

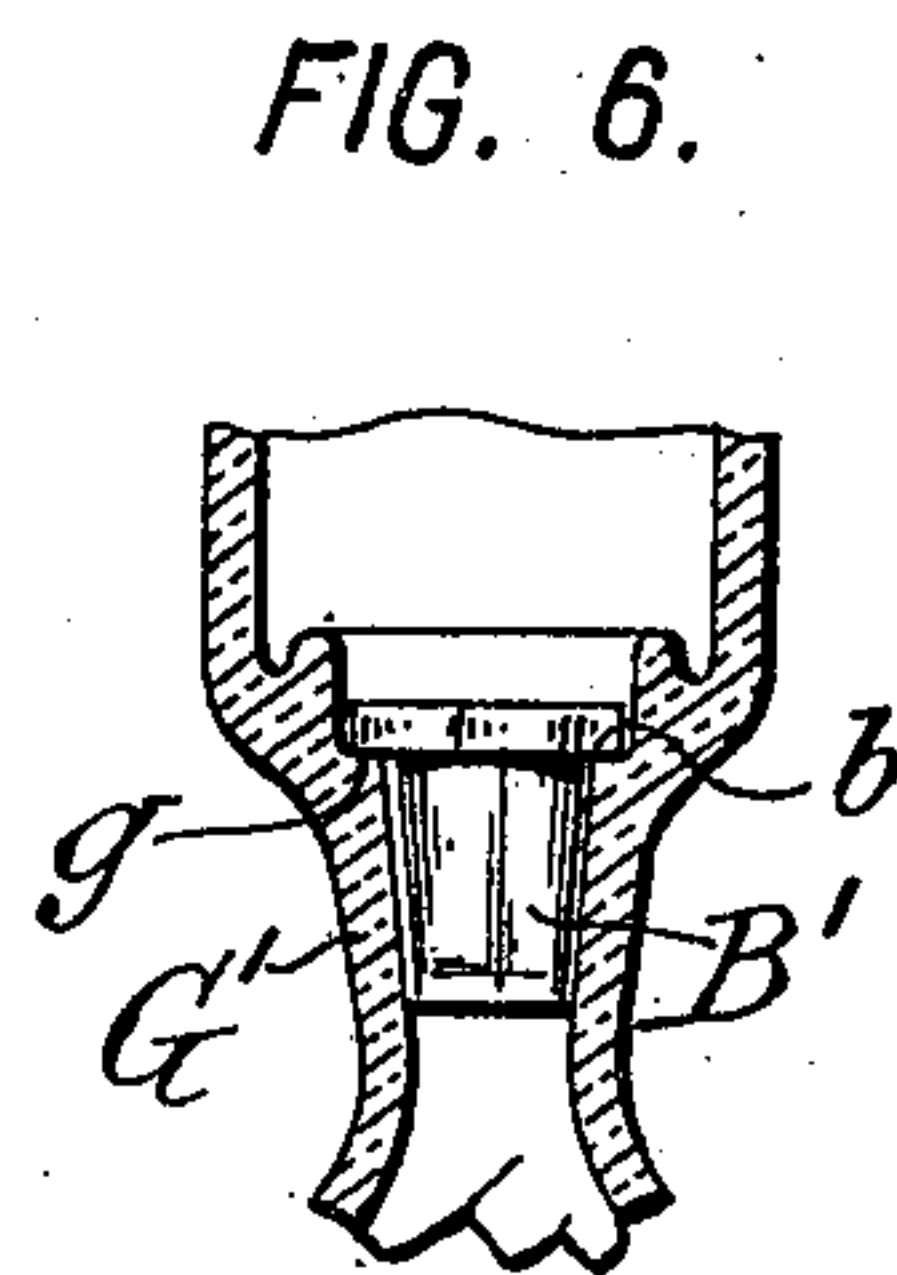
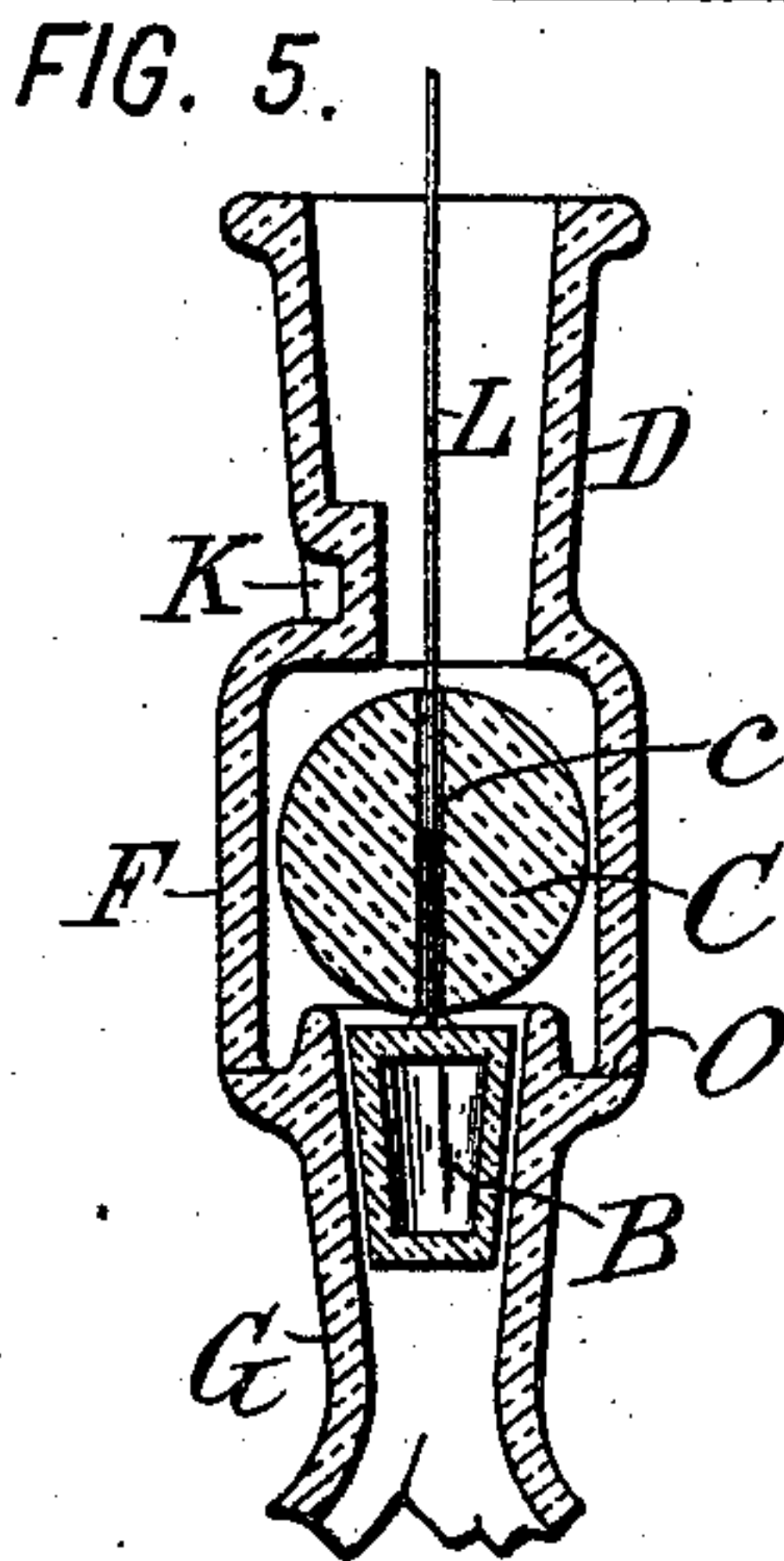
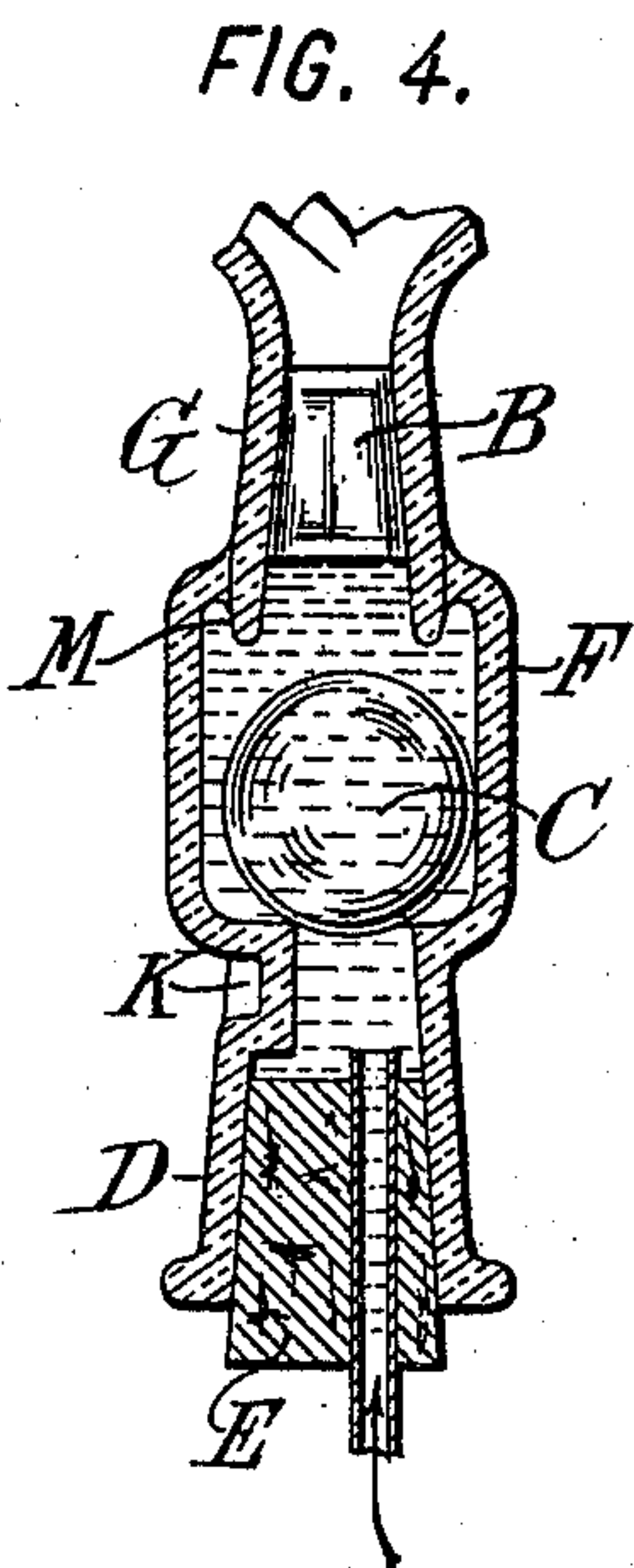
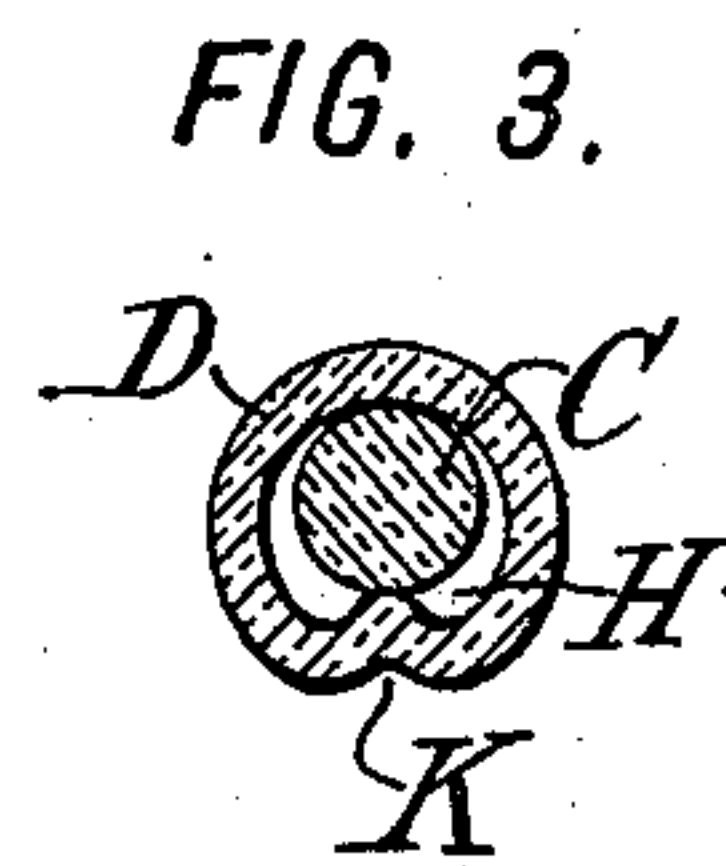
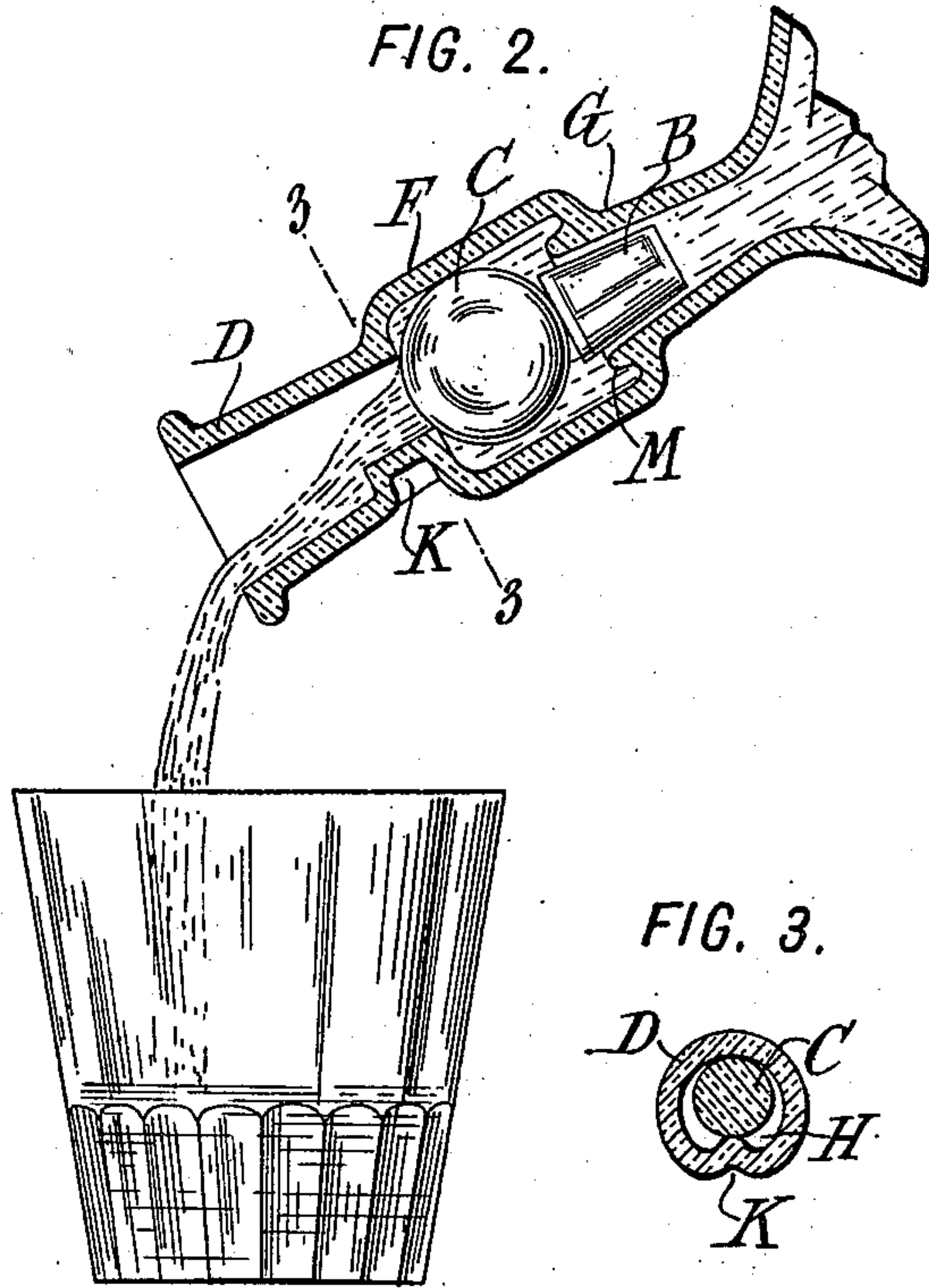
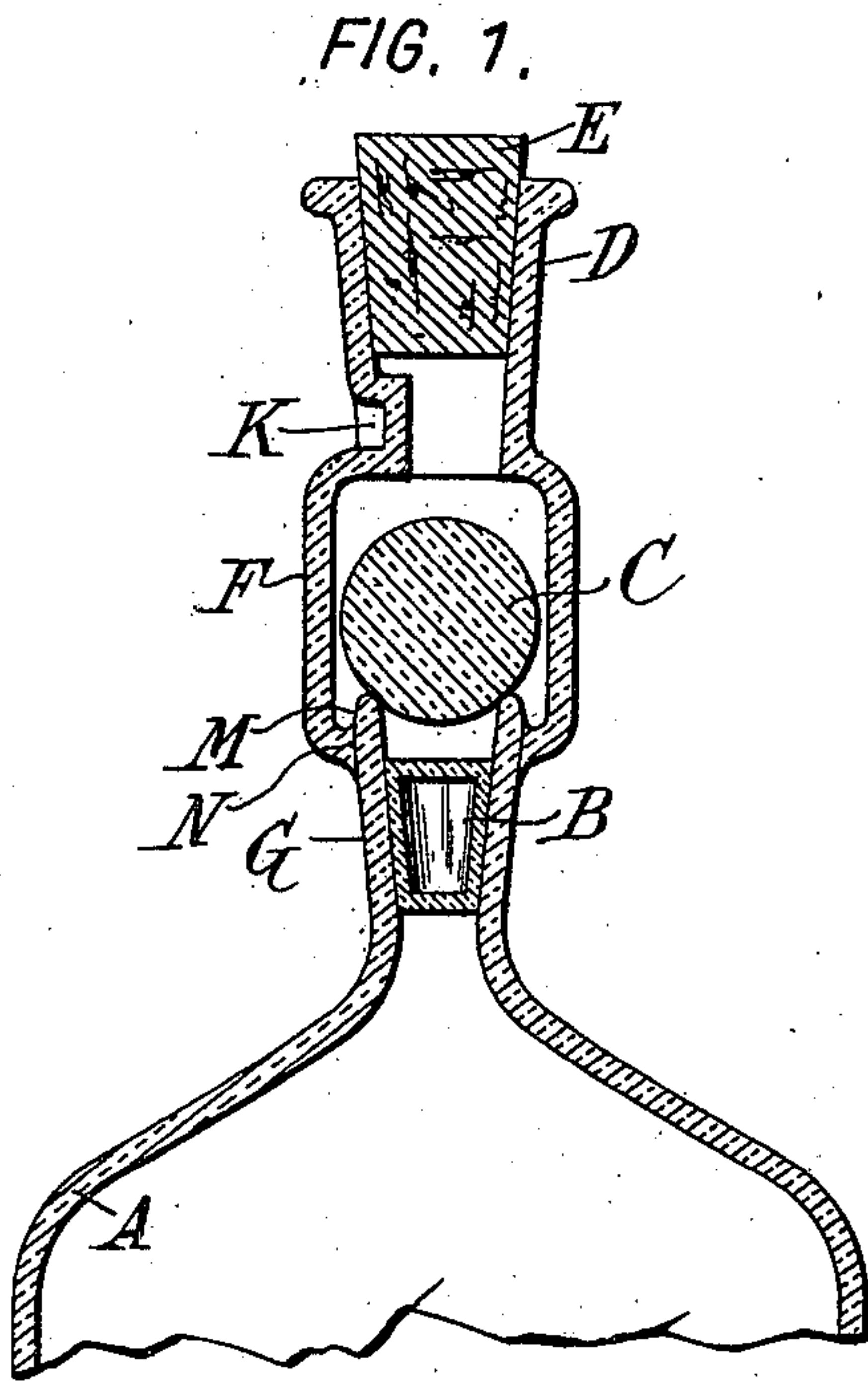
No. 685,030.

Patented Oct. 22, 1901.

S. L. COLE.
NON-REFILLABLE BOTTLE.

(Application filed Dec. 13, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

SIMEON L. COLE, OF BROOKLYN, NEW YORK.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 685,030, dated October 22, 1901.

Application filed December 13, 1900. Serial No. 39,584. (No model.)

To all whom it may concern:

Be it known that I, SIMEON L. COLE, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention aims to provide a bottle which having once been emptied of its liquid contents cannot be refilled, or at least can only be refilled with difficulty and by means which will indicate that the bottle has been tampered with.

My invention provides also a bottle of the type specified from which the liquid flows freely, so as to be a practical bar-bottle for either foaming or non-foaming liquids.

My invention provides also a bottle having various other advantages, all as hereinafter set forth.

In the accompanying drawings, showing certain embodiments of my invention, Figure 1 is a mid-section through the neck of the bottle in the upright position. Fig. 2 is a similar section, certain parts being in elevation and the bottle being tilted to illustrate its use in emptying it of its contents. Fig. 3 is a cross-section approximately on the line 3 3 of Fig. 2, showing the space for the passage of the liquid. Fig. 4 is a section similar to Fig. 1, but inverted, showing the manner of preventing refilling of the bottle in such position. Fig. 5 is a similar section showing the mode of originally filling the bottle. Fig. 6 is a section similar to Fig. 1, showing a modified form of stopper.

Referring to the embodiment shown in the accompanying drawings, my improved bottle A is provided with an internal stopper B, which is permanently retained in the lower part of the neck of the bottle, and which, as hereinafter explained, permits the outward flow of liquid and prevents inward flow of the same. In order to prevent access to such stopper for the purpose of holding it in an open position to refill the bottle, I provide an obstruction C, which covers the portion of the neck in which the internal stopper lies. The neck is continued around the obstruction C and terminates at the top in a mouth D,

adapted to receive a cork E in the ordinary manner.

The stopper B is buoyant and preferably consists of a hollow tapered plug, as shown, and composed of material which is non-absorbent and is not subject to attack by most liquids—such, for example, as glass, porcelain, or the like.

The obstruction C is preferably spherical and practically solid, so as to have weight, and is also preferably made of the same material as the stopper B. It is, as shown, of somewhat greater diameter than the mouth of the passage in which the stopper B lies, so as to rest on said mouth when the bottle is in a vertical position and so as to cover said mouth in all positions of the bottle to prevent the insertion of a wire or tool of any sort into said mouth.

The neck of the bottle below the outer mouth D is formed with a chamber F, permitting a slight vertical movement of the obstruction C, and with a contracted portion or inner mouth G, containing the stopper B. The diameter of the chamber F is such as to permit the passage of the liquid around the obstruction C and yet to permit as little side-wise play of the obstruction C as possible. At the mouth of the chamber F, where it joins the upper end of the neck, there is a non-circular opening H, Fig. 3, produced most simply by pressing the material of the neck inward at one or more points, as shown at K. The purpose of this shape is to permit the passage of the liquid outward past the obstruction C when the parts are in the position shown in Fig. 2. It is obvious that the shape of the mouth of the chamber may be varied in an unlimited number of ways to secure the same result, and also that the shape of the obstruction C may likewise be varied almost without limit.

In emptying my bottle after its first filling the parts take the position shown in Fig. 2. The obstruction C moves to the mouth of the chamber by reason of gravity and also of the pressure of the liquid behind it. The stopper B moves downward in its mouth G, so that it projects slightly out of said mouth. It may, however, move so that its outer end is merely at the outer end of the mouth G. It

is preferred in any case that the greater portion of its length shall remain always within the mouth, so that it will return in the inner part of the mouth very easily in any attempt to refill the bottle. The mouth G being tapered, the outward movement of the stopper B allows the liquid to flow out and through the orifice H of the chamber F.

If after the liquid is once exhausted it be attempted to refill the bottle by inverting it, as shown in Fig. 4, and introducing liquid, as shown, the stopper B immediately rises by reason of its buoyancy and prevents the admission of liquid. The same action takes place if the bottle be in any position in which the outer end is inclined downward—as, for example, in Fig. 2—the stopper B being, as above explained, extremely sensitive and being always in great part within the mouth B, so that it is freely guided and has no tendency to stick.

If it be attempted to fill the bottle in any position in which the outer end of the neck is inclined upwardly, the obstruction or weight C, as well as the stopper B, moves downward, so as to force the stopper B into the position in Fig. 1, thus again preventing the admission of liquid. It may be noted here that the stopper B moving down into its mouth G a considerable distance below the obstruction C prevents the obstruction C from pushing the stopper so hard as to cause it to stick within its mouth. In this operation the weight of the ball C is important, producing a practically instantaneous closure by the stopper B as soon as the bottle is set in such a position that the ball C rolls to the lower part of its chamber F and strikes the stopper B.

For first filling the bottle a variety of arrangements is possible, it being only necessary to have a means for holding the stopper B up, which means is capable of subsequent detachment from the stopper B. As one example I show a fine wire L, which is slightly attached, as by a small quantity of solder, to the stopper B and which may pass either through a very fine bore c in the obstruction C or which may even pass around the obstruction C and passes out of the mouth of the bottle. The wire and bore c are much exaggerated in the drawings. By means of the wire L the stopper B is held up in position shown in Fig. 5 until the bottle is filled. It is then pulled strongly enough to separate it from the stopper B, after which further access to the stopper B is impossible.

In order to prevent holding the stopper B out of its mouth by the insertion of a wire or the like around the obstruction C and into the mouth G between the wall of the mouth and the stopper B, I provide in the lower part of the chamber F an upwardly-projecting ring M, which will deflect upwardly the point of any instrument which may be passed around the obstruction C. Preferably the ring M is formed as a continuation of the mouth G,

projected upward within the chamber F, and the stopper B is made without any part overhanging the ring M, but is adapted to lie entirely within its mouth.

The stopper B will ordinarily have considerable taper and will be made of ordinary blown or molded glass, so that there will be no tendency to stick within the walls of the mouth G; but in order to insure positively that there shall be no such sticking I may make the stopper in the form shown in Fig. 6, in which the stopper B' is formed with a substantially horizontal shoulder b, which prevents its downward movement before the tapered sides are allowed to stick tightly in the mouth G'. The mouth G' is formed in this case with a substantially horizontal shoulder g, upon which the shoulder b of the stopper bears.

My improved bottle may be manufactured in any one of a variety of ways. It is most conveniently formed in two parts, one of which contains the inner mouth G for the stopper B and the body of the bottle and the other of which contains the outer mouth D of the neck and the chamber F. These parts may be joined, as along the line N, Fig. 1, or O, Fig. 5, so as to inclose the movable parts of the device in their proper positions.

It will be obvious to those skilled in the art that the forms, proportions, and materials of the individual elements of my invention and the arrangements of the different parts in combination with each other may be considerably varied without departing from the principle of the invention.

What I claim, therefore, and desire to secure by Letters Patent, are the following-defined novel features, each substantially as described:

1. The combination in a bottle-neck of a buoyant stopper adapted to prevent filling the bottle in an inverted position, and an obstruction, said bottle-neck being formed with a mouth for said stopper and with a chamber above said mouth for said obstruction, said mouth projecting upward within said chamber, said chamber being contracted at its outlet and said obstruction being adapted to lie against said outlet and obstruct access to said stopper in the inverted position, said stopper adapted to lie entirely within said mouth whereby it cannot be held by an instrument inserted around said obstruction, a substantially horizontal shoulder g within said mouth below the upper edge thereof, and a corresponding shoulder b on said stopper for supporting the same within said mouth on said shoulder g.

2. The combination in a bottle-neck of a buoyant stopper adapted to prevent filling the bottle in an inverted position, and a substantially spherical obstruction, said bottle-neck being formed with a mouth for said stopper and with a chamber above said mouth for said obstruction, said chamber being of larger

diameter than said obstruction and having a non-circular outlet of smaller diameter than said obstruction, and said obstruction being adapted to lie against said outlet and obstruct access to said stopper in the inverted position, said mouth projecting upward within said chamber, and said stopper adapted to lie entirely within said mouth whereby it cannot be held by an instrument inserted around said obstruction, a shoulder *g* within said mouth below the upper edge thereof, and a corresponding shoulder *b* on said stopper for supporting the same within said mouth on said shoulder *g*.

3. The combination in a bottle-neck of a buoyant stopper adapted to prevent filling the bottle in an inverted position, and a substantially spherical obstruction, said bottle-neck being formed with a mouth for said stopper and with a chamber above said mouth for said obstruction, said mouth projecting upward within said chamber and said stopper adapted to lie entirely within said mouth whereby it cannot be held by an instrument inserted around said obstruction, said chamber being of larger diameter than said obstruction, the neck immediately above said chamber being pressed inward to form a non-circular outlet of smaller diameter than said obstruction, and said obstruction being adapted to lie against said outlet in the inverted position and to cover said mouth in the up-

right position so as to obstruct access to said stopper in all positions.

4. The combination in a bottle-neck of a buoyant hollow glass stopper adapted to prevent filling the bottle in an inverted position, and an obstruction, said bottle-neck being formed with a mouth for said stopper and with a chamber above said mouth for said obstruction, said mouth projecting upward within said chamber and said stopper adapted to lie entirely within said mouth whereby it cannot be held by an instrument inserted around said obstruction, said chamber being contracted at its outlet, the neck immediately above said chamber being pressed inward to give said outlet a non-circular shape, and said obstruction being adapted to lie against said outlet in the inverted position and to cover said mouth in the upright position, so as to obstruct access to said stopper in all positions, a shoulder *g* within said mouth below the upper edge thereof, and a corresponding shoulder *b* on said stopper for supporting the same within said mouth on said shoulder *g*.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

SIMEON L. COLE.

Witnesses:

DOMINGO A. USINA,
FRED WHITE.