

No. 617,733.

P. J. FRIEDRICH.

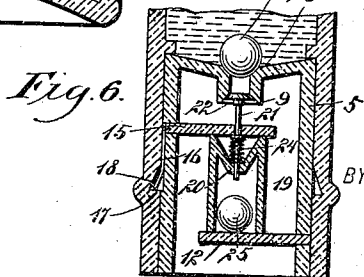
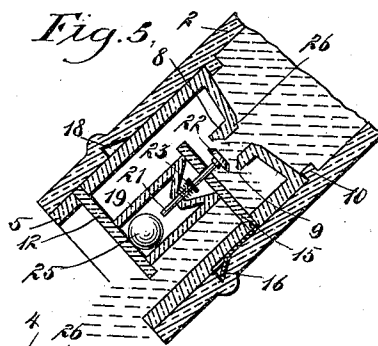
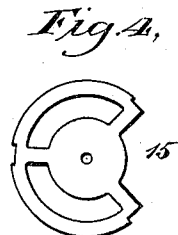
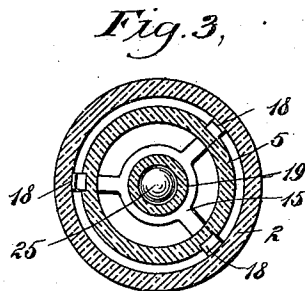
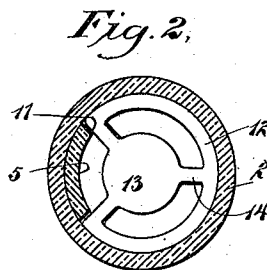
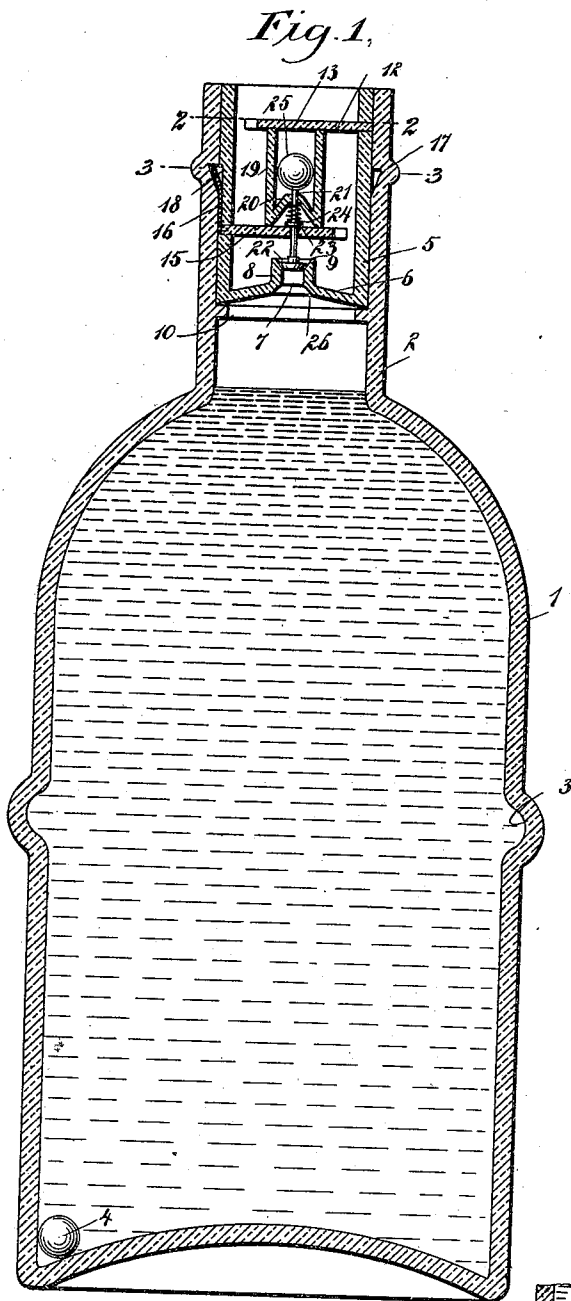
Patented Jan. 17, 1899.

BOTTLE.

(No Model.)

(Application filed Feb. 9, 1898.)

2 Sheets—Sheet 1.



WITNESSES:

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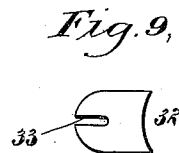
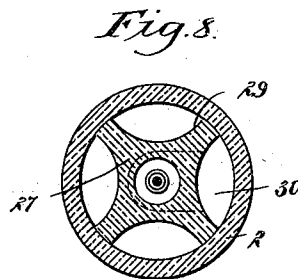
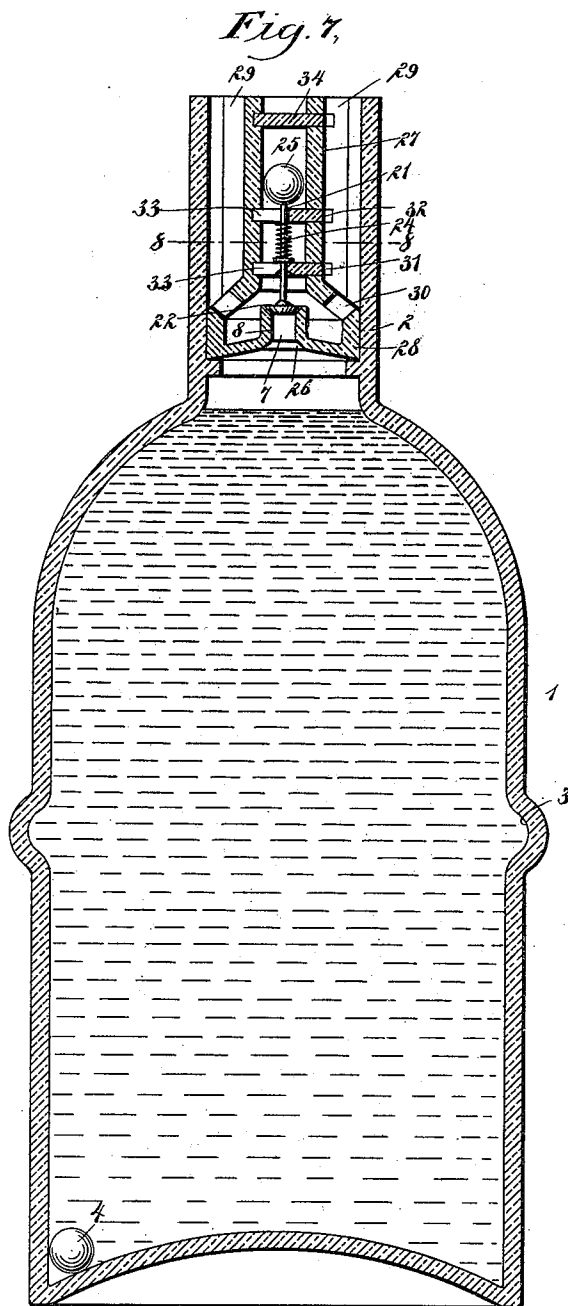
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BOTTLE.

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2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE,

PHILIP J. FRIEDRICH, OF COYTESVILLE, NEW JERSEY.

BOTTLE.

SPECIFICATION forming part of Letters Patent No. 617,733, dated January 17, 1899.

Application filed February 9, 1898. Serial No. 669,679. (No model.)

To all whom it may concern:

Be it known that I, PHILIP J. FRIEDRICH, of Coytesville, in the county of Bergen and State of New Jersey, 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 the object is to provide a bottle of this character that shall be simple
10 and comparatively inexpensive to manufacture, and, further, to provide a simple means to prevent the outflow of liquid should the bottle be inverted, as sometimes happens during the transportation of cases of liquors or the
15 like. This means is also designed to act as a stopper or valve to relieve the main valve from pressure of any small amount of liquid that might be in the bottle during an attempt to refill the bottle by inverting the bottle in
20 liquid.

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
25 drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section of a bottle embodying my invention. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a plan view of a supporting-spider employed. Fig. 5 is a sectional view showing the neck portion of a
30 bottle as tilted to pour out liquid. Fig. 6 shows the neck portion of a bottle as inverted. Fig. 7 is a vertical section of a bottle, showing a modified construction. Fig. 8 is a section through the line 8 8 of Fig. 7, and Fig. 9 is a plan view of a guide-plate employed for
40 a valve-stem.

Referring to the invention illustrated in Fig. 1, 1 designates the body portion of a bottle, and 2 the neck thereof. The body portion 1 of the bottle has an interior annular
45 channel 3, designed to receive a ball-valve 4, as will be hereinafter described. Secured within the neck of the bottle is a tube 5, having its bottom portion 6 inclined upward toward the center, and the central portion of
50 the bottom is provided with an opening 7, surrounded by a wall 8, having a valve-seat 9 at its top. The lower end of the tube 5 rests

on an annular flange 10 formed in the inner side of the neck.

The tube 5, near its upper end, is provided
55 with an opening or slot 11, which extends about three-fourths of its circumference. This slot is provided so that a holding device in the form of a spider 12 may be inserted. The holding-spider has a segmental rim portion and a central disk portion 13, joined to
60 the rim portion by arms 14, the openings between the arms 14 providing ports for the outflow of liquid. A spider 15, similar to the spider 12, is arranged in the lower portion of
65 the tube 5, this spider 15 being inserted through a slot like the slot 11.

To the edge of the spider 15, outside the tube 5, spring-fingers 16 are attached. The upper ends of these spring-fingers are flared
70 outward and are designed to engage against an annular shoulder 17 formed in the neck of the bottle to prevent the tube and the parts arranged therein from being removed after once being inserted. In inserting the
75 tube the upper ends of the spring-fingers will move into depressions 18 in the outer side of the tube 5, and when the upper ends of said spring-fingers shall have reached the lower side of the shoulder 17 they will spring
80 outward, as shown in the drawings.

Arranged between the spiders 12 and 15 is a guide-tube 19, here shown as having a conical bottom 20, provided with an opening, through which the stem 21 of the valve 22
85 may move. The valve 22 is designed to engage in the seat 9. The valve-stem passes through an opening in the spider 15, and above this spider a washer 23 is secured to the stem 21, and between the washer 23 and
90 the bottom 20 of the guide-tube 19 is a spring 24. This spring is designed to hold the valve 22 yieldingly against its seat, but is sufficiently light to allow the valve to be moved from its seat by pressure of the liquid when
95 the bottle is tilted, as indicated in Fig. 5.

In the guide-tube 19 is a weight 25, here shown in the form of a ball. This weight is designed to engage with the upper end of the valve-stem 21 and provide an extra pressure
100 to hold the valve 22 in its seat when the bottle is in its upright position, and thus prevent the raising of the valve by the engagement therewith of a wire or other similar

device that might be inserted through the ports.

When the bottle is tilted for the pouring out of liquid, the weight 25 will roll away from the stem of the valve, as shown in Fig. 5, so that the pressure of liquid will move the valve 22 from its seat. Then the liquid may flow out through the opening 7 and the ports through the spider. When the bottle is inverted, the ball 4 will roll into the seat 26 at the lower end of the opening 7, thus forming a stopper to prevent the liquid from reaching and opening the valve 22. When the bottle is tilted for the discharge of liquid, the ball 4 will roll into the channel 3 and remain there.

In the example of my invention shown in Fig. 7 a tube 27 is secured in the neck 2 of the bottle. This tube 27 is flared outward at its lower end, as shown at 28, and this outwardly-flared portion has its cylindrical part equal in diameter to the interior diameter of the neck. The upper portion of the tube has wings 29 extended outward and engaging against the inner surface of the neck, and between these wing portions are ports 30 for the outflow of liquid. The valve-stem 21 extends through a holding device in the form of a plate 31 engaged in the tube 27 and also through a holding-device plate 32 engaged in said tube. These holding-device plates 31 and 32 are provided with an outwardly-opening slot 33, so that they may be placed in position—that is, slid through the slots or openings in the tube after the valve-stem is inserted. Near the upper portion of the tube 27 is a plate 34, and between the plates 34 and 32 is the ball 25, heretofore described.

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

1. In a bottle, a tube arranged in the neck thereof and having outwardly-opening slots extended partially around it, holding devices extended through said slots and into the tube, a valve for engaging a valve-seat at the lower portion of the tube, a stem extended from the valve through openings in the holding devices, a spring around the stem between the holding devices, and a movable weight for engaging the upper end of the valve-stem, substantially as specified.

2. A bottle, having an annular channel in the inner side of its body portion, a ball normally resting on the bottom of the bottle and adapted to engage in the channel, a tube in the neck of the bottle and having a concave bottom provided with a central opening, a valve-seat for the ball at the lower end of the opening and a valve adapted to engage with a seat at the upper end of the opening, substantially as specified.

3. In a bottle, a tube arranged in the neck portion thereof, the said tube being provided with slots through its wall, supporting-spiders having their rims engaging with the walls of said slots, spring-fingers attached to one of said spiders and adapted to engage in a groove formed in the inner portion of the neck, a guide-tube supported between the spiders, a valve controlling an opening in the bottom of the first-named tube, a stem for said valve extending through the bottom of the guide-tube, a spring surrounding said stem for holding the valve yieldingly in its seat, and a weight in the guide-tube for engaging with the valve-stem, substantially as specified.

PHILIP J. FRIEDRICH.

Witnesses:

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JAS. P. ROWLEY.