

No. 636,427.

Patented Nov. 7, 1899.

P. J. FRIEDRICH.
BOTTLE.

(Application filed Jan. 20, 1899.)

(No Model.)

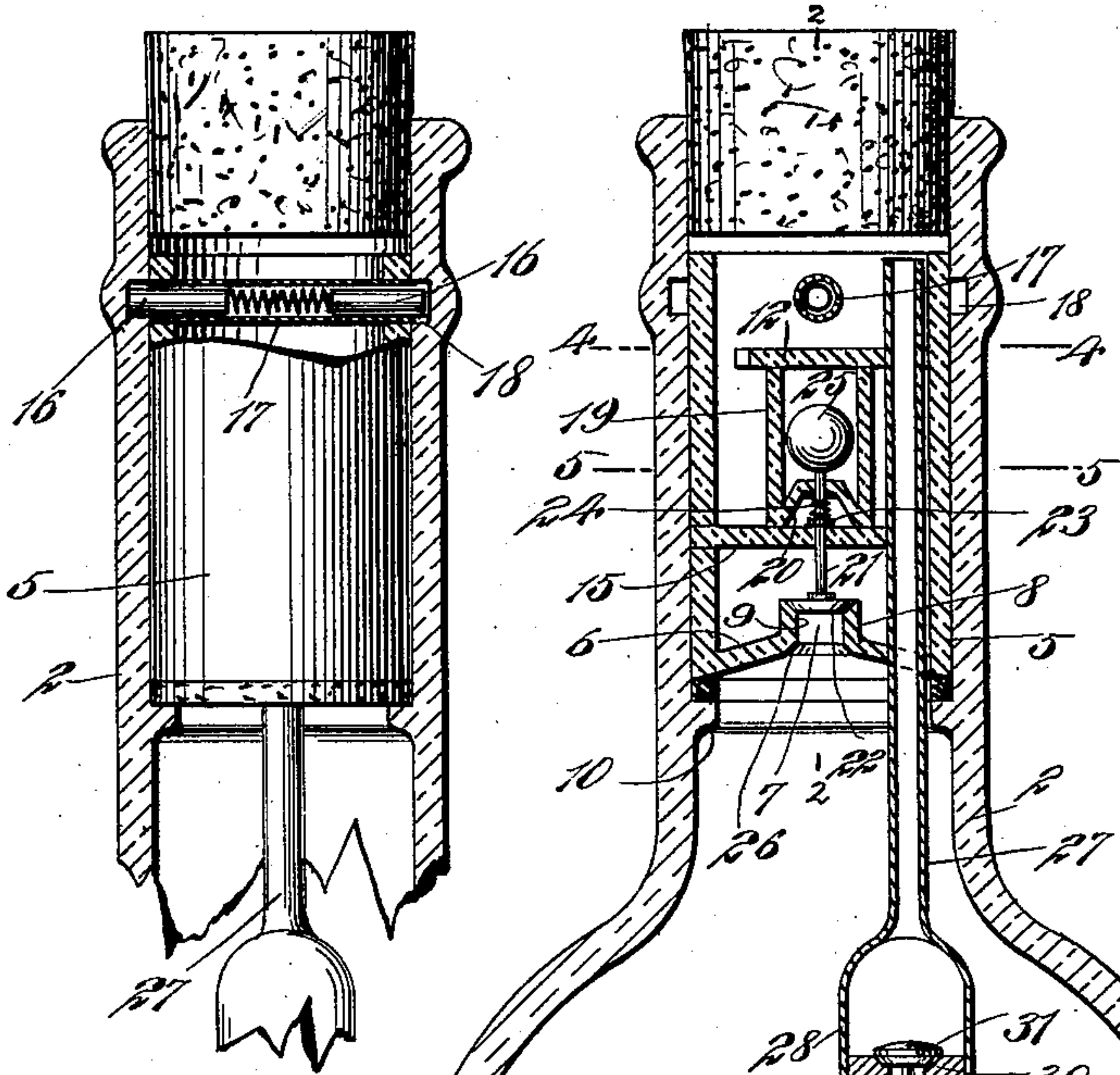


Fig. 2

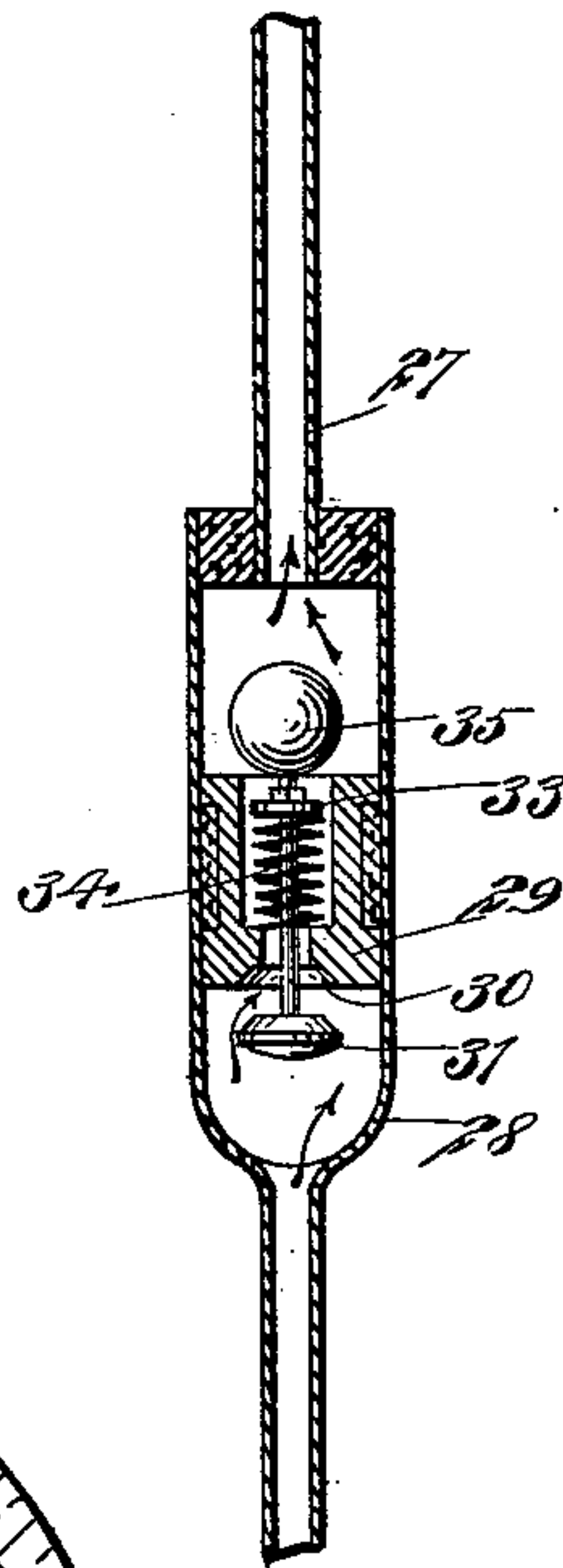


Fig. 3

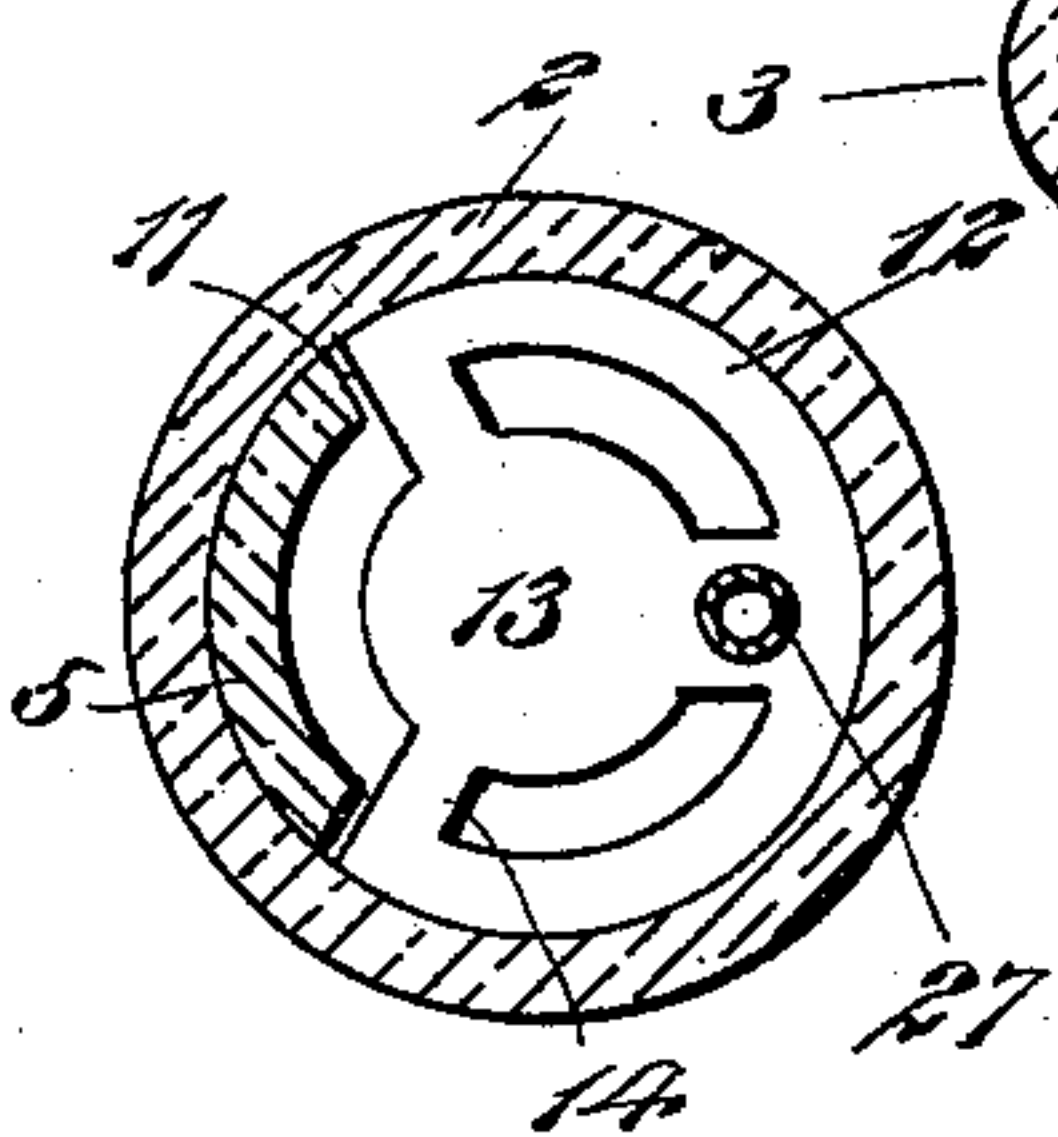


Fig. 4

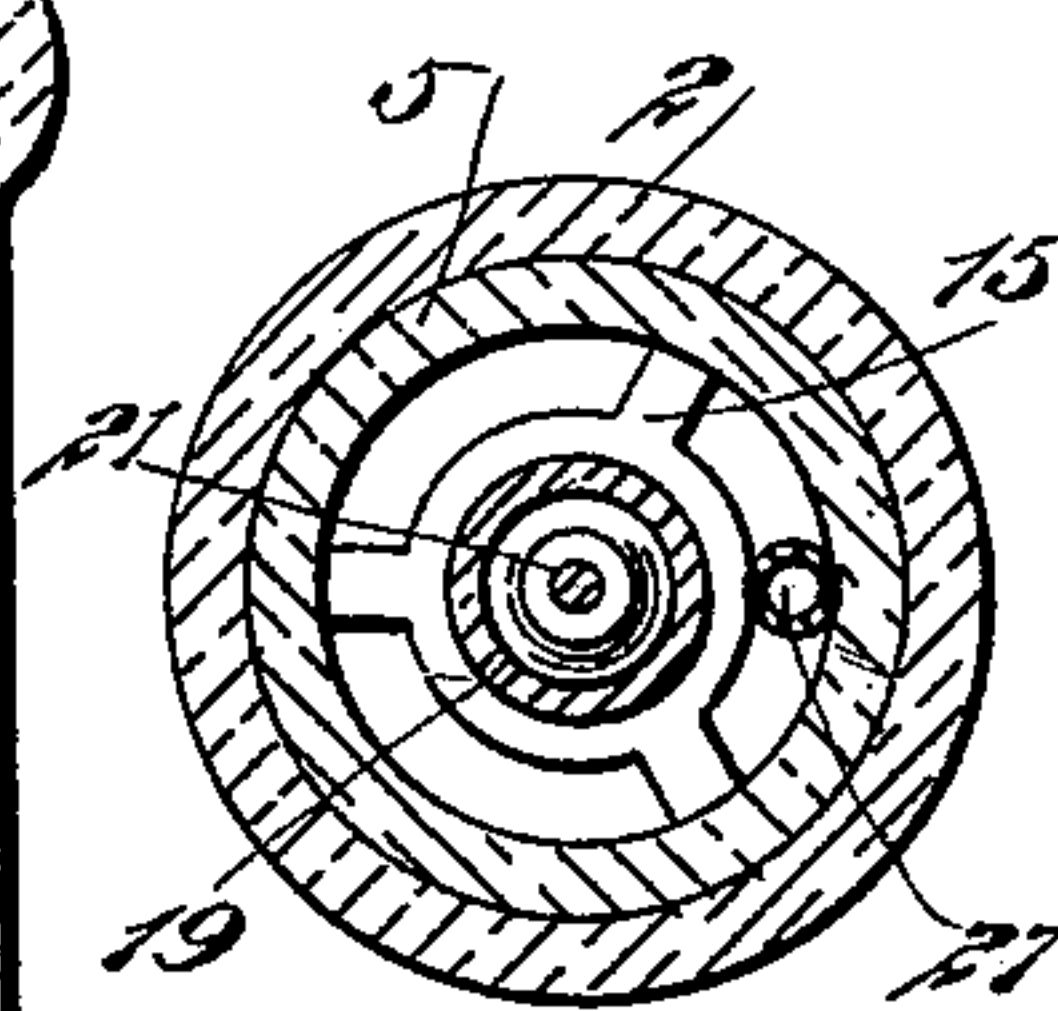


Fig. 5

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Fig. 1

UNITED STATES PATENT OFFICE.

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BOTTLE.

SPECIFICATION forming part of Letters Patent No. 636,427, dated November 7, 1899.

Application filed January 20, 1899. Serial No. 702,758. (No model.)

To all whom it may concern:

Be it known that I, PHILIP JACOB FRIEDRICH, of Coytesville, in the county of Bergen and State of New Jersey, have invented new and useful 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 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 liquors or the like. This means is also designed to act as a stopper or valve to relieve the main valve of the pressure of any small amount of liquid that might be in the bottle during an attempt to refill by inverting the bottle in liquid, and a still further object is to provide a tube to permit the entrance of air while pouring liquid from the bottle, the said tube being provided with a valve to prevent the refilling of the bottle through the tube.

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 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 partial elevation and partial section on the line 2 2 of Fig. 1. Fig. 3 is a section of the valved air-inlet tube inverted. Fig. 4 is a section on the line 4 4 of Fig. 1, and Fig. 5 is a section on the line 5 5 of Fig. 1.

Referring to the drawings, 1 designates the body portion of the bottle, and 2 the neck thereof. The body portion of the bottle has an interior annular 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 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 is supported on an annular flange 10 at the inner side of the neck. The tube 5

near its upper end is provided 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 13, joined to the rim portion by arms 14. The openings between the arms 14 provide ports for the outflow of the liquid. A spider 15, similar to the spider 12, is arranged in the lower portion of the tube 5. This spider 15 is inserted through a slot like the slot 11.

As a means for holding the tube 5 in the neck of the bottle spring-pressed plugs 16 are employed. These spring-pressed plugs are movable in a tube 17, extended transversely through the tube 5, and engage when the tube 5 is inserted an annular channel formed in the neck of the bottle, as shown at 18.

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 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 the bottom of the guide-tube 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 the pressure of the liquid when the bottle is tilted. 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 provides an extra pressure 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 the liquid, the weight 25 will roll away from the stem of the valve, so that the pressure of the liquid will move the said valve from its seat, and then the liquid may flow out through the opening 7 and the ports through the spiders. 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, however, for the discharge of the liquid, the ball 4 will roll into the channel 3 and remain there.

5 To permit the entrance of air, so as to allow liquid to flow freely from the bottle when desired, an air-tube 27 is provided. This air-tube extends through the tube 5 and nearly to the bottom of the bottle. In a portion of
10 its length the tube 27 is enlarged, as at 28, to form a valve-casing, and arranged in this valve-casing is a tubular plug 29, having a valve-seat 30 at its upper end to receive a valve 31, which has a downwardly-extended
15 stem 32, provided with a collar 33 at its lower end, and between this collar and the wall at the upper end of the plug 29 is a spring 34, which holds the valve 31 yieldingly against its seat. Arranged between the plug 29 and
20 the bottom of the valve-casing 28 is a ball 35 of sufficient weight to overcome the resistance of the spring 34 when the said ball engages with the stem 32 to open the valve and permit the entrance of air when the bottle is
25 tilted. Obviously the valve 31 will prevent the filling of the bottle through the tube 27 when the bottle is in an upright or tilted position. Should the bottle be wholly inverted, the ball 35 will open the valve 31, but will
30 roll into the opening at the lower end of the plug 29, thus forming a valve to prevent the entrance of liquid when the bottle is so inverted.

Having thus described my invention, I claim as new and desire to secure by Letters 35 Patent—

1. In a bottle a valve-tube arranged in the neck portion thereof, a valve in said tube, an air-tube extended through the valve-tube and into the bottle, a tubular plug arranged in 40 the air-tube and having a valve-seat the portion of the tube containing the plug being within the body of the bottle, a spring-pressed valve for engaging in said seat, and a ball in the tube, below the valve, the said ball serving, by engaging with the valve-stem, to open 45 said valve while the bottle is tilted, and also serving as a valve to close the opening through the plug when the bottle is inverted substantially as specified. 50

2. In a bottle, a valve-tube arranged in the neck portion thereof, a spring-pressed valve in said tube, an air-tube extended through the valve-tube and having an enlarged portion forming a valve-casing the said enlarged 55 portion being within the body of the bottle, a tubular plug arranged in said casing and having a valve-seat at its upper end, a spring-pressed valve for engaging in said valve-seat, and a weight or ball for engaging with the 60 stem of said valve to force it open, substantially as specified.

PHILIP JACOB FRIEDRICH.

Witnesses:

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MICHAEL J. SHAULEY.