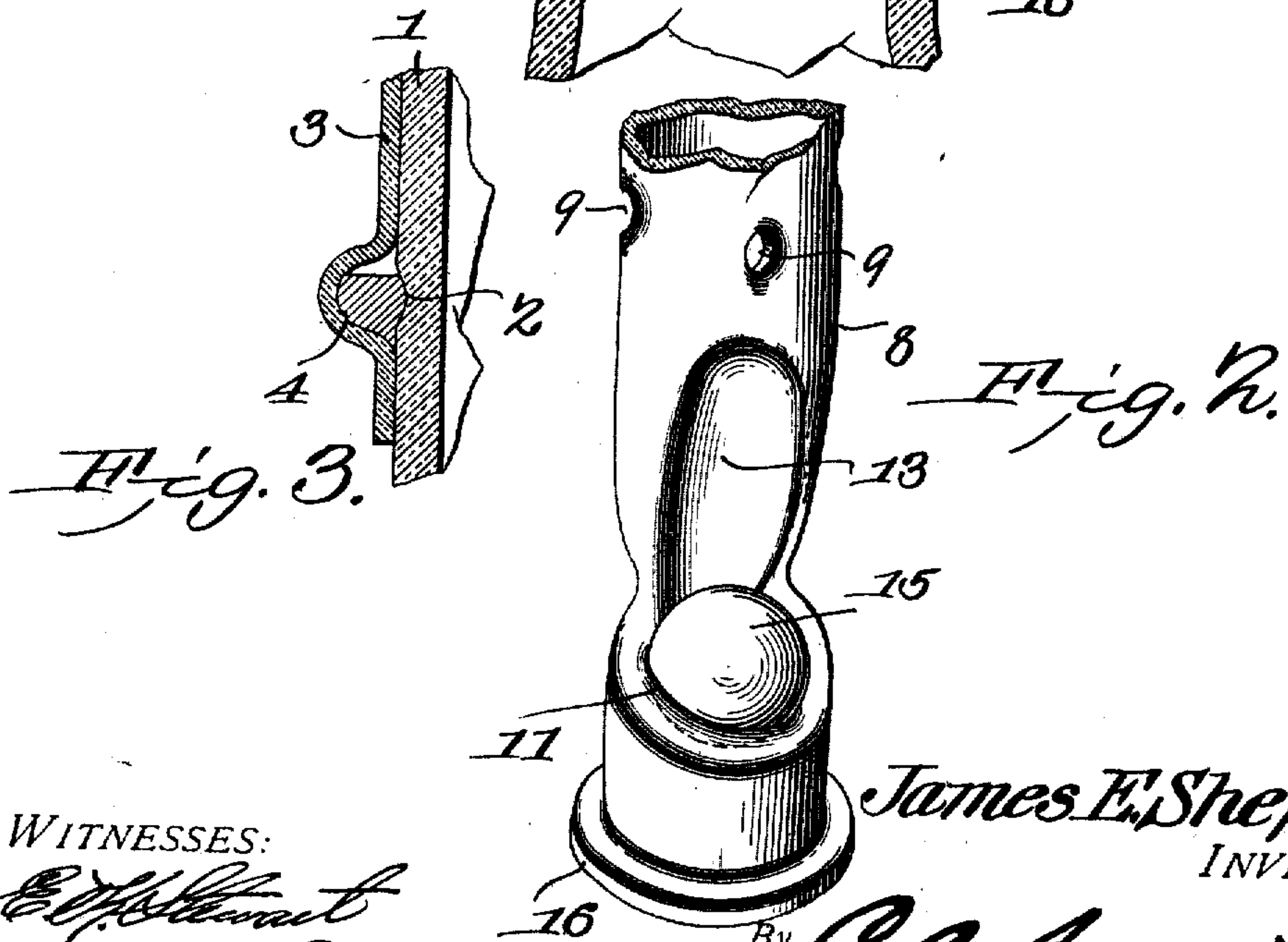
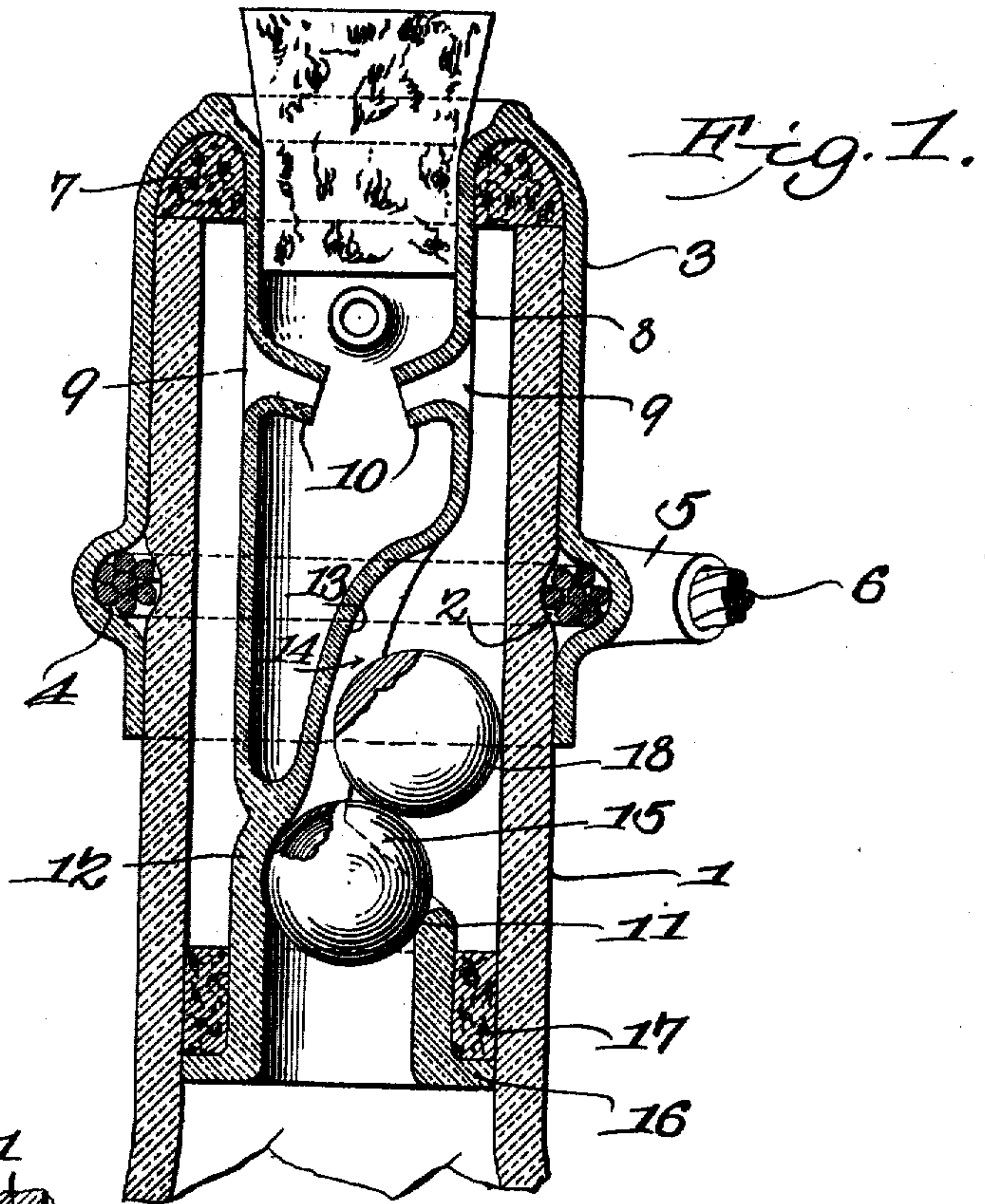


No. 831,688.

PATENTED SEPT. 25, 1906.

J. E. SHEPARD.
NON-REFILLABLE BOTTLE.
APPLICATION FILED MAR. 31, 1906.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JAMES E. SHEPARD, OF CHICAGO, ILLINOIS.

NON-REFILLABLE BOTTLE.

No. 831,688.

Specification of Letters Patent.

Patented Sept. 25, 1906.

Application filed March 31, 1906. Serial No. 309,162.

To all whom it may concern:

Be it known that I, JAMES E. SHEPARD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Non-Refillable Bottle, of which the following is a specification.

This invention relates to non-refillable bottles and its object is to provide a device of this character which will prevent the refilling of a bottle after its original contents have been removed.

Another object is to provide a valve which is supported within the neck of a bottle by a cap adapted to be permanently fastened to the bottle-neck, said valve having a guard of peculiar construction for preventing tampering with the valve after the bottle has been closed.

With the above and other objects in view the invention consists of a cap adapted to be placed over the mouth of the bottle-neck and to be secured thereon by means of fusible metal which is inserted in a hard state between the cap and the bottle-neck and subsequently fused so as to lock the cap in position. This cap has a depending hollow extension closed at the bottom and terminating in a valve-seat which constitutes a support for a float. This valve-seat is surrounded by packing, which serves to completely close the neck at the point where the seat is located. Liquid passes from the valve-seat through openings formed within the extension and which are surrounded by grooved flanges.

The invention also consists of certain other novel features of construction and combinations of parts, which will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings, Figure 1 is a section through a bottle-neck having the valve therein. Fig. 2 is a perspective view of the inner or working portion of the valve, and Fig. 3 is a section showing the manner of locking the cap on the neck by fusing the metal therein.

Referring to the figures by numerals of reference, 1 is the neck of a bottle, the same having its inner surface smooth, as ordinarily, while an annular groove 2 is formed within the outer surface of the neck, adjacent the mouth thereof. The outlet end of the neck is adapted to project into a cylindrical cap 3, having an interior annular groove 4, which is adapted when the cap is seated on the neck

to register with the groove 2. A tubular extension 5 projects tangentially from the cap 3 and opens into the groove 4, and through this tube is adapted to be inserted soft fusible wires 6, which when pressed through the tube 5 will slide within the registering grooves 2 and 4. A washer 7, of cork or other material, is disposed on the outlet end of the neck 1 and constitutes a support for the cap 3. This cap has a hollow extension 8, projecting thereinto and adapted to rest within the neck of the bottle. The inner end of this extension is closed, and a suitable number of openings 9 are formed in the sides of the extension by punching the glass inward while in a soft state, thereby forming annular flanges 10 around the openings.

Extension 8 has a tubular valve-seat 11, supported near its lower end, by means of an arm 12, said valve-seat and arm being integral with the extension 8. A portion of the wall of the extension 8 overhangs the valve-seat, as shown at 13, and has a longitudinally-extending recess 14 therein, which is adapted to direct a spherical float 15 to the seat 11. This seat has an annular flange 16, which supports a washer 17, of cork or other material, which is adapted to fit snugly within the bottle-neck and prevent the passage of liquid from the interior of the bottle and around the valve-seat. The float 15 may be formed of glass or any other material, but must be buoyant, so as to float to its seat when an attempt is made to fill the bottle while inverted. A spherical weight 18 is mounted on the float.

After the bottle has been filled the washer 7 is placed on the end of neck 1, and the cap 3 is then placed over the neck, so that its extension 8 will project into the neck of the bottle. Washer 17 will fit tightly against the wall of the neck, and the valve 15 will rest upon its seat 11, with weight 18 thereabove. After the parts have been arranged in this manner a soft wire 6, formed of metal which will readily fuse, is inserted through the tube 5 and forced around the bottle-neck and within the grooves 2 and 4. Said metal is then heated at the end, so that all portions thereof will fuse and fill in the grooves 2 and 4, and the cap will then be permanently connected to the neck and cannot be removed therefrom except by breaking it. The entire bottle can then be closed by means of a cork adapted to be inserted into the open end of the extension 8.

When it is desired to pour out the contents of the bottle, the cork is removed, and when the bottle is inverted the overflowing liquid will press the valve 15 away from its seat and said liquid will pass through the opening 9 into the extension 8. Should an attempt be made to refill the bottle after its original contents have been removed, the valve 15 will be held on its seat by weight 18, provided the bottle is in an upright position, and should the bottle be inverted the valve will be floated upward toward its seat, and thus prevent the admission of the liquid to the bottle. A device such as herein described will prevent the refilling of the bottle whether or not the same be inverted and submerged and even though the air is exhausted from the bottle prior to its being submerged. The flanges 10 and the peculiar arrangement of the openings 9 absolutely prevent the wire or other device from being inserted through the extension 8 so as to push the valve 15 out of its seat. It is to be understood that this valve extends into the seat a distance greater than one-half its diameter, as it has been found that by arranging the float-valve in this manner the same cannot be unseated by the admission of liquid through the compartment in which it is located.

What is claimed is—

1. The combination with the neck of a bottle; of a cap surrounding the neck, said neck and cap having registering grooves, a valve-support integral with the cap and projecting into the neck, and fusible means within the registering grooves for permanently connecting the cap and neck.

2. The combination with the neck of a bottle; of a cap surrounding said neck, the cap and neck having registering annular grooves, a tubular inlet upon the cap and opening into the groove therein, fusible means insertible through the inlet and within the grooves for permanently connecting the cap and neck, and a valve-support integral with the cap and in the neck.

3. The combination with the neck of a bottle; of a cap permanently connected to the neck, a hollow extension formed with and extending within the cap, said extension projecting into the neck and closed at its inner end and having apertures between the ends thereof and a valve-seat carried by the extension beyond its closed end.

4. The combination with the neck of a bottle; of a cap permanently secured thereon, a tapered tubular extension integral with the cap and extending into the neck, said extension being closed at its inner end, a valve-seat formed adjacent to and integral with the closed end of the extension, and a float normally disposed upon said seat.

5. The combination with the neck of a bottle; of a cap permanently secured thereon, a tapered tubular extension integral with the

cap and extending into the neck, said extension being closed at its inner end, a valve-seat formed adjacent to and integral with the closed end of the extension, a float normally disposed upon said seat, and a packing-ring surrounding the seat and contacting with the inner surface of the neck.

6. The combination with the neck of a bottle; of a cap surrounding the same and permanently connected thereto, a tapered hollow extension integral with the cap and extending into the bottle-neck, said extension being closed at its inner end and having apertures between its ends, an arm extending from the closed end of the extension, a valve-seat integral with the arm and extending laterally from the arm, and a float-valve normally mounted on the seat.

7. The combination with the neck of a bottle; of a cap surrounding the same and permanently connected thereto, a tapered hollow extension integral with the cap and extending into the bottle-neck, said extension being closed at its inner end and having apertures between its ends, an arm extending from the closed end of the extension, a valve-seat integral with the arm and extending laterally from the arm, a float-valve normally mounted on the seat, a packing-ring surrounding the seat, and means upon the seat for preventing displacement of the ring.

8. The combination with the neck of a bottle; of a cap surrounding said neck and permanently connected thereto, a tapered hollow extension integral with the cap and projecting into the neck, said extension being closed at its inner end, an arm integral with said end of the extension, a valve-seat extending laterally from the arm, one wall of the extension overhanging the seat and being grooved, and a float-valve normally disposed upon and projecting into the seat.

9. The combination with the neck of a bottle; of a cap surrounding said neck and permanently connected thereto, a tapered hollow extension integral with the cap and projecting into the neck, said extension being closed at its inner end, an arm integral with said end of the extension, a valve-seat extending laterally from the arm, one wall of the extension overhanging the seat and being grooved, a float-valve normally disposed upon and projecting into the seat, said extension having openings between the ends, and inwardly-extending flanges surrounding the openings.

10. An attachment for bottles comprising a cylindrical cap having an interior annular groove, a tubular extension projecting from the cap and opening into the groove, a tapered hollow extension integral with and extending through the cap, said extension being closed at one end and having openings between its ends, inwardly-extending flanges surrounding the openings, a valve-seat inte-

gral with and extending adjacent its closed end, a packing-ring surrounding the seat and a float-valve normally disposed upon said seat.

5 11. The combination with the neck of a bottle; of a cap permanently secured thereon, a tapered tubular extension integral with the cap and extending into the neck, said extension being closed at its inner end, a valve-seat formed adjacent to and integral with the closed end of the extension, a float normally disposed upon said seat, and a spherical weight normally supported by the float.

10 12. The combination with the neck of a bottle; of a cap surrounding said neck and permanently connected thereto, a tapered hollow extension integral with the cap and

projecting into the neck, said extension being closed at its inner end, an arm integral with said end of the extension, a valve-seat extending laterally from the arm, one wall of the extension overhanging the seat and being grooved, a float-valve normally disposed upon and projecting into the seat, and a spherical weight normally supported by the float-valve. 20 25

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES E. SHEPARD.

Witnesses:

RUSH E. HUSSEY,
CHAS. SANDERS.