No. 789,320. PATENTED MAY 9, 1905.

S. E. GEORGE & J. R. NORRIS.

BOTTLE.

APPLICATION FILED MAY 1, 1903.

2 SHEETS—SHEET 1.

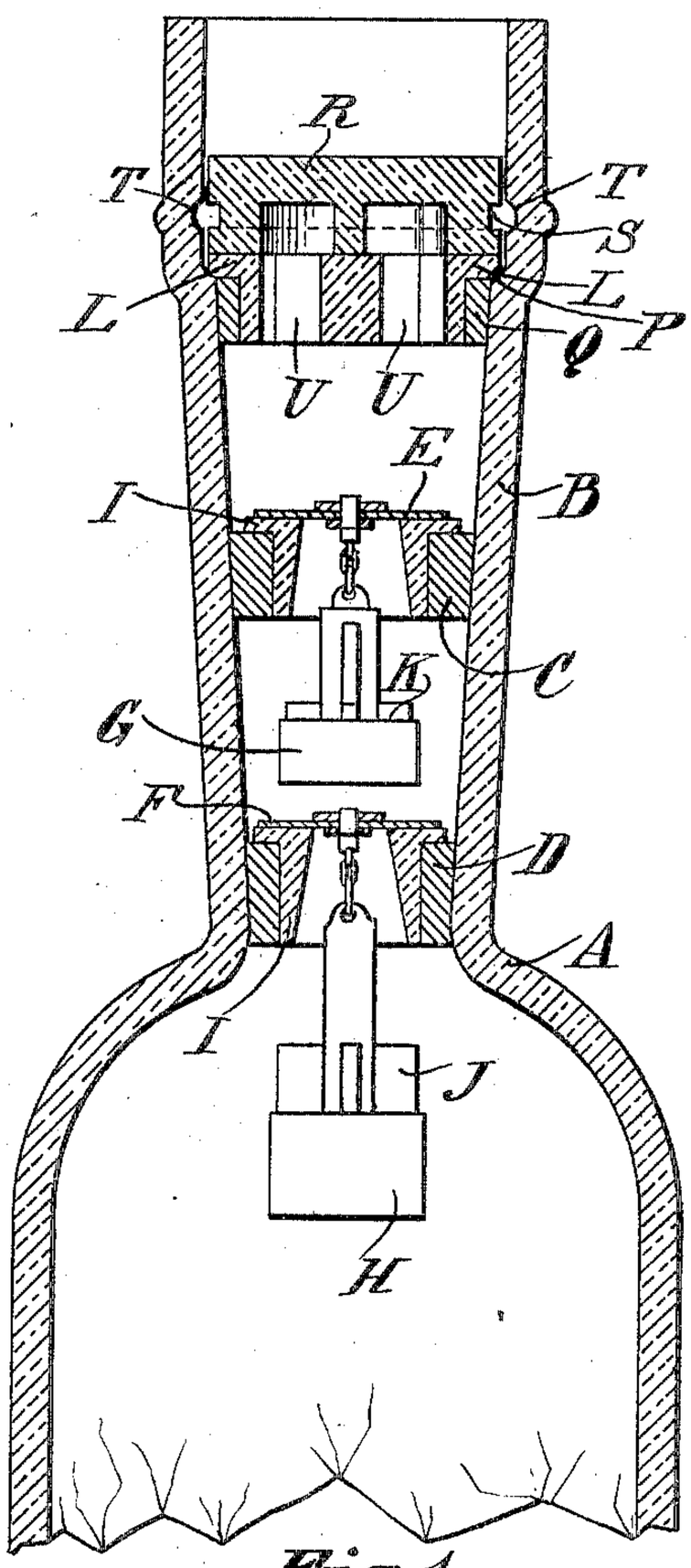

Fig. 1.

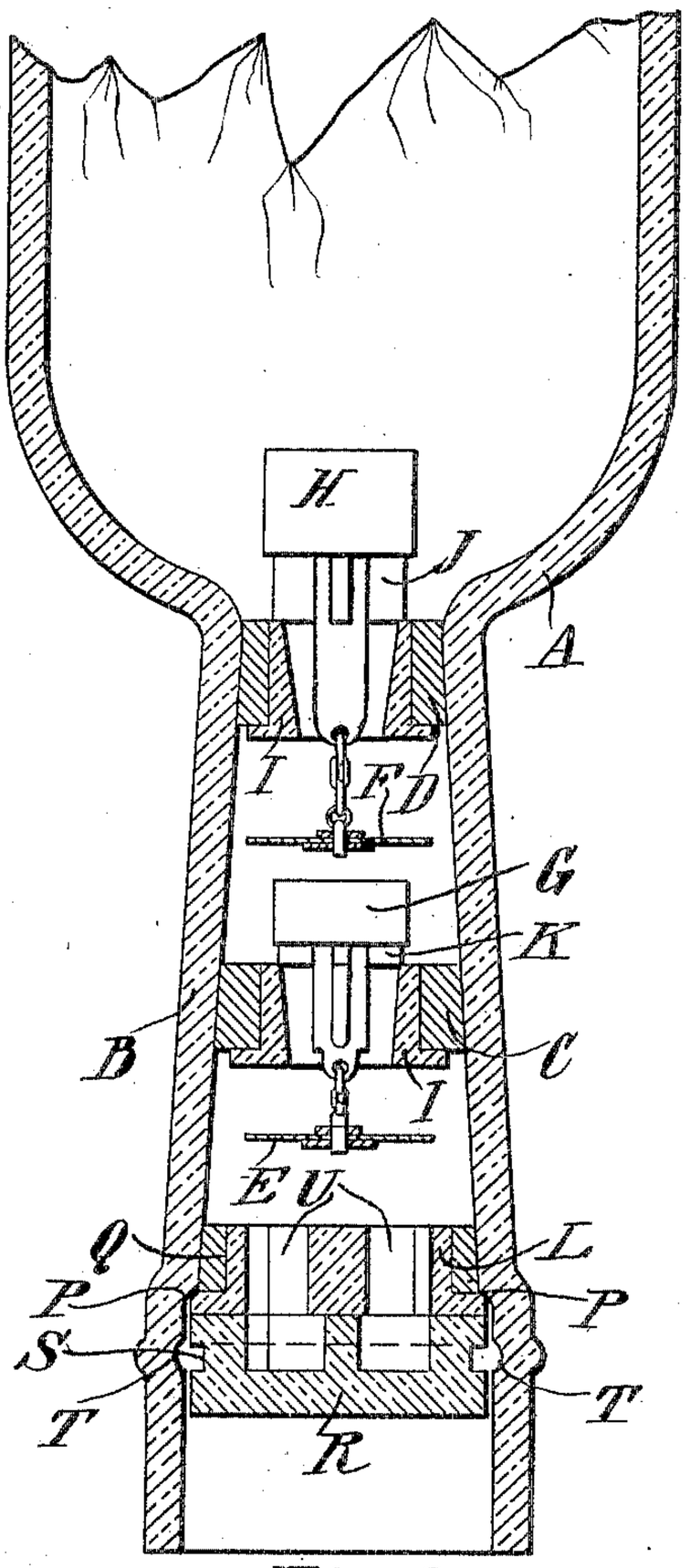

Fig. 2.

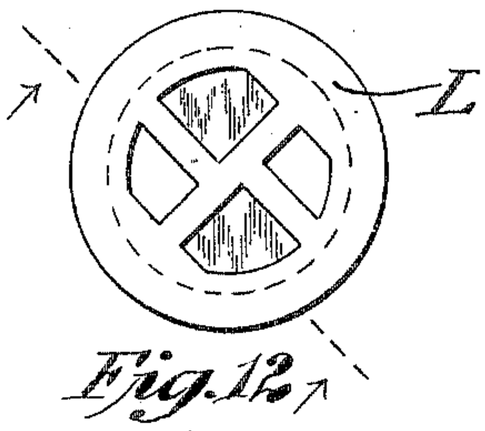

Fig. 12.

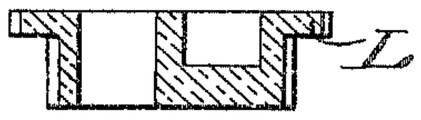

Fig. 13.

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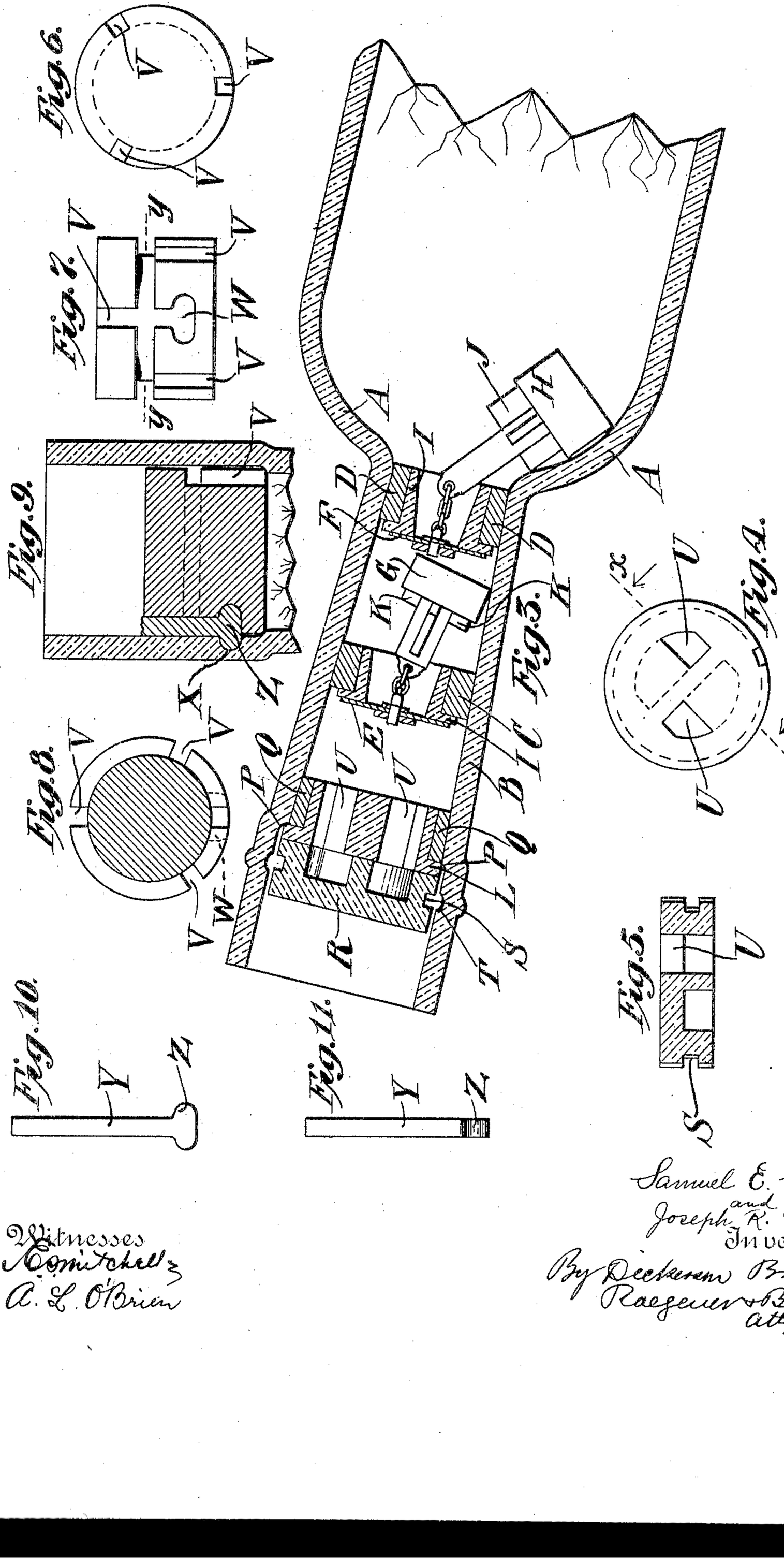
2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

SAMUEL E. GEORGE AND JOSEPH R. NORRIS, OF NEW YORK, N. Y.

BOTTLE.

SPECIFICATION forming part of Letters Patent No. 789,320, dated May 9, 1905.

Application filed May 1, 1903. Serial No. 155,118.

To all whom it may concern:

Be it known that we, SAMUEL E. GEORGE and JOSEPH R. NORRIS, citizens of the United States, and residents of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Bottles, of which the following is a specification accompanied by drawings.

This invention relates to improvements in bottles; and its object is to enable a bottle to be filled with the desired liquid, but after the bottle has been emptied to prevent the refilling of the same.

To this end the invention consists of the improved bottle having the general construction and mode of operation substantially as hereinafter fully described and claimed in this specification and shown in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of a portion of a bottle embodying the invention. Fig. 2 is a longitudinal sectional view in a reverse position. Fig. 3 is a longitudinal sectional view tipped slightly or inclined upwardly from the horizontal. Fig. 4 is a top plan view of the upper portion of the outer stopper. Fig. 5 is a sectional view of Fig. 4 on the line *x x*. Fig. 6 is a top plan view of another form of outer stopper. Fig. 7 is a side view of the stopper shown in Fig. 6. Fig. 8 is a sectional plan view on the line *y y* of Fig. 7. Fig. 9 is a detail sectional view through the neck of the bottle with the form of outer stopper shown in Fig. 7 therein. Fig. 10 is a detail side view of the key. Fig. 11 is an edge view of the key. Fig. 12 is a top plan view of the lower portion of the outer stopper. Fig. 13 is a sectional view of Fig. 12 on the dotted line thereof.

Referring to the drawings, A represents a suitable bottle, shown in this instance as being provided with an inwardly-tapering neck B, which aids in maintaining the stoppers and corks in position in the neck. According to this invention the bottle is provided with a stopper which may be formed in several pieces, as C and D, shown somewhat separated. Each portion C and D of the stopper is provided with an aperture, and valves E and F close the apertures outwardly. In order to maintain the valves closed when the bottle is upright or in an upwardly-inclined position, weights G and H are attached to the valves E and F by any suitable means.

Preferably the apertures in the portions C and D of the stopper are provided with the glass sleeves I, which are shown tapering outwardly toward the valve-seats. By providing the glass sleeves as described better closures are obtained for the valves.

The weights may be of any suitable material—as, for instance, of glass—and the valves may be made of material such as isinglass and are preferably in the form of thin flat disks, as shown, adapted to rest squarely upon the tops of the stoppers over the apertures therein without extending into the said apertures. The weights G and H are so constructed that when the bottle is turned upside down provision is afforded for the passage of the liquid through the stopper. In this instance the weights are provided with flanges or shoulders J and K, which afford spaces for the outlet of the material in the bottle when the shoulders rest upon the inner ends of the sleeves I, as shown in Fig. 2.

As shown in Fig. 3, when the bottle is inclined slightly upward from the horizontal the gravity of the weights will cause both valves E and F to close, and it will be impossible to fill the bottle by submerging it, and it is also impossible to obtain a vacuum in the bottle, and so fill it, on account of the construction of the two valves. It will be seen that each valve operates independently of the other, which has been found to be an advantageous construction operating efficiently and well to prevent the refilling of the bottle. The invention is not limited to any number of valves, for there may be any desired number.

Means are provided for preventing interference with either of the valves from the outside of the bottle. In one form the outer cork or stopper consists of two parts, one of which parts, L, is provided with an outer flange adapted to rest upon the shoulder P on the inside of the neck of the bottle. A cork collar Q may encircle the portion L of the stopper. The other portion, R, of the stopper is provided with an annular groove S,

adapted to register with the groove T on the inside of the neck of the bottle, and sealing material may be poured around the outer portion of the stopper to maintain the same in position. Each of the portions P and R is provided with apertures U, which form tortuous passages through the stopper.

The stopper in Fig. 7 is formed in one piece and provided with tortuous passages V, while a keyway W is provided in the side of the stopper, adapted to register with a recess X on the inside of the neck of the bottle. A key Y, provided with the double head Z, secures the stopper within the neck of the bottle.

We are aware that bottles have heretofore been patented with two stoppers having conical valves which extend into the apertures in the stoppers, with a weight attached to the inner valve and none on the outer valve, as shown in United States Patent No. 642,491; but in our construction the valves are in the form of flat disks resting squarely upon the tops of the stoppers, so that when it is attempted to force liquid into the bottle by pressure the valves are more firmly pressed against their seats, since no liquid can get in under the valves. With conical valves the tendency is to lift them from their seats by the force exerted by the liquid under pressure entering from the outside.

We are further aware that a bottle with one flat disk valve having a weight attached thereto has been patented in United States Patent No. 593,825; but it has been found that such a bottle may be readily filled. We have found that one way to prevent refilling a bottle is to have at least two flat disk valves, each having a weight attached. Advantage is taken in our bottle of the well-known fact that a thin flat body lying upon a smooth surface is only forced more securely against said surface when fluid-pressure is applied thereto, even at an angle to the same. The weights aid in keeping the valves tightly closed and tend to prevent any possibility of liquid getting in under the edges of the valves to lift them.

We furthermore make our valves of thin flat disks of mica, isinglass, or analogous material resting squarely upon the tops of the inner glass sleeves of the stoppers in order to take advantage of the strong adhesion between the glass and mica when wet. By using two valves instead of one the bottle is prevented from being refilled by means of a vacuum. It has been found that a bottle with but one valve, as shown in United States Patent No. 593,825, can be readily refilled with the use of a vacuum; but for reasons which we are not at present fully able to explain it has been found to be impossible to fill our bottle by means of a vacuum. The two valves coöperate in such a manner that water cannot be forced into the bottle.

Obviously some features of this invention may be used without others, and the invention may be embodied in widely-varying forms.

Therefore, without limiting ourselves to the construction shown and described nor enumerating equivalents, we claim, and desire to obtain by Letters Patent, the following:

The combination with a bottle, of stoppers each provided with an aperture, glass sleeves in said apertures having shoulders extending outwardly over the tops of the stoppers, independent outwardly-opening valves in the form of thin flat disks of mica arranged over said apertures and adapted to rest squarely upon the tops of the glass sleeves around the edges of the apertures, and weights loosely hung from said disks and suspended within the bottle to hold the valves closed when the bottle is in an upright or upwardly-inclined position, said weights being constructed to afford provision for the passage of the liquid through the stoppers from the inside of the bottle, for substantially the purposes set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

SAMUEL E. GEORGE.
JOSEPH R. NORRIS.

Witnesses:
E. VAN ZANDT,
A. L. O'BRIEN.