

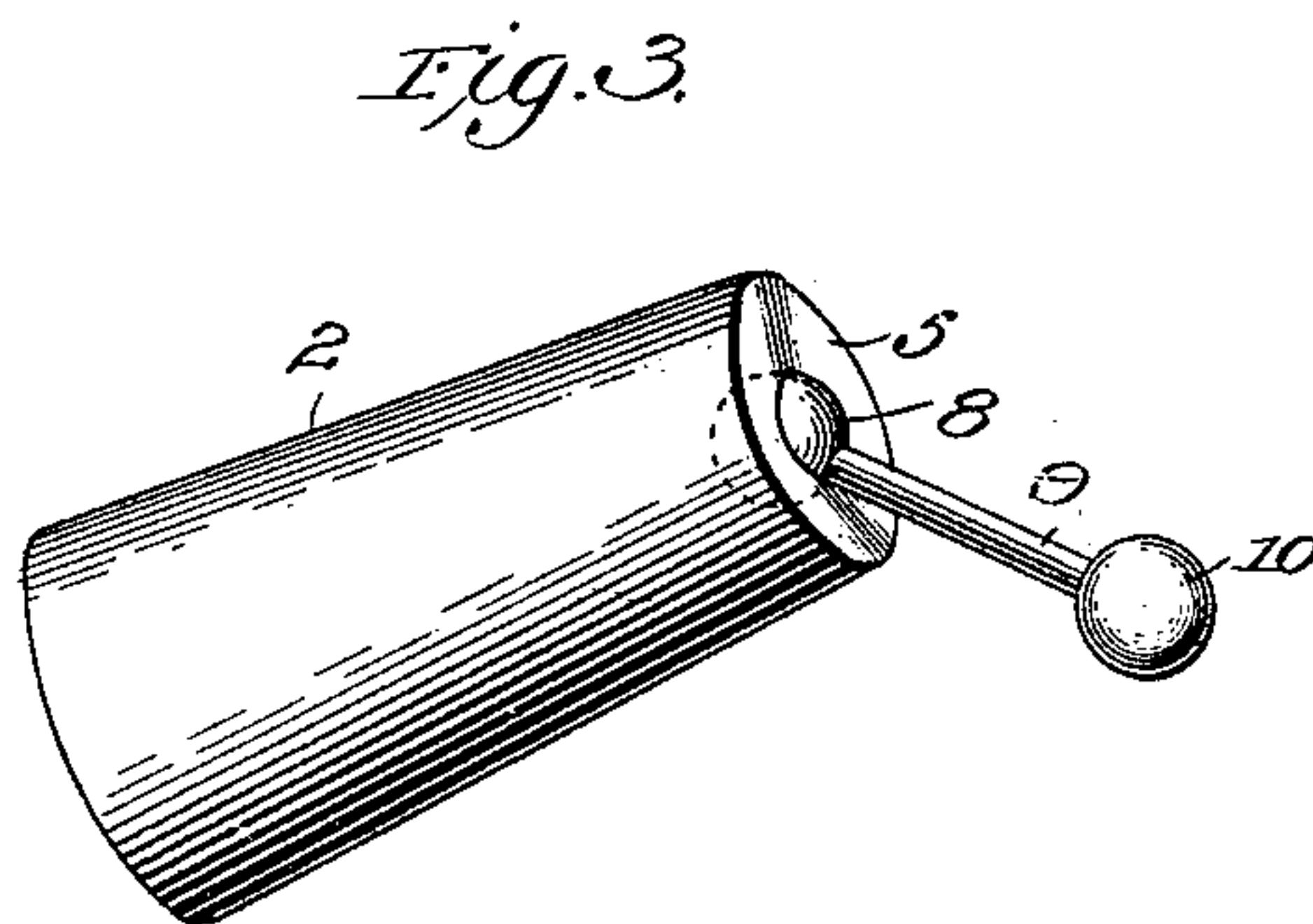
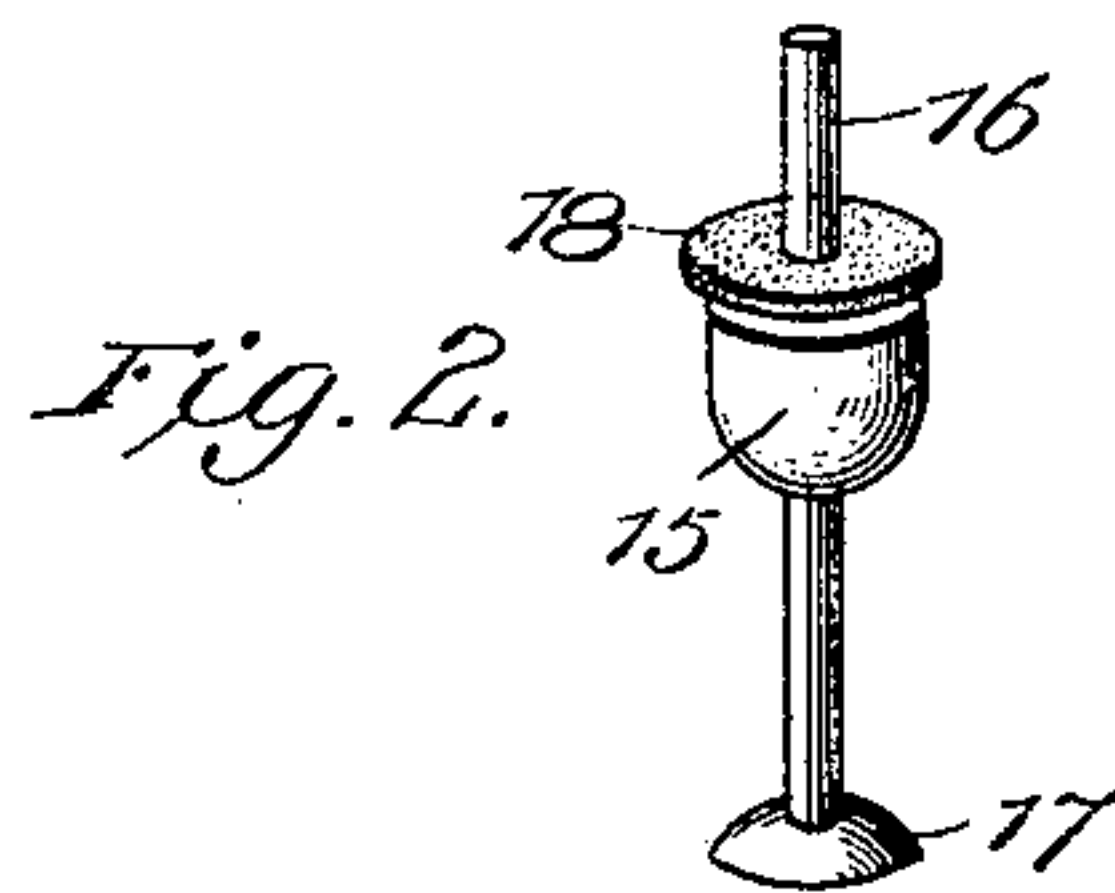
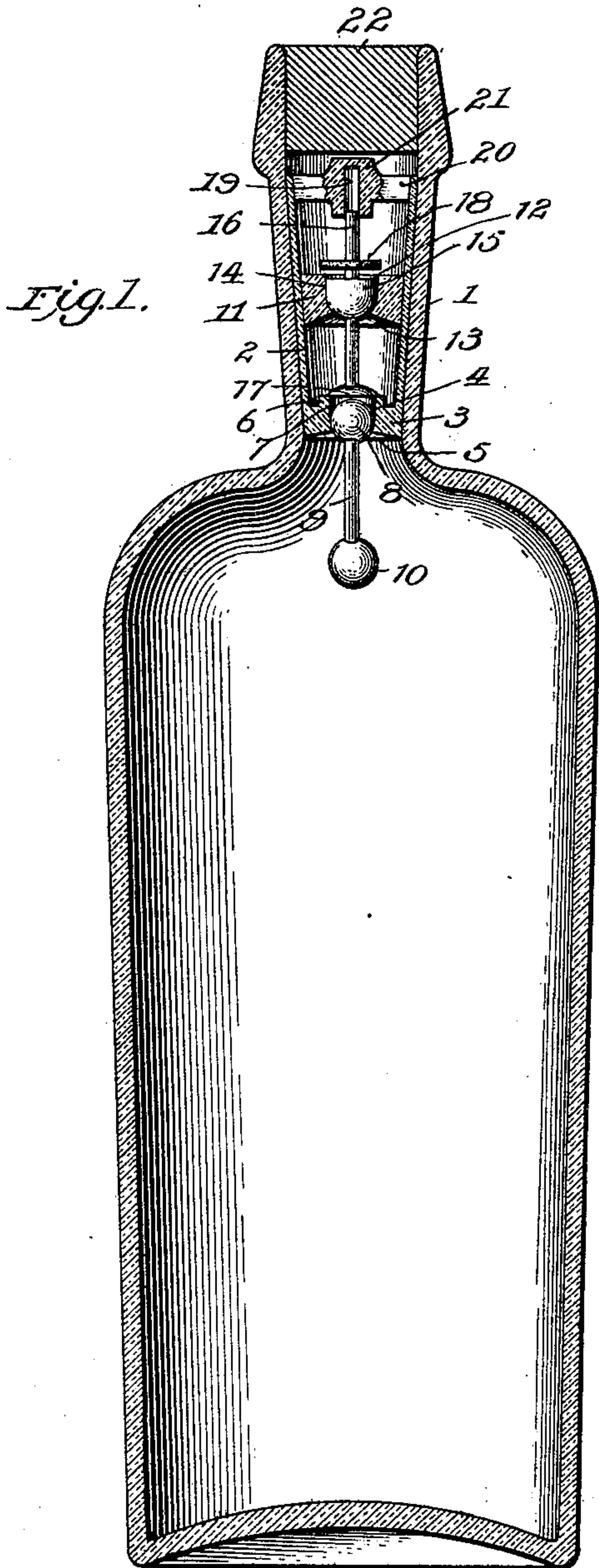
No. 631,183.

Patented Aug. 15, 1899.

H. SEELINGER.
NON-REFILLABLE BOTTLE.

(Application filed Apr. 19, 1899.)

(No Model.)



witnesses:

Harry S. Rohrer,
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Inventor:

Henry Seelinger
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his atty.

UNITED STATES PATENT OFFICE.

HENRY SEELINGER, OF NORFOLK, VIRGINIA.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 631,183, dated August 15, 1899.

Application filed April 19, 1899. Serial No. 713,589. (No model.)

To all whom it may concern:

Be it known that I, HENRY SEELINGER, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Non-Refillable Bottles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to non-refillable bottles; and its primary object is to provide a stopper and valve device which will be so constructed as to effectually prevent the admission of liquid into the bottle after the insertion of the improved device into the neck of the bottle, but permit the free discharge of the contents of the bottle.

It is well known that bottles may be fraudulently refilled not only by pouring the liquid therein while the bottle is in the usual vertical position, but also by immersing the bottle and turning it to a horizontal position or by forcing liquid into the bottle under pressure while the bottle is in an inverted position. The present invention is designed, therefore, to prevent refilling under any of the conditions named and to be effective for this purpose without regard to the position of the bottle.

A further object of the invention is to avoid the employment of springs or other elements which would be liable to become inoperative or to complicate the device and add to the cost of manufacture.

The construction and novel features of the improvement will be fully described hereinafter and defined in the appended claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a central vertical section of a bottle provided with my invention. Fig. 2 is a detail perspective view of one of the valves employed, and Fig. 3 is a perspective view of the shell or casing of the device in position, illustrating the operation of the lower weighted valve.

The reference-numeral 1 designates the neck of the bottle, within which the improve-

ment is inserted and secured after the bottle has been properly filled.

2 designates the shell or casing of the device, which is of tapering form to closely fit the interior of the neck 1 and is partly closed at its lower end by a bottom or base 3, formed with a central circular opening 4, constituting a valve-seat, the under surface of said bottom being of concave form, as shown at 5. The upper surface of the bottom 3 is provided with a vertically-extending annular flange 6 and is also hollowed out or concaved to form a seat 7 for a ball-valve 8, which is connected by a rigid connecting rod or stem 9 with a ball 10, the latter serving as a weight.

Within the casing 2 is secured a diaphragm 11, having a central circular opening 12 and tapering at its edge to fit the casing closely. The under surface of the diaphragm 11 is of concave form, constituting a valve-seat 13, and the walls of the opening 12 are hollowed out or tapering to form a seat 14 for a valve 15 which is semispherical in form and is secured to a valve-stem 16, the lower end of which carries a convex valve 17, adapted to fit the valve-seat 13, as hereinafter referred to. The valve-stem 16 extends above the valve 15 and is provided with a disk 18, of cork or like buoyant material and preferably of greater diameter than the valve 15. The upper end of the stem 16 enters an opening 19 in a centering-support 20, which latter may be of any suitable construction, the form shown in the drawings consisting of the cross-bar 20, secured within the casing and provided with a central bearing 19, the latter projecting above the bar 20 and closed at its upper end to form a seat 21, against which the cork stopper 22 of the bottle rests. If desired, this support 20 may consist of a disk perforated for the escape of liquid and having a central bearing to receive and guide the valve-stem 16, or other forms of centering device for the stem might be devised, the important features being that it must operate to center and support the upper end of the stem 16 and also freely permit the discharge of the liquid from the bottle.

The operation of the parts thus described is as follows: Normally the ball-valve rests upon its seat 7 and the valve 15 upon the seat 14, thus closing the neck of the bottle against the introduction of the liquid while the bot-

tle is in a vertical position; but by tilting the bottle to pour out its contents the valve 8 is floated away from its seat, its movement causing it to strike the valve 17, thus lifting the valve-stem 16 and forcing the valve 15 away from its seat and permitting the liquid to flow out through the openings 4 and 12 and be discharged from the mouth of the bottle.

It will be apparent from the illustration in Fig. 3 that in case the bottle is turned to a horizontal position or to an angle approximating forty-five degrees the weight 10 and rod 9 will tilt the ball-valve 8 and prevent its leaving its seat, the concavity of the bottom 3 permitting a free tilting movement of the rod.

As a means supplemental to the valve 8 for preventing the introduction of liquid into the bottle, especially where the liquid is under pressure, I provide the disk 18. When the bottle is inverted, the valve 15 will drop away from its seat by gravity, thus exposing the opening 12; but the pressure of the liquid against the disk 18 raises said disk and the stem 16, thus seating the valve 15 and closing the opening 12, thereby effectually preventing the flow of liquid. In case the centering-support 20 is accidentally or wilfully removed and the bottle tilted or inverted the valve 17 will fall against the seat 13 to serve the double purpose of closing the opening 12 and of preventing the falling out or the removal of the valve 15.

From the foregoing description it will be seen that three distinct but cooperating valves are provided for preventing the refilling of the bottle. The ball-valve 8 and its weighted stem closes the opening 4, the valve 17 closes the under side of the opening 12 when the valve 15 drops away from the seat 14, and the valve 15 closes the upper side of the opening 14 in case liquid under pressure is forced against the disk 18.

While I of course do not limit myself to any particular material in the construction of the stopper and valves, I preferably employ glass, and by grinding the circular edges and surfaces of the diaphragm and casing and the interior surface of the bottle-neck a secure engagement of the parts is effected. If desired, however, the casing may be secured within the neck and the diaphragm within the casing by cement or other means.

I claim—

1. The combination with a bottle, of a valve-stopper device, comprising a shell or casing located within the bottle-neck, and provided with a bottom having a central opening, formed with a valve-seat: a ball-valve fitting said opening; a weight secured to said valve by a rigid connection; a diaphragm within the casing having oppositely-arranged concave seats, and a double valve fitting said seats and secured to a valve-stem.

2. In a valve-stopper for bottles, the com-

bination with a shell or casing fitting the neck of the bottle and having a bottom formed with a central opening, a ball-valve adapted to close said opening, and provided with a depending stem carrying a weight; a diaphragm within the casing formed with a central opening and oppositely-disposed valve-seats; a valve-stem extending through the diaphragm-opening and carrying a semispherical valve, and a convex valve; a float-disk arranged upon the upper end of said valve-stem, and means for centering said valve-stem.

3. In a valve-stopper for bottles, the combination with a shell or casing fitting the bottle-neck, and having a bottom formed with a central opening, a tapering valve-seat on its upper side, and a concave lower surface, a ball-valve fitting said tapering seat and provided with a depending rod, a weight secured to the lower end of said rod; a diaphragm within the casing; also formed with a central opening, and oppositely-concaved valve-seats, a valve-stem extending through the diaphragm-opening, a semispherical valve on said stem, a convex valve at the lower end of said stem, a float-disk on said stem, and a support for the upper end of the valve-stem, said support permitting the outflow of liquid and having a bearing for centering the valve-stem.

4. In a valve-stopper for bottles, the combination with a casing provided with a bottom having a concave under surface and a central opening, the walls of which are tapered to form a valve-seat; a ball-valve fitting the tapered valve-seat; a rod depending from said valve and carrying a weighted ball at its lower end; a diaphragm within the casing having a central tapered opening and concaved at its under side; a valve-stem extending through the diaphragm-opening, and carrying a semispherical valve fitting the tapered seat, and a valve fitting the concave under surface of the diaphragm, and a support for the upper end of the valve-stem, provided with a bearing on its under surface, and a seat on its upper surface for the removable stopper of the bottle.

5. The combination with a bottle, of means for preventing refilling, comprising a casing located within the bottle-neck, and having a bottom provided with a valve-seat, a weighted valve for closing said opening; a diaphragm within the casing having a central opening and oppositely-arranged valve-seats; a valve-stem carrying independent valves, and a float device on said valve-stem for lifting the valves when the bottle is inverted.

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

HENRY SEELINGER.

Witnesses:

FLORIAN S. THOLL,
F. W. ADAMS.