No. 776,762. PATENTED DEC. 6, 1904.

F. W. SMITH.

NON-REFILLABLE BOTTLE.

APPLICATION FILED JULY 12, 1904.

NO MODEL.

Fig. 1.

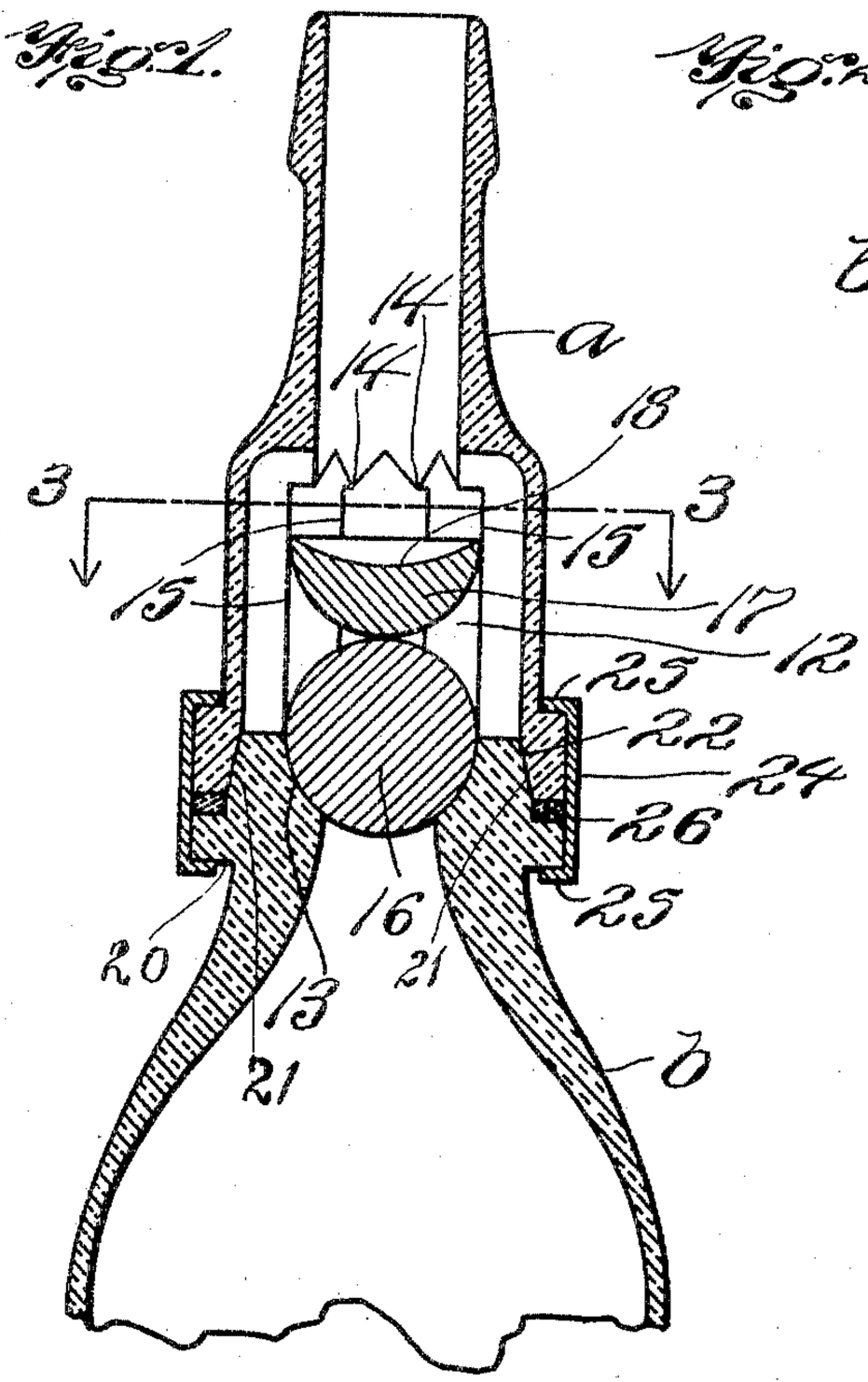


Fig. 2.

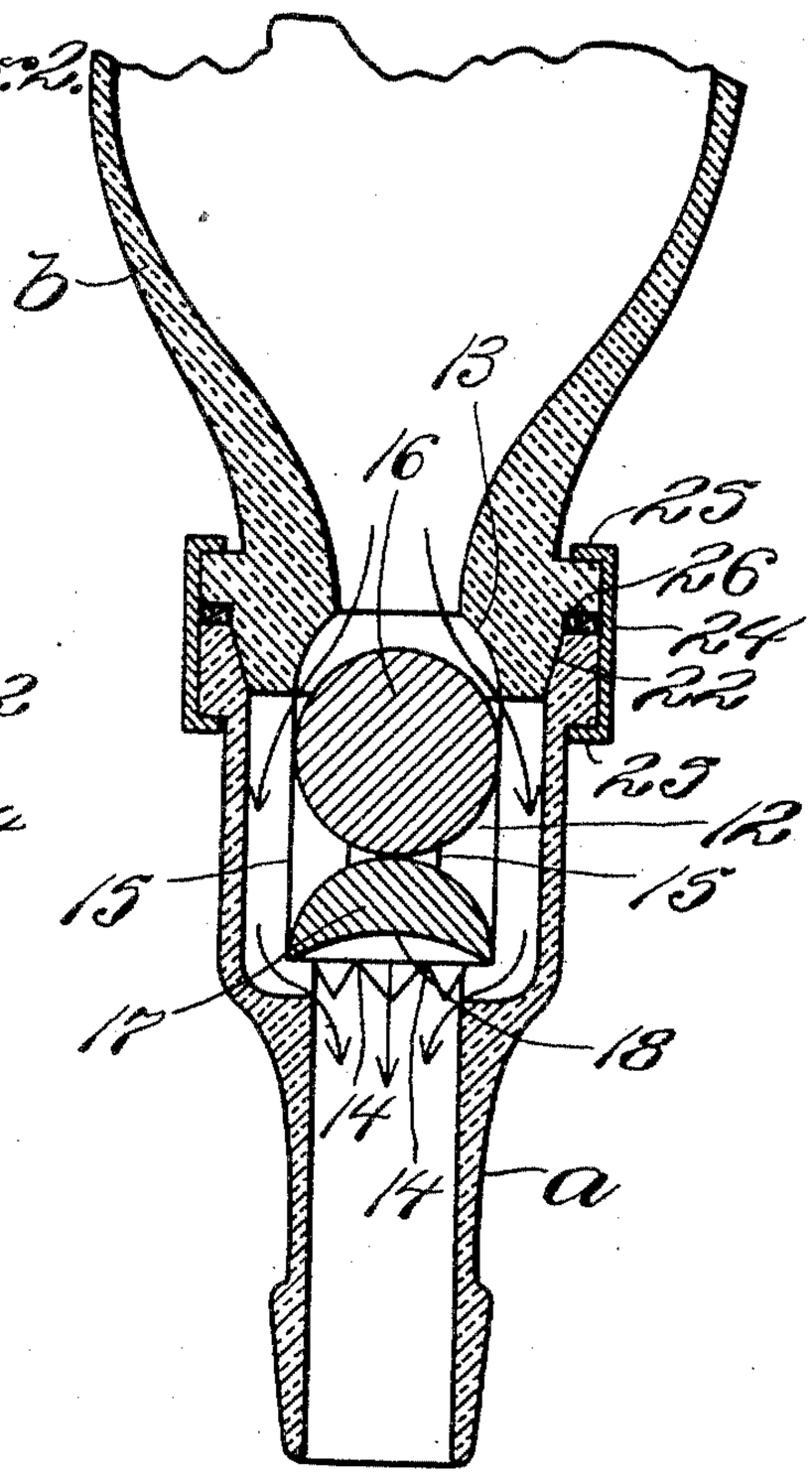


Fig. 3.

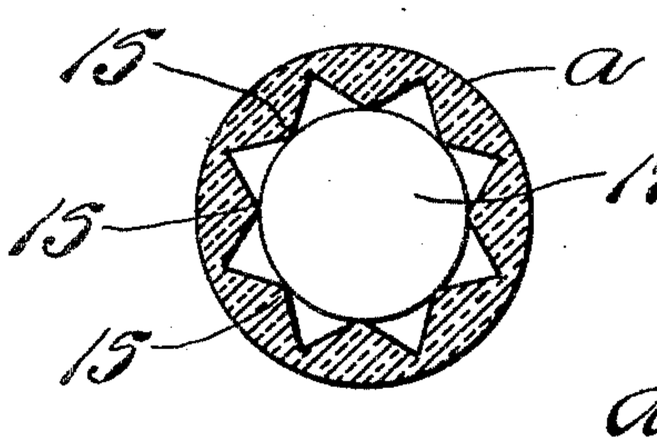
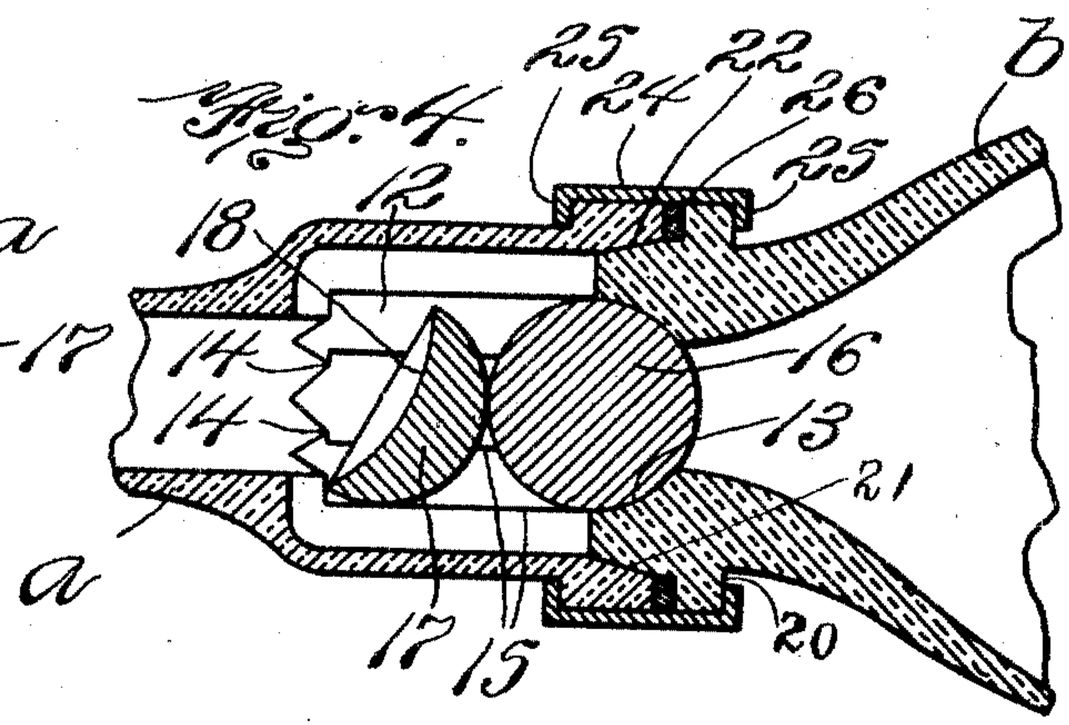


Fig. 4.



Witnesses:

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No. 776,762. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

FRANCIS W. SMITH, OF CAMBRIDGE, MASSACHUSETTS.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 776,762, dated December 6, 1904.

Application filed July 12, 1904. Serial No. 216,199. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS W. SMITH, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention has for its object to provide a simple and effective construction of bottle adapted to permit a reasonably-rapid emptying of the bottle and to prevent the refilling of the same.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a sectional view of a bottle embodying my invention, the bottle being upright. Fig. 2 represents a similar view showing the bottle inverted and in position for pouring. Fig. 3 represents a section on line 3 3 of Fig. 1. Fig. 4 represents a sectional view showing the bottle in an approximately horizontal position.

The same reference characters indicate the same parts in all the figures.

The neck of my improved bottle has an internal enlargement 12, at the lower end of which is a valve-seat 13, while at the upper end are a series of stops 14. The inner surface of said enlargement is provided with longitudinal guides 15. The said guides and stops alternate with passages through which liquid is adapted to flow when the bottle is inverted, as indicated in Fig. 2.

16 represents a valve which rests loosely by gravitation on the seat 13 and is preferably spherical.

17 represents a loose weight which rests upon the valve 16 and is preferably semispherical, so that it has a deflecting-surface 18. When the bottle is inverted, the valve and weight are movable together toward the stops 14, the movement of the valve away from its seat being limited by said stops. At the same time the guides 15 prevent lateral movement of the valve and weight. It will be seen by reference to Fig. 2 that when the bottle is inverted liquid can flow freely from the bottle, as indicated by the arrows. The guides 15 and stops 14 coöperate in preventing the weight 17 from being turned over or inverted from the position shown in the drawings. Hence its deflecting-face 18 always faces the mouth of the bottle-neck and is therefore in position to serve as a deflector for a flexible wire rod, preventing the latter from reaching and fraudulently displacing the valve. The said face 18 may be tipped or somewhat inclined by the insertion of the wire; but it cannot be turned downwardly far enough to permit the wire to pass by it, excepting at a very abrupt angle.

I prefer to form the main portion or upper section *a* of the neck in a separate piece from the body portion *b*. The body portion is contracted at its upper end to form a lower neck-section, which is provided internally with the valve-seat 13 and externally with a shoulder 20 and a joint-surface 21. The upper neck-section *a* is provided with an internal joint-face 22 and an external shoulder 23.

24 represents a metallic coupling-sleeve, having flanges 25 25, which engage the shoulders 20 and 23, thus securely connecting the neck-section with the body and holding the two joint-surfaces in contact with each other.

26 represents a packing-ring or washer of compressible material interposed between the upper and lower neck-sections.

The deflecting-face 18 may be concave, if desired. This form enables the face to give a backward direction to the inner end of a piece of wire forced inwardly through the neck.

The semispherical form of the weight 17 causes it to tip, as indicated in Fig. 4, when the bottle is held in an approximately horizontal position, the weight being thus caused to close the valve and prevent the insertion of liquid into the bottle. The joint-faces 21 and 22 are preferably ground and slightly tapered to form a tight joint.

The coupling-band 24 is preferably provided on its exterior and on the exterior of one or both of the flanges 25 with letters or other characters or lines so impressed in the metal as to be mutilated by an attempt to remove the said band from the bottle. It will be seen, therefore, that if the band has been

fraudulently removed to permit the refilling of the bottle the fact will be indicated by the changed appearance of the outer surface of the band.

It will be seen that the two neck-sections constitute a two-part valve-chamber the sides and top of which include the guides 15 and stops 14 and are formed in the upper section, while the bottom, which includes the valve-seat 13 and the surface surrounding the valve-seat, is formed on the lower section. Provision is thus made for conveniently assembling the parts and for confining the valve and weight simply by the operation of connecting the two sections.

I claim—

1. A non-refillable bottle comprising a body having a contracted upper end forming a neck-section and provided internally with a valve-seat and externally with a shoulder, and with a joint-face above said shoulder, an upper neck-section provided with an internal joint-face and with an external shoulder, a coupling-band having flanges engaged with said shoulders, a loose valve, and a weight resting loosely thereon, both movable in the lower portion of the upper section, said lower portion being internally enlarged and provided with guides for the valve and weight and with stops for arresting their outward movement, said guides and stops alternating with liquid-passages.

2. A non-refillable bottle comprising a body, a neck having an internal enlargement provided with a valve-seat at its lower end, longitudinal guides on its inner wall, and stops at its upper end, said guides and stops alternating with liquid-passages, a loose spherical valve closed by gravitation on the valve-seat, and a loose substantially semispherical weight resting directly on the valve and having a deflecting-surface which is kept by the said guides and stops at the upper side of the weight to act as a deflector, the said weight being adapted to tip and close the valve when the bottle is held in an approximately horizontal position.

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

FRANCIS W. SMITH.

Witnesses:
C. F. BROWN,
E. BATCHELDER.