

(No Model.)

A. L. A. HIMMELWRIGHT.
BOTTLE STOPPER.

No. 561,787.

Patented June 9, 1896.

Fig. 1.

Fig. 2.

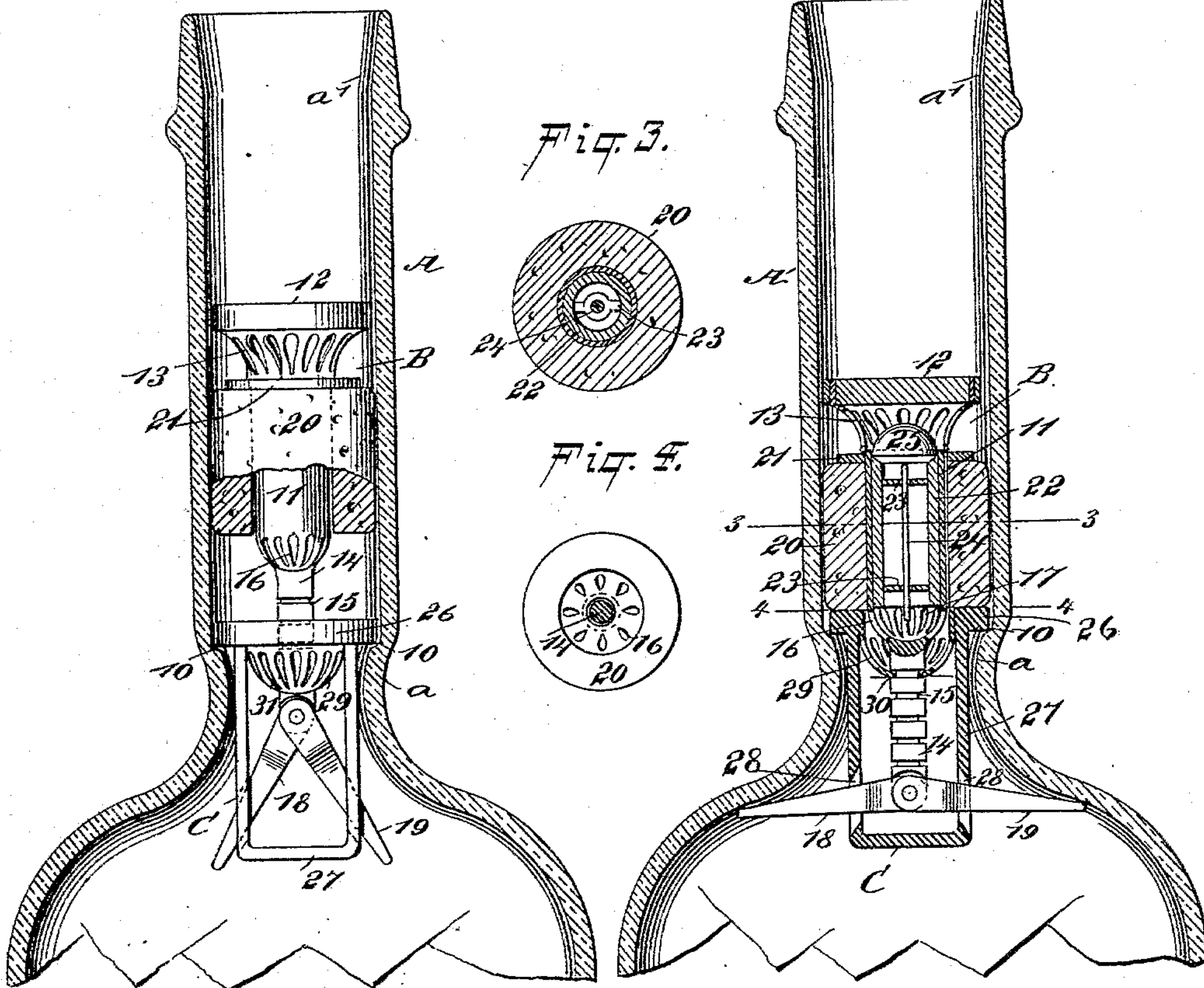
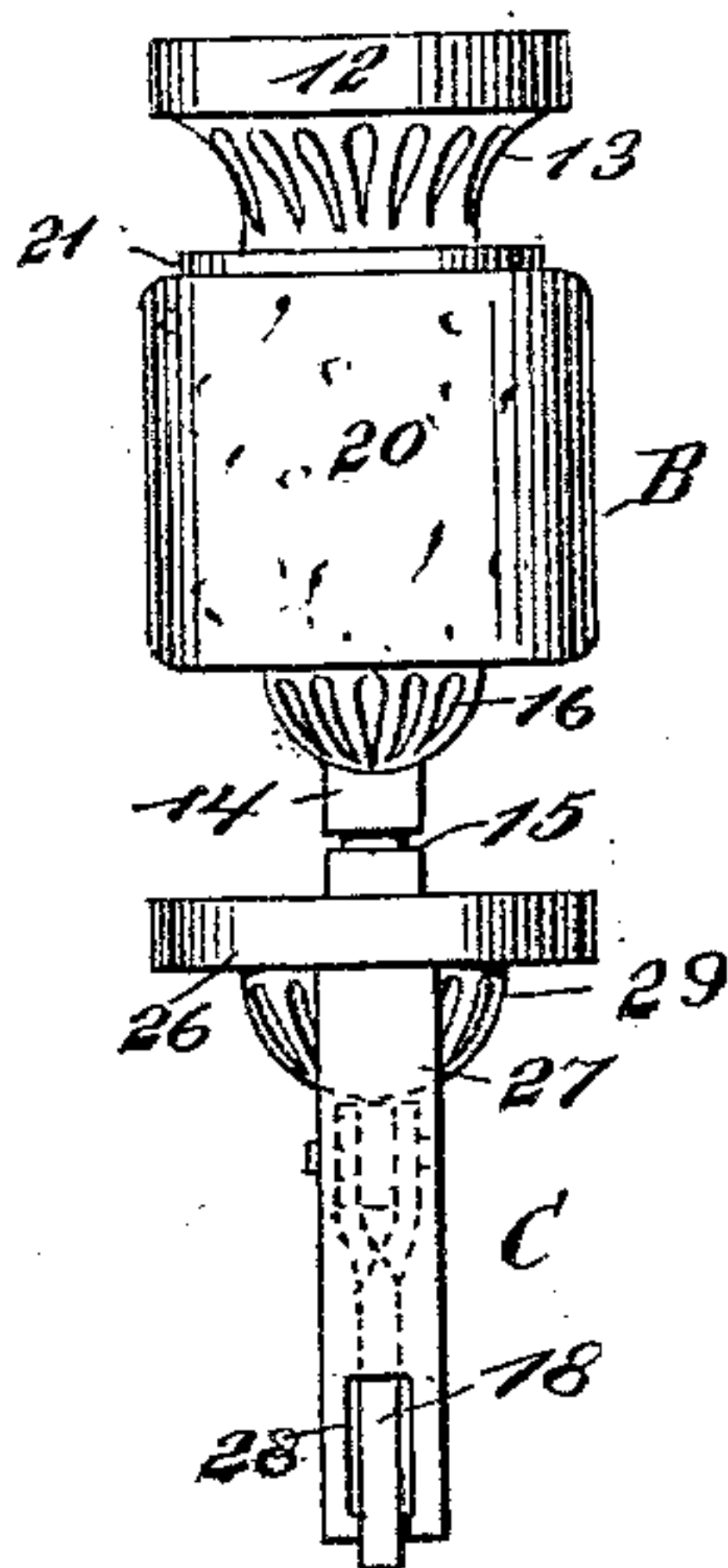


Fig. 5.



WITNESSES:

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ABRAHAM L. A. HIMMELWRIGHT, OF MIDDLETOWN, CONNECTICUT.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 561,787, dated June 9, 1896.

Application filed December 11, 1894. Serial No. 531,447. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM L. A. HIMMELWRIGHT, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Bottle-Stoppers, of which the following is a full, clear, and exact description.

My invention relates to an improvement in bottle-stoppers; and the object of the invention is to provide a bottle-stopper which will prevent the refilling of bottles by unscrupulous parties, who might replace the goods with inferior or counterfeit fluid and sell the same as the original contents and under the original label.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a vertical section through the neck and a portion of the body of a bottle having the improved stopper applied thereto, a portion of the stopper being broken away and the stopper being shown in the position it assumes when being introduced into the bottle. Fig. 2 is a section similar to Fig. 1, the section being taken through the stopper as well as the bottle, the stopper being shown in its locked position. Fig. 3 is a horizontal section taken substantially on the line 3 3 of Fig. 2. Fig. 4 is a horizontal section taken practically on the line 4 4 of Fig. 2, and Fig. 5 is a side elevation of the stopper removed from the neck of the bottle.

In carrying out the invention the neck A of the bottle is of special construction, the said neck being provided with a contracted interior surface *a* at any desired point between the mouth and body of the bottle, preferably adjacent to the latter, and the said neck of the bottle is also preferably provided with a contracted section *a'* adjacent to the mouth at that portion where the ordinary cork is generally introduced. The lower contracted portion *a* of the neck of the bottle is a trifle less in diameter than any portion of said neck above it, so as to form a bearing or sub-

stantially a shoulder 10, as shown in Figs. 1 and 2.

What may be termed the "proper stopper" consists of a cylindrical body-section 11, closed at its upper end by a cap 12, the cap being of greater diameter than the body, and in fact the said cap is of slightly less diameter than that of the neck of the bottle at its widest portion. Where the cap joins the cylindrical body 11 the said cap is more or less contracted, curving inwardly to meet the body, and in this curved or contracted portion of the cap a series of outlet-apertures 13 is produced in any suitable or approved manner. A stem 14 is made integral with the lower portion of the cylindrical body 11 or is attached thereto in any desired way, and the said stem 14 is preferably solid and provided with a series of circumferential exterior grooves 15 or a series of teeth or notches. Where the stem joins the cylindrical body 11 the said body is closed, forming substantially a somewhat conical bottom section 16, and in this conical bottom section a series of openings or apertures 17 is made, through which the liquid from the body of the bottle is adapted to pass in order to reach the outlet-apertures 13 in the cap.

At the bottom of the stem 14 two locking-arms 18 and 19 are pivoted. The cylindrical body 11 is surrounded by a ring 20, of cork or the equivalent thereof, preferably cork, and a washer 21 is ordinarily secured to the said cylindrical body at the top or to the bottom portion of the cap 12, the washer being so placed that it will bear against the upper face of the cork ring 20 to prevent said ring from slipping upward.

Within the cylindrical body 11 a tube 22 is secured, which tube is magnetized, whereby it may be considered a magnet, and one or more, preferably two, spiders 23 are located in the said magnetized tube, adapted to constitute guides for the stem 24 of a valve 25, the said valve being adapted to find its seat upon the upper end of the magnetized tube 22, as shown in Fig. 2. The valve is made of some light material, preferably sheet metal, and is consequently hollow, and contains sufficient iron or other material to enable it to be forcibly attracted by the said magnetized tube 22. Thus it will be observed that

the attraction of the magnet will cause the valve 25 to be normally seated and prevent the escape of liquid through the stopper and likewise the introduction of liquid into the bottle through the hollow cylindrical body 11. The parts above described may be said to comprise the main or liquid-distributing section of the bottle-stopper, and said section in its entirety is designated by the reference-letter B. In connection with the said main section B a second or supporting section C is employed, and this second section consists, preferably, of a ring 26, adapted to fit within the lower contracted portion of the neck of the bottle and upon the shoulder 10, formed by the said contraction. The ring has pendent from it a stirrup 27, and in each side member of this stirrup an opening 28 is made, the upper and lower walls whereof are usually given a downward inclination, as shown in Fig. 2. A spring-cone 29 is either made integral with or is attached to the said ring 26, the cone being located within the upper portion of the stirrup 27. This cone is provided with an opening 30 in its bottom, through which the stem 14 of the main section of the stopper is adapted to pass, and the said spring-cone is further provided with a number of openings 31 in its side, through which the liquid from the body of the bottle is adapted to pass to the openings 16 in the bottom of the cylindrical body 11 of the main portion of the stopper.

The locking-arms 18 and 19 are made to extend through the openings 28 in the side members of the stirrup, as shown in Figs. 1, 2, and 5 of the drawings.

In the operation of this device the bottle is filled with liquid and the improved stopper is then lifted by its head 12, the spring-cone 29 being in engagement with the lowermost notch or recess 15 in the stem of the main portion of the stopper, as shown in Fig. 1. Before placing the main portion of the stopper into the neck of the bottle the second section C may be either attached to the main portion B, by causing the locking-arms to be passed through the openings in its stirrup, or the said section C may be introduced first into the neck of the bottle and seated before the body-section B is entered. The lower section C of the stopper will readily pass the first contraction *a'* in the neck of the bottle, and will then rest upon the shoulder 10; but the cork ring 20 of the main section of the stopper will have to be forced through the contracted upper portion *a'* of the neck by applying pressure upon the head 12. Pressure is applied in this way when the two sections are connected until the ring 26 reaches and rests upon the said shoulder 10 in the lower contracted portion of the neck. Continued application of pressure on the head of the stopper will force the notched or grooved stem 14 through the spring-cone 29, causing the locking-arms 18 and 19 to spread through the openings 28 in the lower section and finally

bring up against the upper inner surface of the body of the bottle, as shown in Fig. 2, whereby the stopper cannot be withdrawn from the bottle, since the spring-cone will prevent the withdrawal of the stem 14. In this manner the stopper is automatically, expeditiously, and conveniently locked in the bottle. It will be evident that when the stopper is in this position it is impossible to dislodge the stopper without breaking the bottle.

When the bottle is inverted, the liquid passes through the openings 31 in the spring-cone 29, from thence through the openings 17 in the bottom of the cylindrical body 11, and will press against the valve 25. The pressure due to the weight of the liquid will then overcome the magnetic attraction of the valve and cause it to drop against the head 12, and the liquid will be discharged through the openings 13 in the said head, passing around the head. When the bottle is empty, the valve is immediately attracted to its seat by the magnetic tube 22, and the valve is thus firmly, effectually, and absolutely seated, preventing the refilling of the bottle. Should a small portion of the liquid be retained in the bottle, and the pressure due to its weight be insufficient to overcome the magnetic attraction of the valve, the latter may be lifted by a slight tap of the hand on the bottom of the bottle.

It is evident that the solid head 12, with a diameter almost as great as the neck of the bottle, and the fact that the discharge-openings 13 are located under the head, will protect the valve and prevent all possibility of damage to the device by the insertion of instruments through the neck to accomplish such purpose. The device also permits the use of the ordinary or standard cork.

The parts are constructed of any suitable material, or a material coated or plated with such material as will not affect the contents of the bottle. Changes in the form, proportions, and minor details of construction may be resorted to without departing from the spirit of the invention.

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

1. A bottle-stopper, consisting of two sections mounted to slide longitudinally of one another, and movable locking-arms connected to one section and controlled by the other section to engage the bottle, substantially as described.

2. A bottle-stopper, consisting of two sections mounted to slide longitudinally of one another, movable locking-arms connected to one section and controlled by the other section to engage the bottle upon movement of one section in a predetermined direction, and means for preventing return movement of the said section, substantially as described.

3. A bottle-stopper, consisting of two sections mounted to slide longitudinally of one another, locking-arms pivoted to one section and adapted to be thrown outward upon move-

ment of the said section in a predetermined direction, and means for preventing return movement of the said section, substantially as described.

5 4. A bottle-stopper, consisting of two sections mounted to slide longitudinally of one another, movable locking-arms connected to one of the sections, and means for throwing said arms outward to engage the bottle, substantially as described.

10 5. A bottle-stopper, the same consisting of a hollow body provided with an inlet and an outlet, and a magnetized valve between the same, a serrated stem extending downward
15 from the said body, a stirrup adapted to be supported in the neck of the bottle, a spring-retaining device carried by the stirrup and engaging with the said stem, and locking-arms pivotally connected with the stem, extending in opposite directions therefrom and
20 operating through openings in the said stirrup, as and for the purpose set forth.

6. A bottle-stopper, for the purpose described, the same consisting of a tubular body
25 having a cushion of a yielding material, a capped outlet at one end, the cap extending

beyond the apertures of the outlet, and an inlet at the opposite end, a magnetized valve located between the outlet and the inlet, a serrated stem projected downward from the body, an apertured spring-cone engaging with the stem, a stirrup adapted to be supported in the neck of the bottle and connected with the said spring-cone, and locking-arms pivoted to the stem, extending in opposite directions therefrom through openings in the stirrup, said arms being adapted for engagement with the inner wall of the body of the bottle, as and for the purpose specified.

7. A bottle-stopper for the purpose described, the same consisting of a supporting-section provided with a spring-detent, a liquid-distributing section having a serrated stem extending within the supporting-section and engaged by the detent thereof, and locking-arms carried by the stem and extending through the supporting-section, as and for the purpose specified.

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