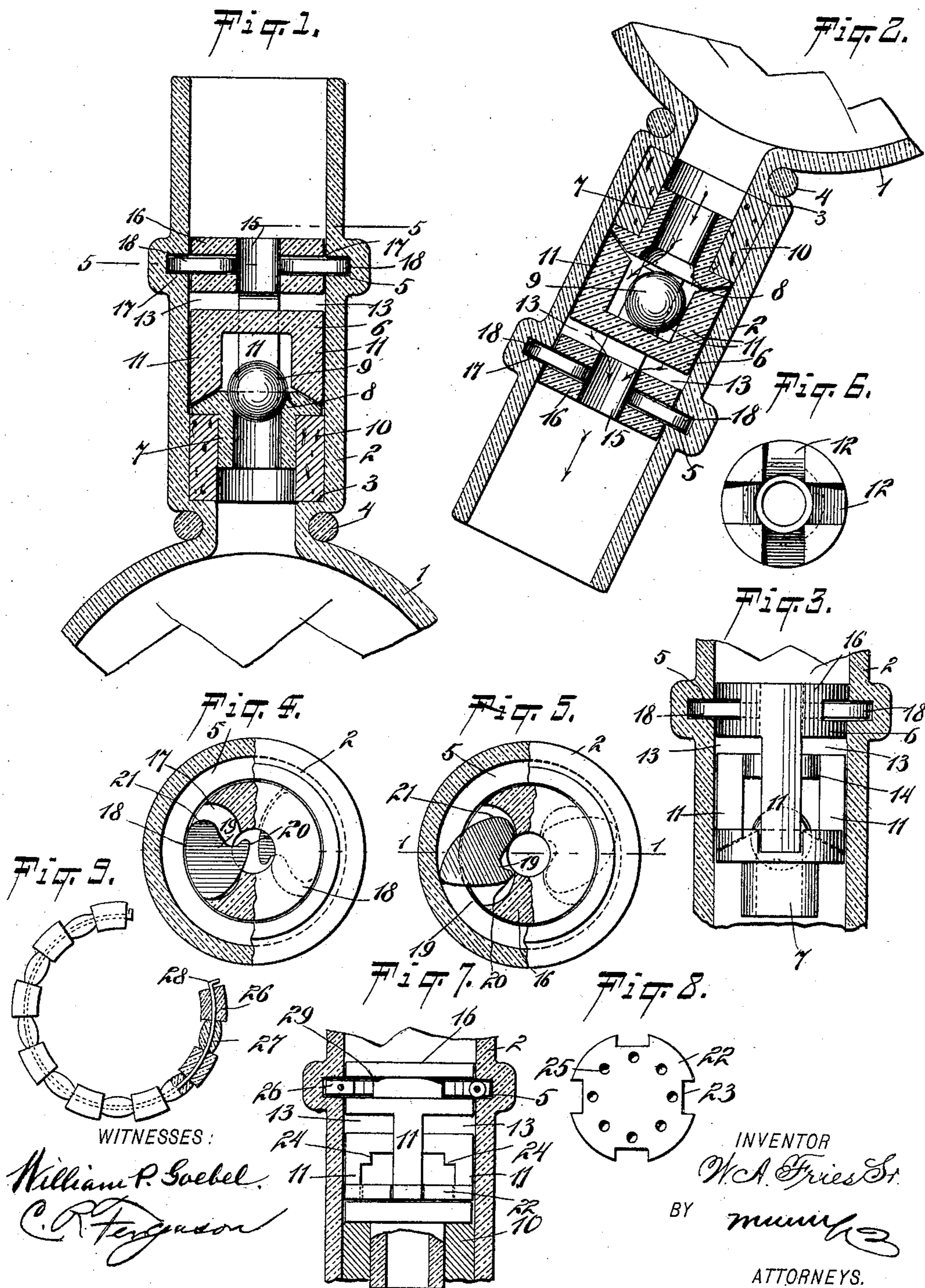


(No Model.)

W. A. FRIES, Sr.
BOTTLE.

No. 603,527.

Patented May 3, 1898.



UNITED STATES PATENT OFFICE.

WILLIAM A. FRIES, SR., OF BROOKLYN, NEW YORK.

BOTTLE.

SPECIFICATION forming part of Letters Patent No. 603,527, dated May 3, 1898.

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To all whom it may concern:

Be it known that I, WILLIAM A. FRIES, Sr., of Brooklyn, in the county of Kings and State of New York, have invented new and useful
5 Improvements in Bottles, of which the following is a full, clear, and exact description.

This invention relates to bottles of the non-refillable class; and an object is to provide an obstructing device in the neck of the bottle constructed entirely of glass, so that there
10 can be no bad effects which might result from metal parts, and a further object is to provide a simple locking means for holding the obstructing device in position so that it cannot
15 be removed.

I will describe a bottle embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying
20 drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional elevation through the line 1 1 of Fig. 5 of the neck of a bottle and the obstructing device embodying my invention. Fig. 2 shows the bottle inverted for the discharge of the contents of the bottle. Fig. 3 is a side elevation of the obstructing device secured in the neck of a bottle which is shown
30 in section. Fig. 4 is a partial section on the line 5 5 of Fig. 1, showing the locking devices in position to allow the insertion of a portion of the obstructing device. Fig. 5 is a partial section on the line 5 5 of Fig. 1, showing the
35 locking devices in their locking position. Fig. 6 is a plan view of a valve-seat employed. Fig. 7 is a partial section and partial elevation showing a modification. Fig. 8 shows a modified form of the valve employed in Fig. 7, and Fig. 9 shows a modified form of the locking device.

Referring to the drawings, 1 designates the body portion of a bottle, and 2 the neck thereof. The neck at its junction with the
40 body portion is contracted to form the interior annular shoulder 3. As the contraction between the body portion of the neck might render this part weak or easily broken, I place a ring 4, of glass, around the outer surface of
45 the contracted portion. This ring may be placed around the contracted portion while said ring is in a molten state. Between its

ends the neck portion 2 has an interior annular channel 5, designed to receive the locking devices, as will be hereinafter described. 55

The obstructing device comprises a valve-casing having a body portion 6 and a tubular portion 7, having a valve-seat 8 for a ball-valve 9. The tubular portion 7 of the valve-casing has an annular flange at its upper end
60 which engages on a yielding bushing 10—such, for instance, as cork—which fits snugly within the neck of the bottle and at its lower end engages on the shoulder 3. This ring engages closely around the lower portion of
65 the tubular portion 7 and is somewhat longer than the said tubular portion, so as to allow for a slight movement downward of said tubular portion when the upper portion of the casing is put in place. The upper portion 6
70 has downwardly-extended legs 11, the lower ends of which are beveled downward and outward to engage the bottoms of correspondingly-beveled notches 12, formed in the top
75 of the portion 7. These legs 11 will hold the body portion 6 of the valve-casing sufficiently above the portion 7 and will also form guides for the ball-valve, and as they engage in the notches 12 the side walls of said notches 12 will prevent a rotary movement of the upper
80 portion of the valve-casing relatively to the lower portion.

The upper portion of the valve-casing is provided with a space or chamber 13, and ports 14 are formed between the legs 11, so
85 as to provide communication between the ports 13 and the opening controlled by the valve. The space 13 communicates with an outlet 15, extended vertically through the head portion 16 of the valve-casing. The
90 head portion 16 of the valve-casing has lateral openings 17, each formed substantially in the arc of a circle and designed to register with the groove or channel 5 in the neck of the bottle. In these lateral openings 17 locking-keys 18 are placed. These locking-keys
95 are substantially ovate in contour and at their larger ends are each provided with a notch 19 and lugs 20 21, the lug 21 being somewhat broader than the lug 20. Before the
100 upper portion of the valve-casing is placed in the neck of the bottle the locking-keys will be placed in the openings 17, so that their outer edges will be in the same circle as the

head portion 16 of the valve-casing, as indicated in Fig. 4.

In operation after filling the bottle the tubular portion 7 of the valve-casing will be forced into position with the cork bushing against the shoulder 3. Then with the keys in the position indicated in Fig. 4 the upper portion of the valve-casing will be forced downward upon the tubular portion 7. Of course the ball-valve will be placed in position before the upper portion is placed. The upper portion of the valve-casing will be forced downward sufficiently to somewhat compress the cork bushing, and then with a suitable instrument—such, for instance, as a flat piece of steel—inserted into the outlet 15 and engaging with the lugs 20 of the opposite keys and rotating said instrument the keys will be turned outward to the position indicated in Fig. 5, with their smaller ends engaging in the channel 5, and the lugs 20 and 21 will engage against the inner walls of the openings 17. Then upon relieving the upper portion of the valve-casing from pressure the cork bushing by expanding will force the whole valve-casing sufficiently upward to engage the keys tightly against the upper walls of the channel 5, thus preventing any possible displacement of the keys.

The valve-casing and the keys will be made of glass, and the ball-valve will also be made of glass. It will be noted that the outlets or chambers 13 are arranged at right angles to the ports 14, so that it will be impossible to insert a wire or similar device to engage with the ball-valve to raise it out of its seat and hold it for the purpose of fraudulently refilling the bottle.

When it is desired to pour out any of the contents of the bottle, it is only necessary to invert the bottle, as indicated in Fig. 2, when of course the ball-valve will roll out of its seat, allowing the free discharge of the liquid, as indicated by the arrows in said figure. Should an attempt be made, however, to refill the bottle by placing it on its side or otherwise, the ball-valve will be floated to its seat and effectually close off all access to the body of the bottle.

My object in making the valve-casing in two portions—that is, the portions 6 and 7—is to provide for the grinding of the valve-seat, which obviously could not be done were the parts integral, this grinding, of course, being necessary to make a tight fit between the valve and its seat.

In the example of my improvement shown in Figs. 7 and 8 I employ a plate-valve 22, of glass, and having a circumference substantially equal to the inner circumference of the bottle-neck. This plate-valve has peripheral notches 23, in which the legs 11 engage in such manner that the valve may move longitudinally of said legs, and to prevent the said plate-valve from moving too far upward to cut off the egress of liquid I provide the inner portions of the legs 11 with lugs 24, against

which the plate-valve will engage. The plate-valve 22 is provided with a circular row of perforations 25, being arranged in a circle larger than the opening through the tubular portion 7 of the valve-casing, and therefore when this plate-valve is in its closing position it will rest upon the upper surface of the flange on said tubular portion 7. When, however, the bottle is inverted for the discharge of liquid, as before described, the said plate-valve 22 will move up against the lugs 24 and allow the discharge of the liquid. In this example of my improvement instead of locking-keys, as described, I have shown a locking device consisting of glass beads 26, substantially rectangular in cross-section, alternating with glass beads 27, which are somewhat smaller than the first-named beads and are circular in cross-section. These beads are strung on a wire 28 of spring yielding material, so that this form of locking device may be compressed into an annular channel 29, formed in the head portion 16 of the valve-casing. By alternating the beads, as described, the bearing-surface between the beads is reduced, so that the spring-ring may more easily operate. In inserting the upper portion of the valve-casing this ring-shaped locking device will be compressed into the annular channel, and when said annular channel is in line with the annular channel 5 in the neck of the bottle the locking device will spring outward to engage partly in the channel 5 and partly in the channel 29, thus preventing any outward movement of the upper portion of the valve-casing. The neck of the bottle will extend sufficiently above the valve-casing to allow for the insertion of an ordinary stopper.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A bottle, having a channel in the interior of its neck, a valve-casing in the neck, a valve in the casing, and locking means for the casing comprising a plate substantially ovate in contour, the said plate being movable in an opening in the casing and adapted to engage in the channel of the neck and to engage its inner end against a wall of the opening, substantially as specified.

2. A bottle, having its neck portion provided with an interior annular shoulder and an interior annular channel, a valve-casing consisting of a lower tubular portion having a flange at its upper end and a valve-seat, an upper portion provided with outlet-ports and having legs, the lower ends of which are inclined outward and downward to engage against the bottom walls of inclined notches formed in the top of the flange of said tubular portion, a ball-valve in the casing adapted to engage in the valve-seat, a cork bushing surrounding the tubular portion of the valve-casing, the said bushing being somewhat longer than said tubular portion and resting on a shoulder formed in the neck of the bot-

tle, and locking means carried by the upper portion of the valve-casing and adapted to engage in the annular channel in the neck of the bottle, substantially as specified.

5 3. A bottle, having a neck portion provided with an interior channel, a glass-valve casing consisting of two detachable portions, the lower portion having a valve-seat, the upper portion having downwardly-extended legs to
10 engage in notches formed in the upper end of said lower portion, the said upper portion having a space or chamber connected by means of ports between the legs with the opening through the lower portion of the valve-
15 casing, and also communicating with the central opening or outlet through the head of the upper portion, and glass keys substantially ovate in contour and having lugs at their inner or larger ends, the said keys be-
20 ing movable in openings or seats formed in the head portion of the valve-casing, and adapted to engage in the channel formed in the neck of the bottle, substantially as specified.

4. A bottle, having its neck portion provided with an interior annular channel, a 25 valve-casing in said neck portion having outlet-ports, a valve in said casing, and locking devices consisting of flat pieces of glass substantially ovate in contour and having lugs formed at the larger or inner end, the said 30 locking devices being engaged in lateral openings extended from the central outlet of the valve-casing and movable into the annular channel formed in the neck of the bottle, substantially as specified. 35

5. An obstructing device for a bottle, comprising a glass-valve casing in the neck of the bottle, a glass valve therein, and locking devices consisting of glass, substantially ovate in contour, and movable to extend from open- 40 ings in the casing to a channel in the bottle-neck substantially as specified.

WILLIAM A. FRIES, SR.

Witnesses:

JNO. M. RITTER,
C. R. FERGUSON.