

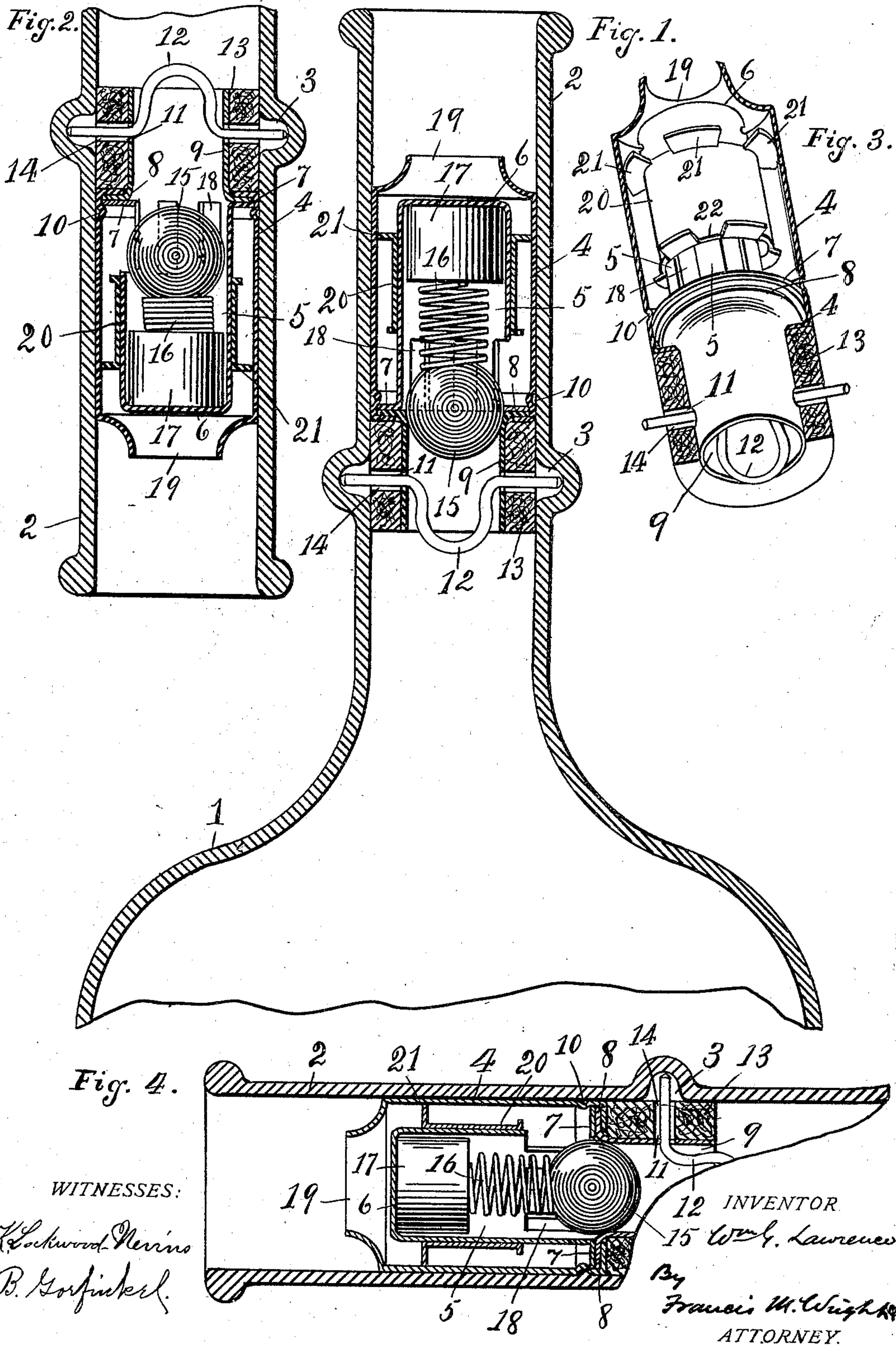
No. 709,099.

Patented Sept. 16, 1902.

W. G. LAWRENCE.
NON-REFILLABLE BOTTLE.

(Application filed Jan. 27, 1902.)

(No Model.)



UNITED STATES PATENT OFFICE.

WILLIAM GEO. LAWRENCE, OF OAKLAND, CALIFORNIA.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 709,099, dated September 16, 1902.

Application filed January 27, 1902. Serial No. 91,510. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GEORGE LAWRENCE, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to non-refillable bottles, the object of my invention being to provide a cheap and simple device applied to the neck of a bottle, which shall absolutely prevent refilling of the bottle after the contents have been discharged therefrom, except by breaking or disfiguring the neck of the bottle or device; and my invention resides in the novel construction, combination, and arrangement of parts for the above ends hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a central vertical section of the upper portion of the bottle equipped with my improvements. Fig. 2 is a similar view of the neck of the bottle inverted. Fig. 3 is a perspective view of the device removed from the bottle, the outer wall and the cork sleeve being shown in section; and Fig. 4 is a central longitudinal section of the neck of the bottle, showing the position of the parts when the bottle is held in a horizontal position.

Referring to the drawings, 1 represents the body of the bottle, and 2 the neck thereof. The neck is formed with an annular internal groove 3, the object of which will appear in the further description of the invention.

4 is an external wall of the device or stopper, said wall fitting snugly within the inner surface of the neck of the bottle.

5 represents a valve-chamber, cylindrical in form, closed at its upper end, as shown at 6, and having an outwardly-extending flange 7 at its lower end. Against and below said flange 7 fits the flange 8 of the upper end of the valve-seat 9. Around said flanges 7 and 8 is bent the lower edge of the wall 4, and in said wall and above said flange is formed a groove 10. Thus said flanges 7 and 8 are firmly held together in position between said groove 10 and the flange of the wall 4. The valve-seat has formed therein two diametrically opposite apertures 11, through which project the ends of a

spring-wire 12, the central portion of which is U-shaped. Also around said valve-seat is provided a cork sleeve 13, and the ends of the spring-wire pass through apertures 14 in said sleeve. To insert the stopper in position, all that is necessary is to press the ends of the spring-wire inward until said ends can pass into the neck of the bottle and then force said stopper down said neck until the ends of the wire arrive at the groove, when they are automatically projected by the spring action of the wire into said groove, and by their engagement with said groove prevent withdrawal of the stopper from the neck of the bottle.

Upon the valve-seat sits a ball 15. Above said ball, within the valve-chamber, is placed a light coiled spring 16, and above said spring is a cylindrical float 17, made of light material, as cork. Openings 18 are formed in the wall of the valve-chamber, in the lower portion thereof, and through said openings when the bottle is inverted the water flows downward into the space between the wall and the valve-chamber and the wall of the stopper, the ball being then forced down by the pressure of the liquid against the upward pressure of the spring. The liquid then flows out from the central opening 19 in the end of the stopper. In order to prevent tampering with the ball-valve by the insertion of a wire through said opening 19, there is provided a jacket 20, fitting snugly upon the wall of the valve-chamber and having its ends notched, said notched ends being turned up and fitting against the wall of the stopper. Said notched ends thus form fences, and they are so arranged that the projections 21 at the upper end of the jacket are immediately over the openings or notches 22 in the lower end, and vice versa. This arrangement prevents tampering by means of a wire in the manner indicated, for in order for a wire to be inserted from the top to tamper with the ball-valve it would be necessary for the said wire to follow a very circuitous and irregular path. The spring 16 presses the ball-valve against its seat and prevents refilling the bottle when it is held in a horizontal position. If the bottle be inverted and it is attempted to refill the same in that position, the float 17 will immediately rise with the liquid into which the

neck of the bottle is inserted and will close the valve.

I claim—

1. In a non-refillable bottle the combination, with the body of the bottle, of a stopper 5 having inner and outer tubular walls, the inner tube being apertured in its lower portion and having a valve-seat for a ball-valve, a ball on said seat, a float within the inner tube, 10 and a spring between said float and ball, the inner tube being closed at its upper end, and the annulus between the upper ends of the tubes being open, substantially as described.

2. In a non-refillable bottle, the combination, with the body of the bottle, of a stopper 15 having inner and outer tubular walls, the inner tube being apertured in its lower portion and having a valve-seat for a ball-valve, a ball on said seat, a float within the inner tube, 20 a spring between said float and ball, the inner tube being closed at its upper end and the annulus between the upper ends of the tubes being open, and a series of broken annular fences extending transversely of the 25 stopper between the inner and outer walls, the breaks or openings in successive fences being out of alinement, whereby a circuitous path is formed from an opening in the upper end of the stopper to one in the lower portion 30 of the inner tube, substantially as described.

3. In a non-refillable bottle, the combination, with the body of the bottle, of a stopper 35 having inner and outer tubular walls, the inner tube being apertured in its lower portion and having a valve-seat for a ball-valve, a ball on said seat, a float within the inner tube, a spring between said float and tube, the inner tube being closed at its upper end and

the annulus between the upper ends of the tubes being open, a series of broken annular 40 fences extending transversely of the stopper between the inner and outer walls, the breaks or openings in successive fences being out of alinement, whereby a circuitous path is 45 formed from an opening in the upper end of the stopper to one in the lower portion of the inner tube, and means for automatically locking the stoppers to the bottle, substantially as described.

4. In a non-refillable bottle, the combination, with the body of the bottle, of a stopper 50 having inner and outer tubular walls, the outer wall having a rim fitting snugly within the neck and having a cork layer below said rim, the inner tube being apertured in its lower 55 portion and having a valve-seat for a ball-valve, a ball in said seat, a float within the inner tube, a spring between said float and ball, the inner tube being closed at its upper end and the annulus between the upper ends 60 of the tubes being open, and a series of broken annular fences extending transversely of the stopper between the inner and outer walls, the breaks or openings in successive fences being out of alinement, whereby a circuitous 65 path is formed from an opening in the upper end of the stopper to one in the lower portion of the inner tube, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses. 70

WILLIAM GEO. LAWRENCE.

Witnesses:

FRANCIS M. WRIGHT,
K. LOCKWOOD NEVINS.