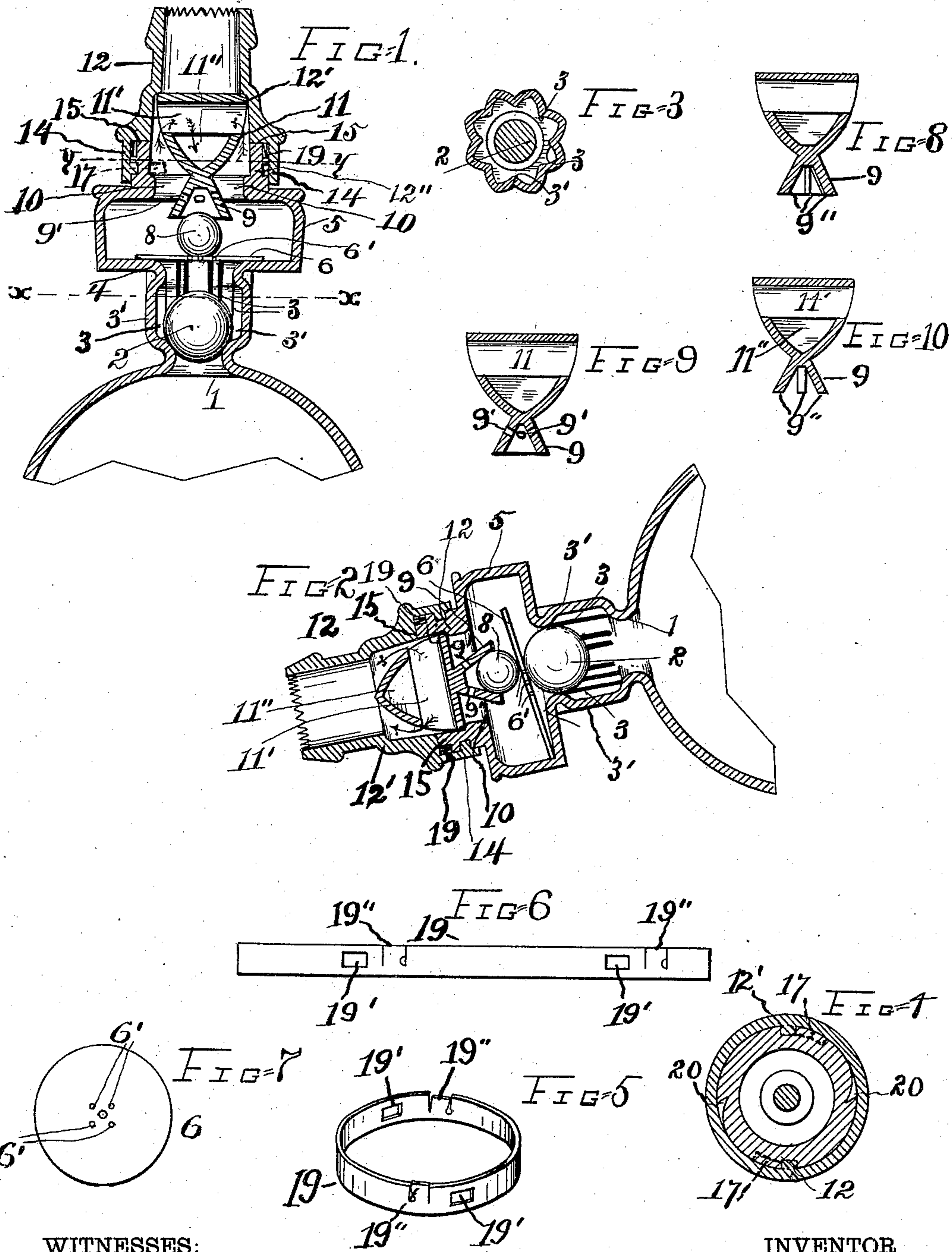


(No Model.)

W. H. PAYNE.
NON-REFILLING BOTTLE DEVICE.

No. 567,750.

Patented Sept. 15, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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NON-REFILLING-BOTTLE DEVICE.

SPECIFICATION forming part of Letters Patent No. 567,750, dated September 15, 1896.

Application filed June 15, 1896. Serial No. 595,620. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PAYNE, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Non-Refilling-Bottle Devices; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof as to enable others skilled in the art to make and use the said invention.

This invention relates to non-refilling bottles, and has for its object the prevention of the clandestine refilling of bottles or like vessels; and to this end it consists in an arrangement of valve-seats and valves, weights for enforcing the closing of the valves and opening thereof, a guard or check limiting the motion of the weight and of the valve, and a guard to prevent access to the valve by implements, and also means of connecting the parts of the bottle-neck together, whereby, after the internal parts have been assembled and the parts of the bottle-neck united, they cannot, without detection, be severed from each other.

The construction of this device is shown in the accompanying drawings and is herein-after particularly described.

Referring to the drawings, Figure 1 shows a lengthwise central section of a bottle-neck containing this device standing in erect position. Fig. 2 shows a like section of the bottle-neck placed in an inclined position for decanting. Fig. 3 shows a transverse section of the bottle-neck in the plane indicated by the dotted line xx in Fig. 1. Fig. 4 shows a transverse section of the bottle-neck in the plane indicated by the dotted line yy in Fig. 1. Fig. 5 shows a spring used to secure the parts of the bottle-neck when united with each other. Fig. 6 shows the spring as it is cut out before bending. Fig. 7 shows the disk-valve separated from the other parts. Fig. 8 shows in vertical section one form of the guard for preventing access by implements to the valve and also for limiting and guiding the motion of the weight and valve beneath it. Figs. 9 and 10 show modifications of this guard.

This device being applicable to any form of bottle, only the upper portion of the body of a bottle is shown.

1 represents the lower valve-seat; 2, a spherical valve arranged to seat itself by gravitation in said seat and guided by parallel ribs 3 in the portion of the neck marked 3'.

4 is a shoulder forming a valve-seat above the portion of the neck 3', and 5 is an expanded chamber above said shoulder.

6 is a flat or disk valve resting, when closed, upon the shoulder 4, and may be made of any thin material innocuous to liquids contained in the bottle. Glass or porcelain will answer; but mica is found to be a preferable material. At or near the center of the valve 6 are one or more minute perforations or vents, (marked 6'.) The vents or perforations 6' are useful in facilitating the prompt opening of the valve when pouring from the bottle by admitting the atmosphere to the under side of the valve.

A rolling weight or ball 8 is placed in the expanded chamber 5, and is there held approximately in a central position by an inverted cup 9, which projects downwardly from the guard 11 and serves to limit the rising motion of the ball 8, and also the opening motion of the valve 6. This inverted cup 9 is shown in three forms. As depicted in Figs. 1 and 2, it is simply an inverted conical cup with apertures 9' near the upper portion, through which fluid may freely pass inwardly and outwardly in lateral direction, so that the fluid in the cup offers little or no impediment to the motion of the ball 8. As shown in Fig. 8, ribs 9'' are placed inside the cup 9 to prevent contact of any such extended surface of the ball with the internal surface of the cup 9 as to produce adhesion. As shown in Fig. 10, the cup 9 is cut away in segments, so as to leave only the ribs 9'' remaining, presenting the appearance of claws extended so as to grasp the ball.

Above the chamber 5 is a contraction 10. This supports the guard 11, which guard may be of any form that will prohibit the access by tools or implements to the valve below. The guard should be of larger diameter than the inside of the upper section of the neck, so that a shoulder 12' in the upper section of the neck 12 holds the guard 11 down and prohibits displacement of it without a severance of the parts of the neck.

The form of guard 11 depicted in the draw-

ings shows two Gothic arches 11' and 11'', the lower one, 11'', being inverted and having fluid intercommunication with the other arch 11' and the upper outlet portion of the bottle-neck, as follows: to flow outwardly, passing upwardly to enter the opening in the end of the upper arch 11' and downwardly from the center of the upper arch 11' into the center of the lower inverted arch 11'', and upwardly from the openings in the end of the lower inverted arch 11'' to the upper neck-section 12 for discharge, as indicated by the direction of the arrows. The upper neck-section 12 is formed with an enlarged lower portion 14, having a shoulder 15 in it, against which a cork or other compressible washer or gasket rests, fitting on the upper end of the lower part of the neck, which cork or gasket seals the joint between the upper and lower parts of the neck. Angular grooves, as shown in dotted lines in Figs. 1 and 4 and marked 17, of the form known as a "bayonet-joint" or "bayonet-clasp," are formed on the outside of the lower part of the neck, and in the inside of the expanded portion 14 of the upper neck 12 are internal projections 12'', upon which fit corresponding apertures 19' in a spring 19, (shown in Figs. 5 and 6,) which spring 19 has tongues 19'', which press inwardly elastically, and when turned so that the projection 12' engages in the circumferential or horizontal parts of the bayonet-clasp groove 17 are held by the tongues locking against the undercut edges or sides 20 of the grooves 17, depicted in Fig. 4. The spring 19 is cut as a strip of metal (shown in Fig. 6) and bent to the form shown in Fig. 5, and as the parts of the neck are rotated slightly one upon the other, so that the projections 12'' are engaged in the grooves 17 in the horizontal or circumferential parts thereof the spring-tongues 19'', engaging the undercut notches 20, prevent any reversed rotation of the part 12 upon the lower section of the neck, thus securing the parts to each other.

The upper surface or end of the neck, as shown in Figs. 1 and 2, is serrated or scalloped, so that the hand cannot be applied to it to use it as a diaphragm to make fluid displacement, and so force fluid into the bottle by repeated reciprocation of the hand upon the bottle-neck acting as a pump when the bottle is submerged in the fluid, or fluid is otherwise presented to it.

The bottle is first filled with liquid before the valve 2 and the upper section of the neck 12 are applied. Then the valves and guard and the upper section of the neck are applied, with the spring 19 placed in position and turned until the spring-tongues 19'' lock into the undercut notches of the neck (marked 20) and the severance of the parts is impossible without breaking either the tongues 19'' of the spring 19^x or the undercut sides 20 of the grooves, so that a reëtrance of liquid is prohibited. Exit of fluid is readily had by placing the bottle in an inclined position, as

shown in Fig. 2, when the valve-ball 2 rolls from its seat 1 and the disk-valve 6 opens and the ball 8 holds the disk-valve 6 in proper limit of open position, and fluid passes through the neck around the inverted cup 9, inwardly in the upper portion of the guard 11', thence downwardly into the central portion of the lower part of the arch or guard 11'', thence laterally into the neck of the bottle, and upwardly to the lip, whence it is discharged. The small perforations 6', which may be of almost capillary size, in the valve 6 serve to permit air to pass in, but are too small to permit any flow of liquid into the bottle, and the position of the ball 8 above said valve defends such opening against any jet of fluid being directed upon them so as to force fluid through them.

Having described this invention and the operation thereof, what I claim is—

1. A bottle-neck provided with valves opening outwardly, and a guard to prevent access by implements to said valve, said neck being formed of two parts to permit the introduction of the guard, and a valve, in combination with a spring, engaging in one member of the neck so as to rotate therewith, and to be held down thereby, and having elastic projections arranged to engage as a ratchet or pawl to prevent rotation of the parts in reverse direction, substantially as and for the purpose set forth.

2. In a bottle-neck provided with valves opening upwardly, and a guard arranged to prevent access by implements to said valve, a serrated terminal lip on said neck arranged to prevent the application of a diaphragm to make displacement in the neck, substantially as and for the purpose set forth.

3. In a device for preventing clandestine refilling of bottles, a valve-chamber having a valve-seat in the bottom thereof, a disk-valve superposed upon said seat having one or more perforations therein, in combination with a rolling weight superposed upon said disk valve, and an inverted guide or cup substantially as described, arranged to limit the rolling motion of said weight, and the opening motion of said valve, and to confine said rolling weight approximately to the center of said chamber and means for raising said valve from its seat, substantially as and for the purpose set forth.

4. In a device for preventing clandestine refilling of bottles, a guard arranged to prevent access by implements to a valve placed below in the bottle-neck, in combination with a cup or equivalent guiding mechanism adapted to confine a rolling weight in a central position in the bottle-neck, and to restrict the motion of said rolling weight a disk valve and a weight below said valve contacting therewith to open the same in decanting, substantially as set forth.

5. In a device for preventing clandestine refilling of bottles, a lower valve-seat and valve opening upward, guides directing said

valve in the line of axis of the valve-seat, a superposed flat valve having minute perforations therein, a rolling weight superposed upon said perforated flat valve, and a confining and guiding mechanism restricting the rolling weight to an approximately central position upon the said perforated flat valve and restricting the opening and closing movement of said flat valve, substantially as and for the purpose set forth.

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Witnesses:

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