and air will readily find entrance to assist in the displacement of the liquid.

In Fig. 4 a different form of float is illustrated. The cross-section is taken in about the line of Fig. 3, and the float 140 is shown round and carrying a number of projections 170 for guiding the reciprocations of the float and affording passage-spaces 180.

Other changes may of course be made as desired without departing from the spirit of my application.

Having thus described my invention, I claim—

1. The combination with a bottle having a breast portion carrying a neck, the neck adjacent to said breast portion being contracted, a valve-seat on the wall of said contracted portion and facing toward the neck, a valve having a seating-face comprising a zone of a sphere for said seat, a hollow body carried by said valve and having a recess in its upper end, a weight seated in said recess when the bottle is in normal position, a closure for said bottle-neck comprising a plug for closing the end of the neck, hangers on said plug, and a plate carried by said hanger having a recess above the normal position of said weight.

2. The combination with a bottle having a breast portion and a neck, the neck at the region of its juncture with the breast being contracted and forming a conical valve-seat, and the inside of the mouth portion of said neck having an annular channel, of a valve having a stem, a hollow body having a neck closed by said valve-stem and a depression at its other end, and an annular abutment surrounding said depression, a closure for the mouth having an annular channel registering with the channel in the mouth, a plastic seal therein, said closure having an annular abutment, and a free weight between the said body and the closure.

3. The combination with a bottle having a neck and a valve-seat therein, of a valve having a seating-face comprising a zone of a sphere, a float carrying said valve at one end and having a recess surrounded by an annular abutment on its opposite end, a closure for said body having a recess surrounded by an annular abutment, and a weight within said recess and between said closure and float for engaging said abutments and seating the valve when the bottle is in a tilted position.

4. The combination with a bottle having a neck substantially cylindrical interiorly for a portion of its length and a valve-seat below such portion, a valve for seating thereon to guard the bottle from the entrance of liquid, and a float in said cylindrical portion and connected to said valve, said float being a hollow glass body polygonal in cross-section and having its angles in loose engagement with the perimeter of the neck for guiding said float in its reciprocations and the flat sides of said float affording exit-passages for the liquid in said bottle.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 7th day of February, 1905.

CONRAD M. CONRADSON.

Witnesses:

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JOHN O. SEIFERT.