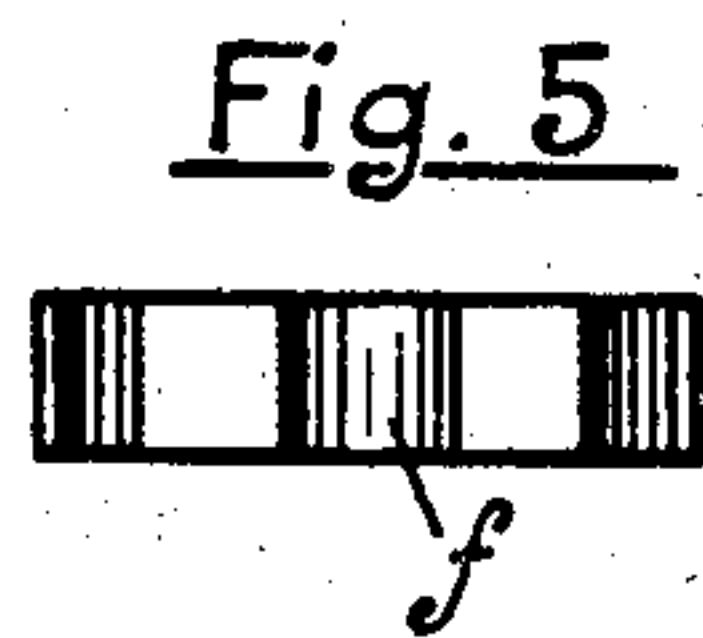
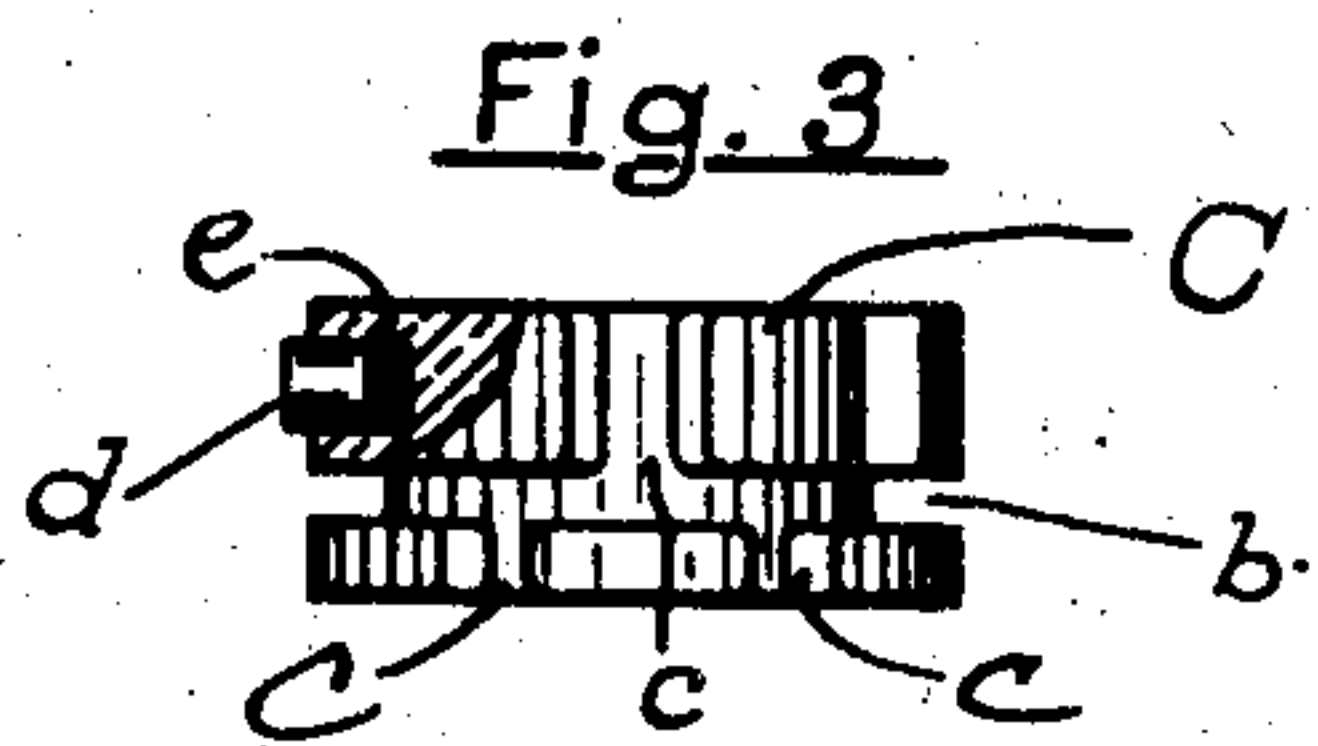
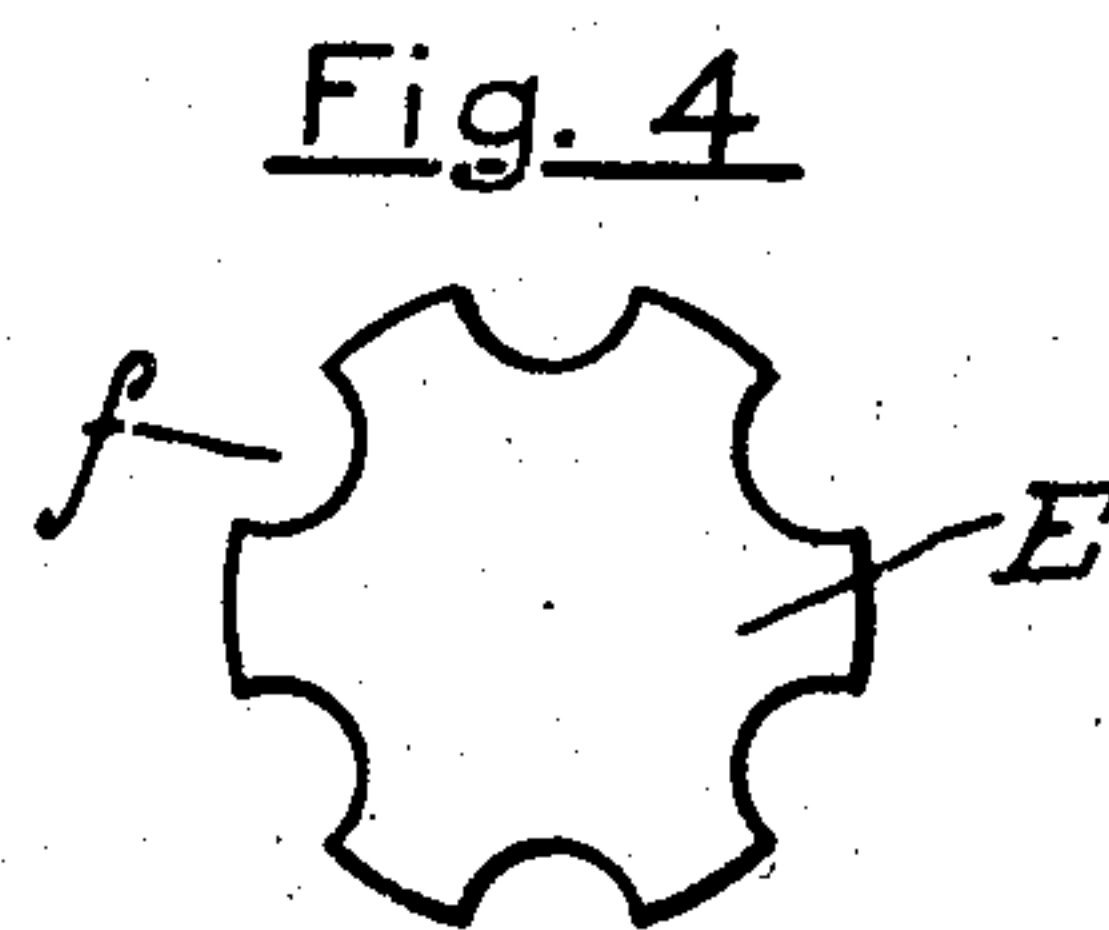
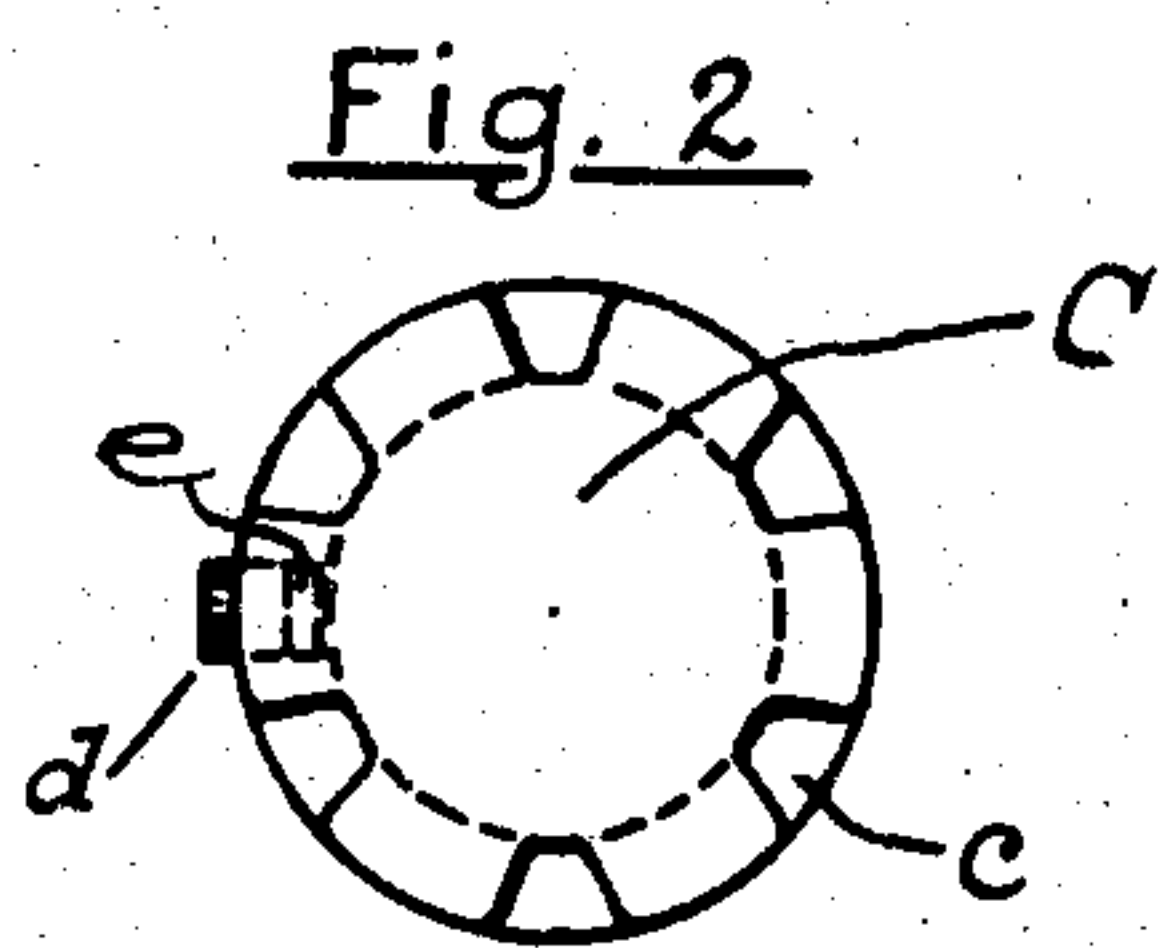
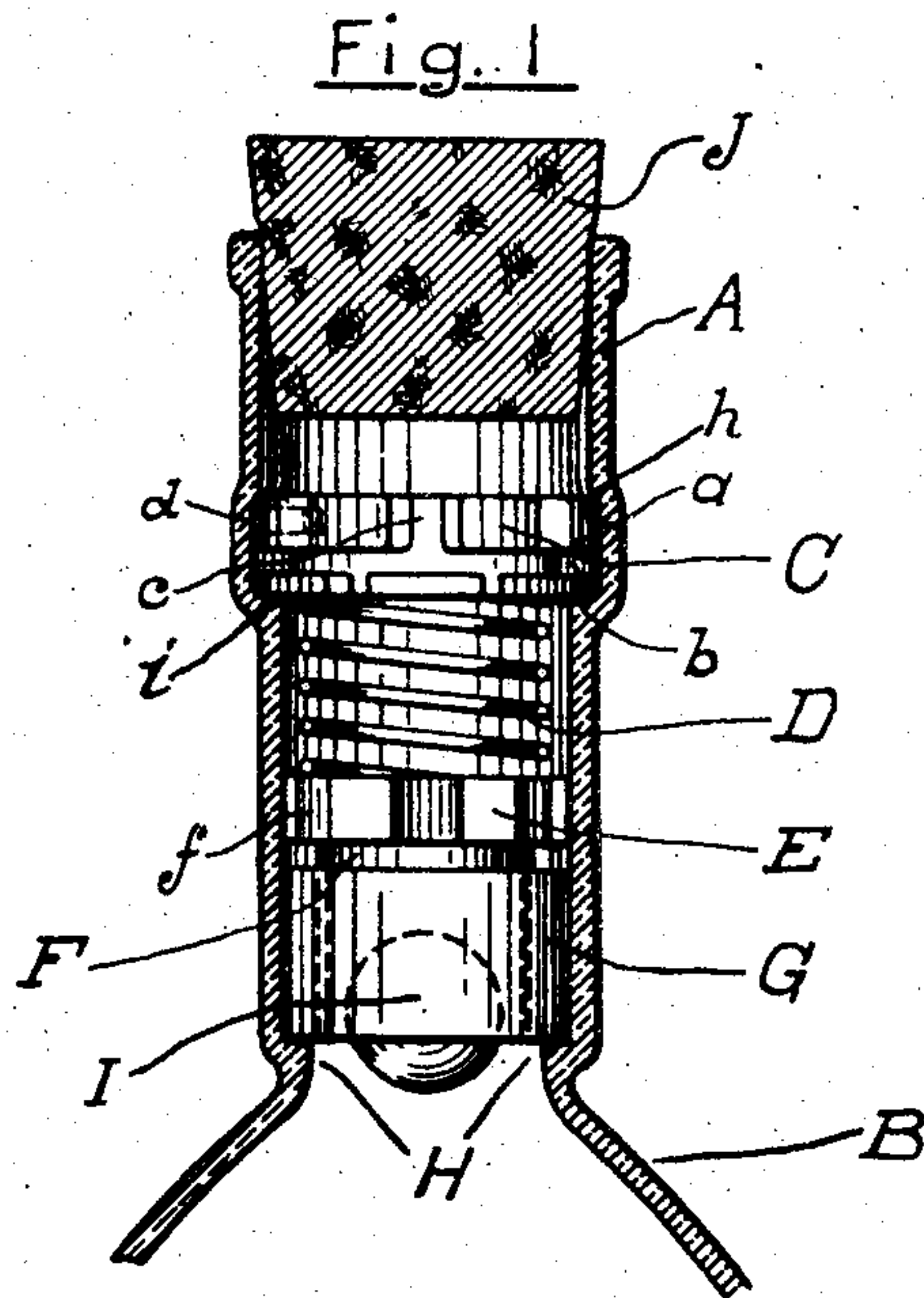


No. 780,908.

PATENTED JAN. 24, 1905.

C. S. ORR.  
NON-REFILLABLE BOTTLE.  
APPLICATION FILED FEB. 2, 1904.



WITNESSES

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# UNITED STATES PATENT OFFICE.

CHARLES S. ORR, OF PROVIDENCE, RHODE ISLAND.

## NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 780,908, dated January 24, 1905.

Application filed February 2, 1904. Serial No. 191,682.

*To all whom it may concern:*

Be it known that I, CHARLES S. ORR, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to non-refillable bottles, and has for its purpose the ends commonly sought in devices of such a character.

To the indicated ends my invention consists in the novel combination and structure of parts hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical central section of a bottle-neck involving my invention, showing inclosed parts in side elevation; Fig. 2, a plan view of the plug; Fig. 3, a side elevation of the same, showing a portion broken away to disclose the pin positioned therein; and Figs. 4 and 5, plan and side elevations, respectively, of the resilient disk.

Like reference characters indicate like parts throughout the views.

In the drawings, A represents the neck, and B the body, of a bottle involving my invention. Midway the length of the neck its interior diameter is increased for a short distance, forming a channel *a*, whose upper and lower margins form shoulders *h* and *i*, respectively, wherein is positioned a porcelain plug C. The latter is provided with an annular channel *b* upon its side, which is crossed by vertical channels *c* in staggered relation to each other. In a recess in the upper portion of the plug, near the margin thereof, is a pin *d*, bearing against a spring, cork, rubber, or other material of resilient quality *e*. Said pin is intermediate of two of said channels *c* and on a plane above the channel *b*, whereby same will not interfere with passage of liquids through said channels.

Below the plug C is a spiral spring D, bearing upon the top of a disk E. The latter is composed of rubber, cork, or some substance

of resilient quality and is provided with vertical channels *f* upon its margin.

Below the disk is a thin metal tube F, surrounded by a sleeve G. The sleeve is of cork and is frictionally held intermediate the throat of the bottle and side of the tube. The lower portion of the cork sleeve contacts with an annular shoulder H at the base of the bottle-neck. A glass ball I of less diameter than the tube F moves freely in the bottle.

In Fig. 1 the ball I is illustrated as in the act of passing out of the bore of tube F as the bottle resumes a vertical position after discharging its contents.

J represents an ordinary cork inserted in the neck of the bottle.

The operation of my invention is as follows: When the bottle is reversed into the usual position for discharging its contents, the liquid therein will by virtue of its weight press downwardly against the lower surface of the disk E, thereby forcing the latter against the tension of spring D and allowing the water egress from beneath the edge of the metal tube F. The liquid is then free to pass through the vertical passages *f* in the margin of the disk E and thence proceeds to the plug C, whose margin it traverses through the passages *b* and *c*, which finishes the discharging operation. When the contents of the bottle are nearly exhausted, it is evident that the weight of the liquid itself would soon become insufficient to operate successfully against the tension of the spring D. Therefore the glass ball I lends the auxiliary weight requisite to supplement the force of the liquid upon the lower surface of the disk E when the bottle is in inverted position.

The staggered relation of the channels *c* makes it impossible for a person desirous of tampering with the bottle mechanism to insert an instrument below the plug, and it is evident that access cannot be gained to the mechanism after the parts are once adjusted.

The plug C is positioned by being forced downwardly into the neck of the bottle during the retraction of its pin *d*. At the mo-



ment, however, that the plug reaches its position within the channel *a* of the bottle-neck the pin *d* is allowed to spring outwardly below the shoulder *h*, and the parts are then secured against vertical movement.

Having described my invention, what I claim is—

1. The combination with a bottle having its neck provided with an annular chamber, a tube supported within said neck below said chamber, a valve-disk adapted to close said tube, a plug of larger diameter than said disk fitted within said annular chamber and resting upon the bottom thereof, a locking device carried by said plug and adapted to engage the top wall of said chamber, and means for holding said valve yieldingly against the outlet of said tube.

2. The combination with a bottle having its neck provided with an annular chamber, a tube supported within said neck below said chamber, a valve-disk having vertical channels in its periphery and adapted to close said tube, a plug of larger diameter than said disk fitted within said annular chamber and resting upon the bottom thereof, a locking device carried by said plug and adapted to engage the top wall of said chamber, and a spring interposed between said plug and said valve-disk.

3. The combination with a bottle having its neck provided with an annular chamber and a lower annular shoulder, a friction-sleeve resting on said shoulder, a tube supported by said sleeve, a valve-disk adapted to close said tube, a plug of larger diameter than said disk fitted within said annular chamber and resting

upon the bottom thereof, a locking device carried by said plug and adapted to engage the top wall of said chamber, and means for holding said valve-disk yieldingly against the outlet of said tube.

4. The combination with a bottle having its neck provided with an annular chamber, a tube supported within said neck below said chamber, a valve-disk adapted to close said tube, a plug of larger diameter than said disk fitted within said annular chamber and resting upon the bottom thereof, a locking device carried by said plug and adapted to engage the top wall of said chamber, means for holding said valve yieldingly against the outlet of said tube, and a weight adapted to pass through the bore of said tube and unseat said valve-disk.

5. The combination with a bottle having its neck provided with an annular chamber, a tube supported within said neck below said chamber, a valve-disk adapted to close said tube, a plug of larger diameter than said disk fitted within said annular chamber and resting upon the bottom thereof, said plug having an annular channel and intersecting staggered vertical channels, and a locking-pin mounted in said plug intermediate of said vertical channels and on a plane above said annular channel, whereby it will engage the top wall of said chamber.

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

CHARLES S. ORR.

Witnesses:

HORATIO E. BELLOWS,  
WILLIAM E. BROWN.