

C. V. & I. H. WATTERS.
NON-REFILLABLE BOTTLE.
APPLICATION FILED MAY 15, 1909.

935,074.

Patented Sept. 28, 1909.

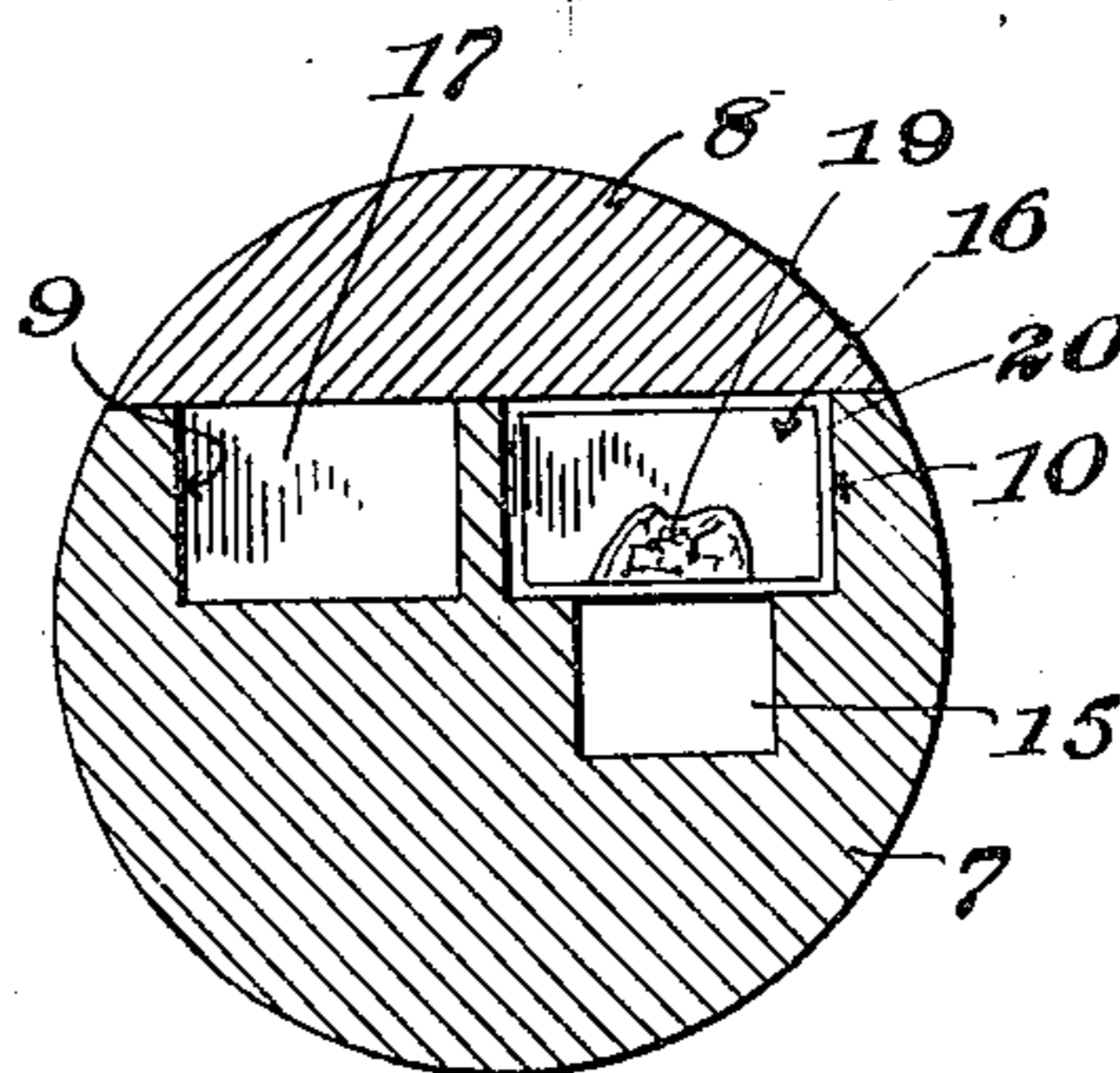
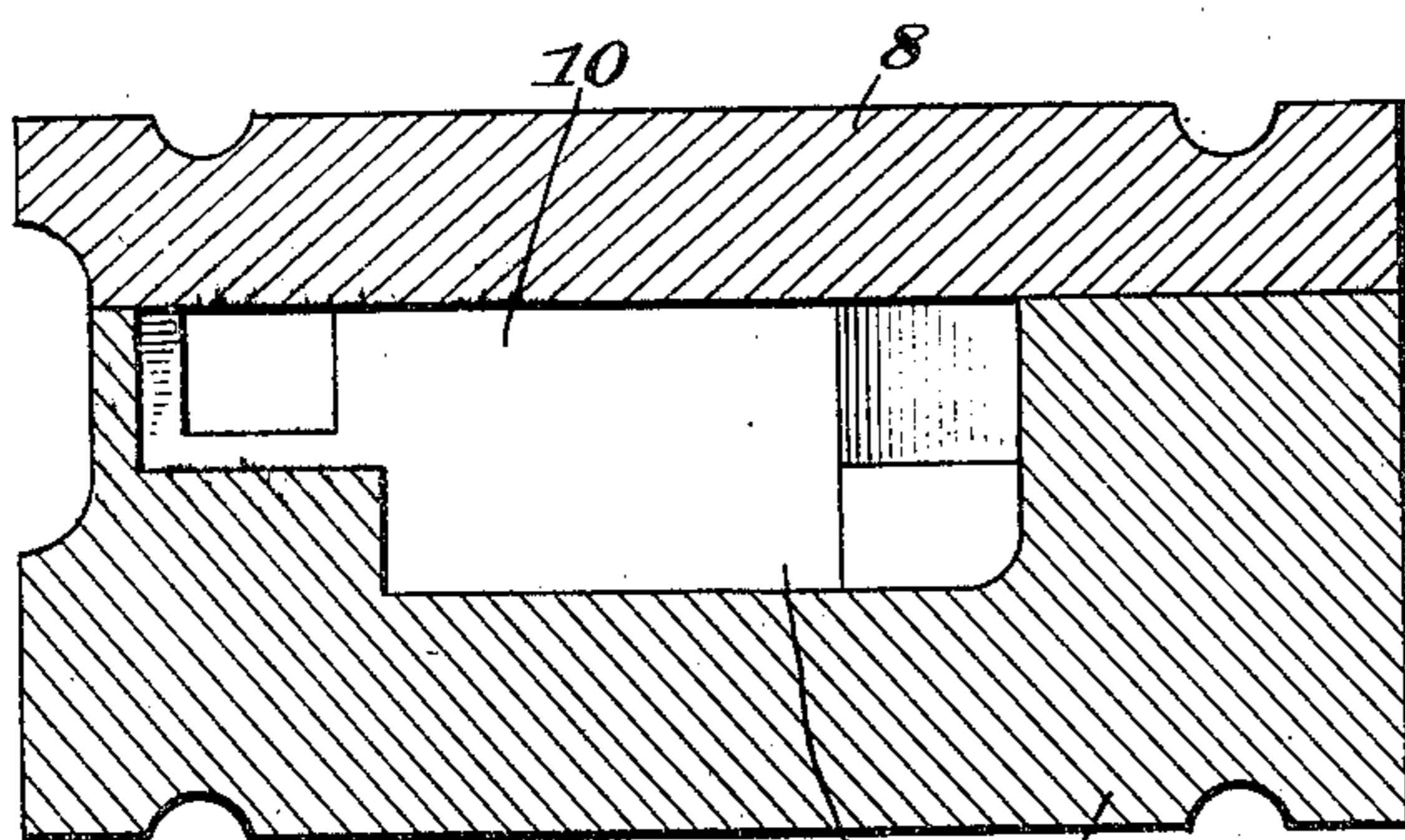
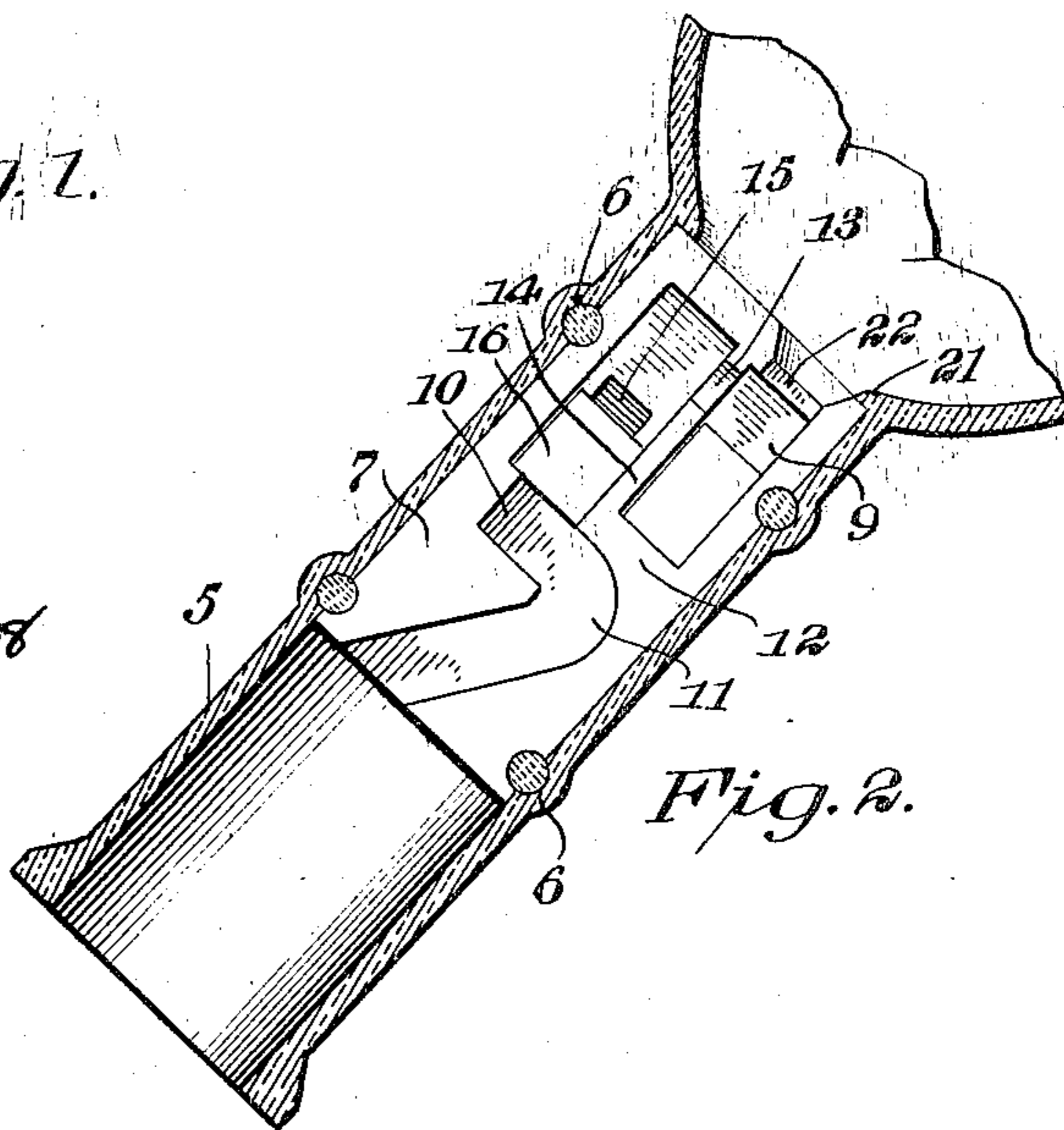
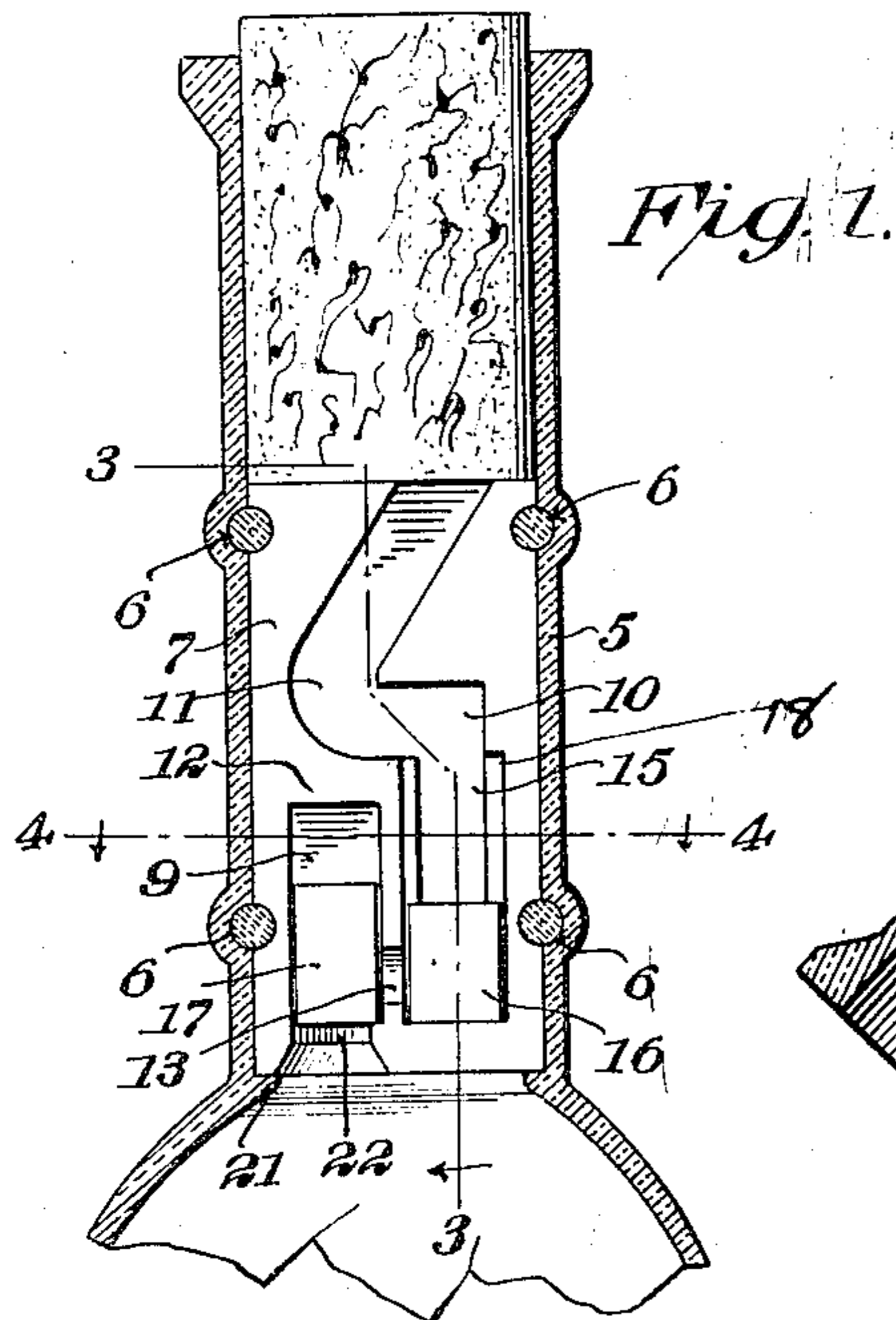


Fig. 3.

Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

CLYDE V. WATTERS AND ISAAC H. WATTERS, OF GALESBURG, ILLINOIS.

NON-REFILLABLE BOTTLE.

935,074.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed May 15, 1909. Serial No. 496,236.

To all whom it may concern:

Be it known that we, CLYDE V. WATTERS and ISAAC H. WATTERS, citizens of the United States, residing at Galesburg, in the county of Knox and State of Illinois, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

Our invention relates to non-refillable bottles and its objects are to improve such bottles and increase the efficiency and certainty of operation with a structure composed of few parts which are simple in their construction.

With these and other objects in view our invention comprises certain constructions, combinations and arrangements of parts the preferred form of which will be first described in connection with the accompanying drawings and then the invention particularly pointed out in the appended claims.

Referring to the drawings wherein the same part is designated by the same reference numeral wherever it occurs Figure 1 is a central longitudinal section of the neck of a bottle provided with valves constructed in accordance with our invention, showing the same in the position occupied when the bottle is in upright position. Fig. 2 is a similar view showing however the parts in the position they occupy when pouring liquid from the bottle; Fig. 3 is a section taken on line 3, 3 of Fig. 1 and Fig. 4 is a section taken on line 4, 4 of Fig. 1.

5 designates the neck of the bottle, said neck being preferably provided with the interior grooves 6.

7 designates one portion of the valve stopper and 8 the other portion thereof; said portions when placed together being cylindrical in form but with the section 7 larger than the section 8. Formed in the side of the section 7 against which the corresponding side of the section 8 contacts are a pair of channels 9, 10, said channels being preferably square in cross-section, as shown, with the channel 9 extending about half way of the length of the section, and a channel formed with a straight main portion 10 and a curved portion 11, whereby access to the valve contained in the channel is prevented. The portion 11 of the channel passes through the end of the stopper, whereas the portion 10 does not extend through the opposite end of the stopper but is closed by a wall 12.

13 is an opening or port extending through

the wall 14 which separates the channels 9 and 10, said opening affording communication between the channels adjacent to the wall 12. Formed in the center portion of the main section of the channel 10 is a depression 15.

16, 17 are a pair of rectangularly shaped blocks forming valves, the blocks 16 being loosely mounted in the main portion 10 of the channel and the valve 17 loosely mounted in the channel 9.

18 is a shoulder formed on the outer side of the channel 10 for the purpose of limiting the movement of the valve 16 in said channel. Preferably the valve 16 is formed by enveloping a block of cork or other similar substance 19 in a covering of aluminium or similar metal 20, whereby the valve will have less specific gravity than water and yet because of the aluminium casing therefor will not absorb liquid. The valve 17 may be formed of glass or metal as may be found most desirable.

In assembling the parts the valve block 16 is placed in the channel 10 and the valve 17 in the channel 9. The portion 8 is now placed on top of the section 7 so as to close these channels, the two parts which are preferably formed of glass being secured together by cement or in any other desired way. A cylinder is thus produced which preferably is provided with the grooves 20 adapted to register with the grooves 6 on the interior of the bottle neck, both of which are adapted to be filled with cement or other suitable material to secure the stopper in the bottle.

In the operation of our device the liquid is placed in the bottle and then the stopper is secured therein as above described. When the bottle is turned in the position shown in Fig. 2 for the purpose of pouring the liquid therefrom the liquid will pass into the channel 9 and force the valve 17 to the outer end of the channel uncovering the port 13 and permitting the liquid to pass into the channel 10. The tipping up of the bottle will cause the valve 16 to assume the position shown which will permit the liquid to pass around the valve through the channel 15 and into the channel 11 from which it escapes.

If it is attempted to refill the bottle by immersing the same in the liquid the valve 16 will float ahead of the liquid and close the port 13. It will also be seen that im-

mersing the bottle in liquid when it is right-side up will be ineffective for the reason that even if it should occur that the pressure did not hold the valve 16 to its seat the valve 5 17 would remain at the bottom of its channel resting against the shoulder 21 and effectually closing the entrance 22 to the channel 9.

We realize that considerable variation is 10 possible in the details of construction and arrangement of parts without departing from the spirit of our invention, and we therefore do not intend to limit ourselves to the specific form shown and described.

15 Having thus described our invention what we claim as new and desire to secure by Letters Patent is—

1. A bottle stopper having two channels formed therein extending longitudinally of 20 the stopper and parallel with each other, one of said channels opening into the bottle and the other opening outside of the bottle, a port connecting said channels, a valve located in each of said channels, one of said

valves having a greater specific gravity than 25 the liquid the bottle is adapted to contain, and the other valve having a specific gravity less than said liquid.

2. A bottle stopper having two channels formed therein, said channels being rec- 30 tangular in cross section, extending longitudinally of the stopper and parallel with each other, one of said channels opening into the interior of the bottle and the other opening to the exterior thereof, a port connecting 35 the channels, a valve for each channel loosely fitting the same, the channel opening to the outside of the bottle being provided with a depression through which liquid may pass around the valve in said channel when 40 said valve is in one of its positions.

In testimony whereof we affix our signatures in presence of two witnesses.

CLYDE V. WATTERS.

ISAAC H. WATTERS.

Witnesses:

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