

(No Model.)

LE ROY C. WEBSTER.
BOTTLE STOPPERING DEVICE.

No. 603,304.

Patented May 3, 1898.

FIG. 5.

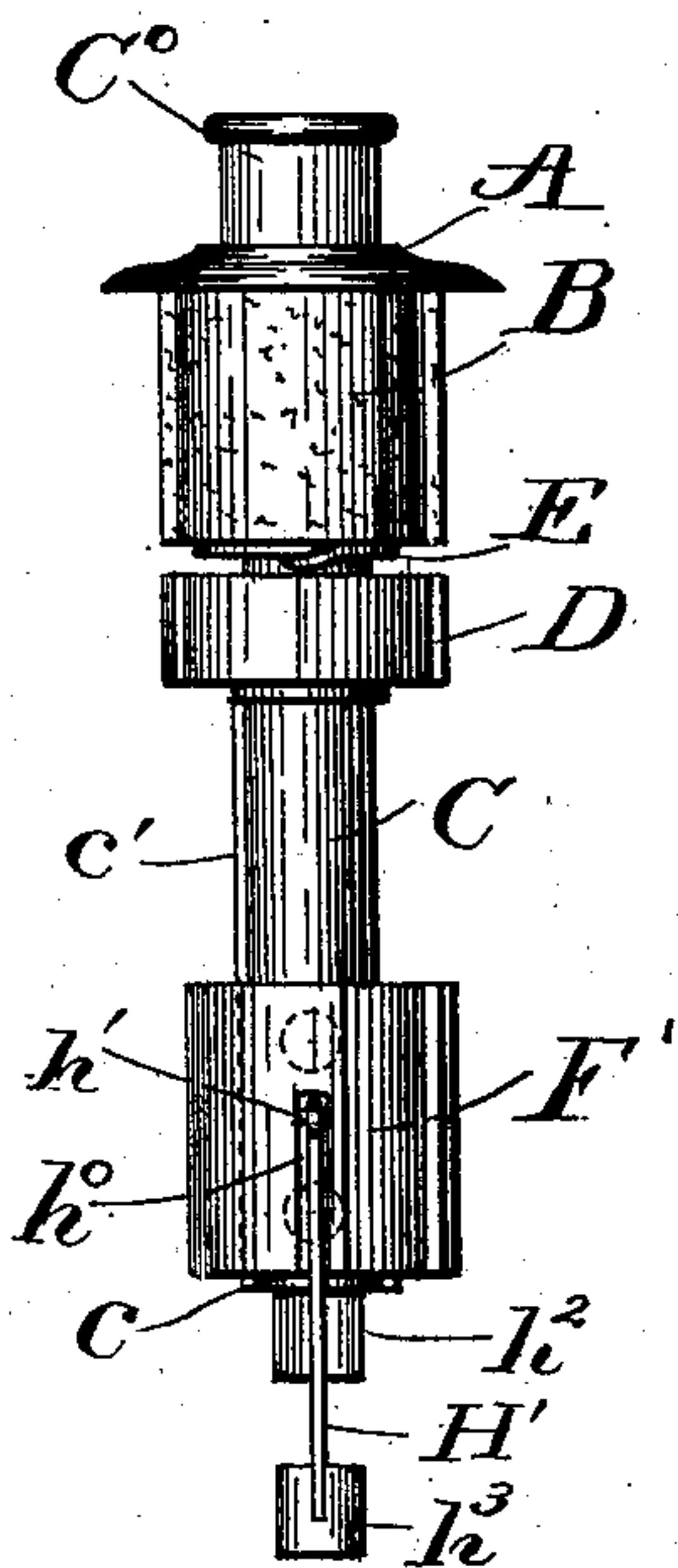


FIG. 1.

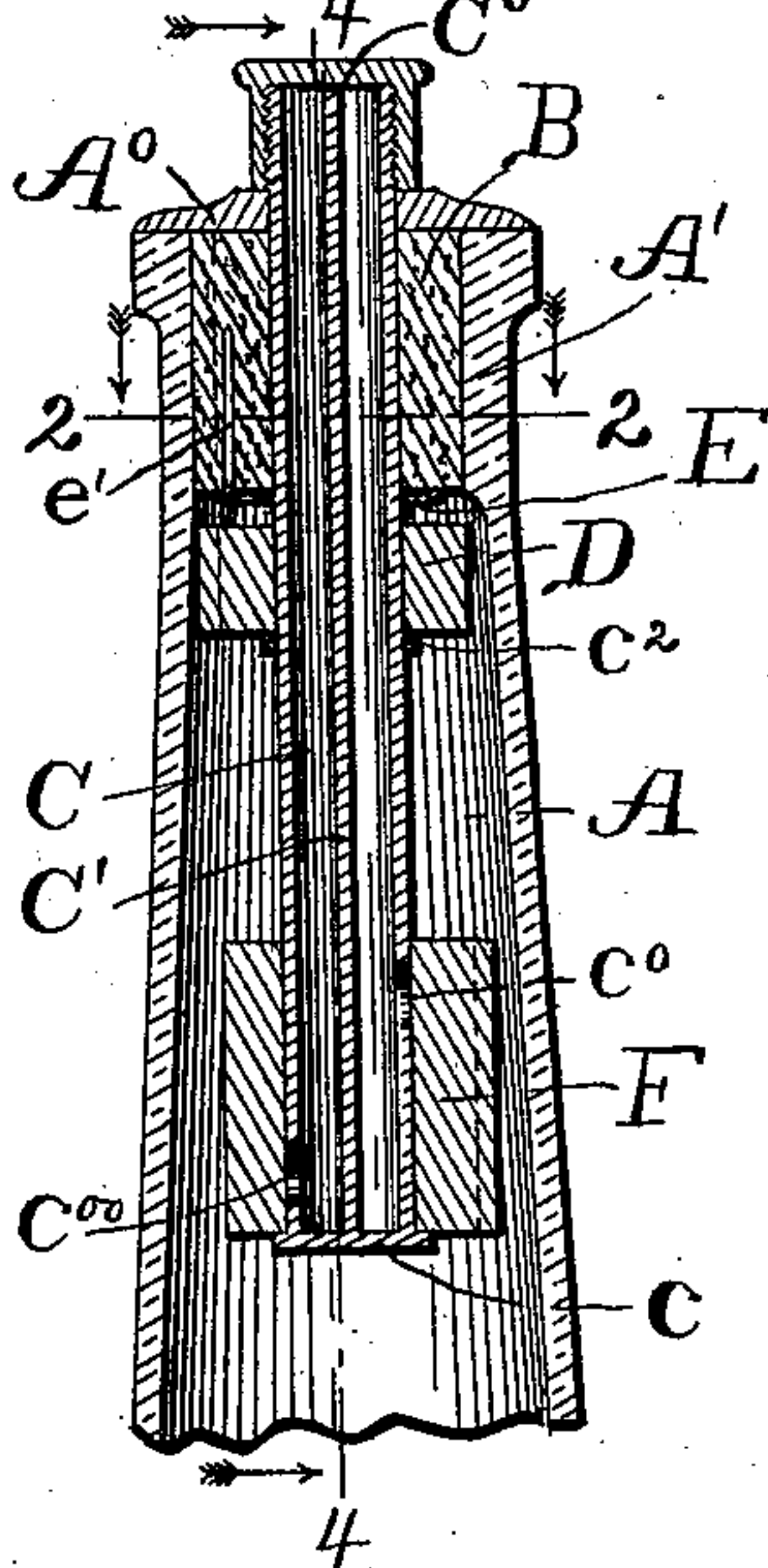


FIG. 6.

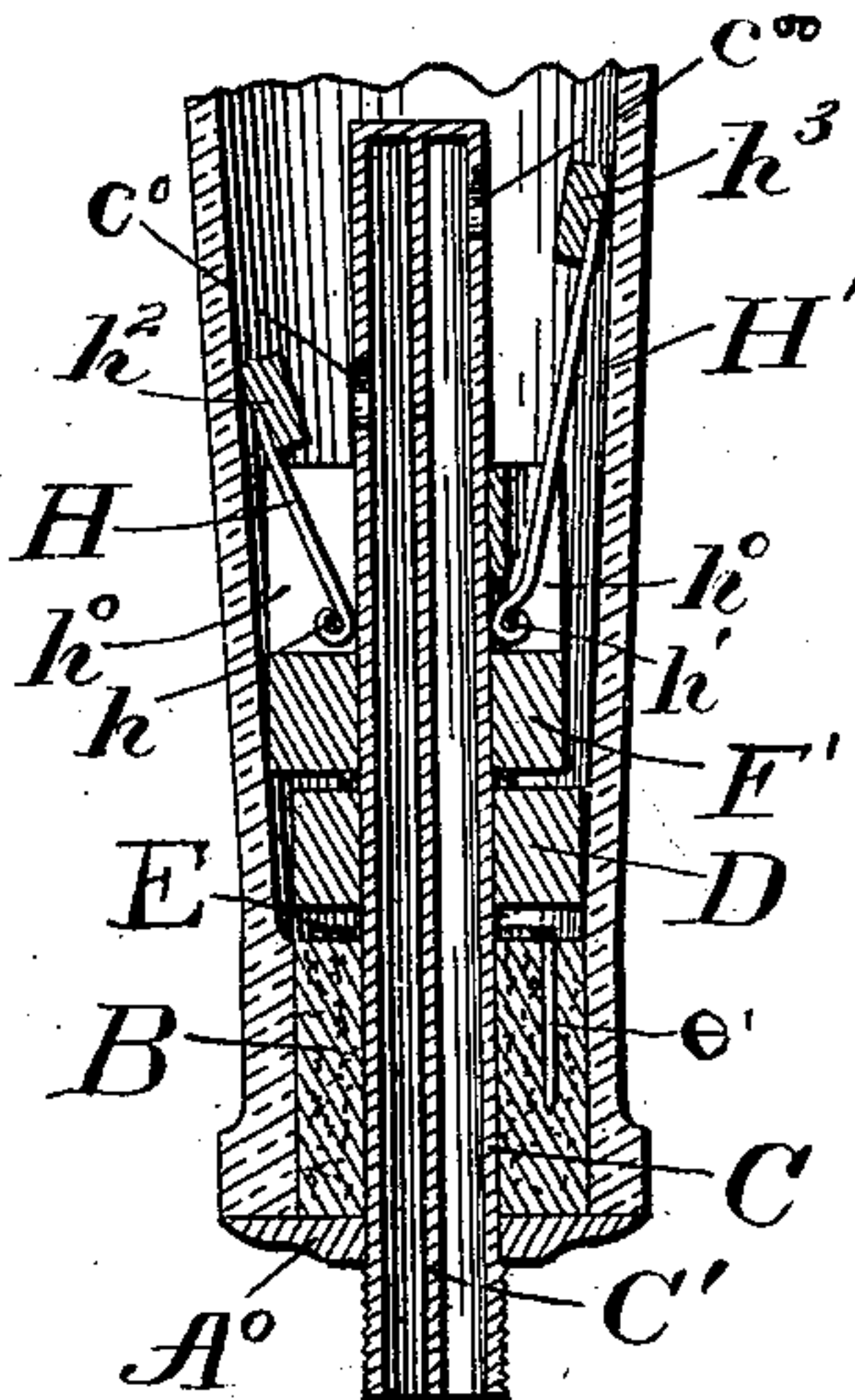


FIG. 2.

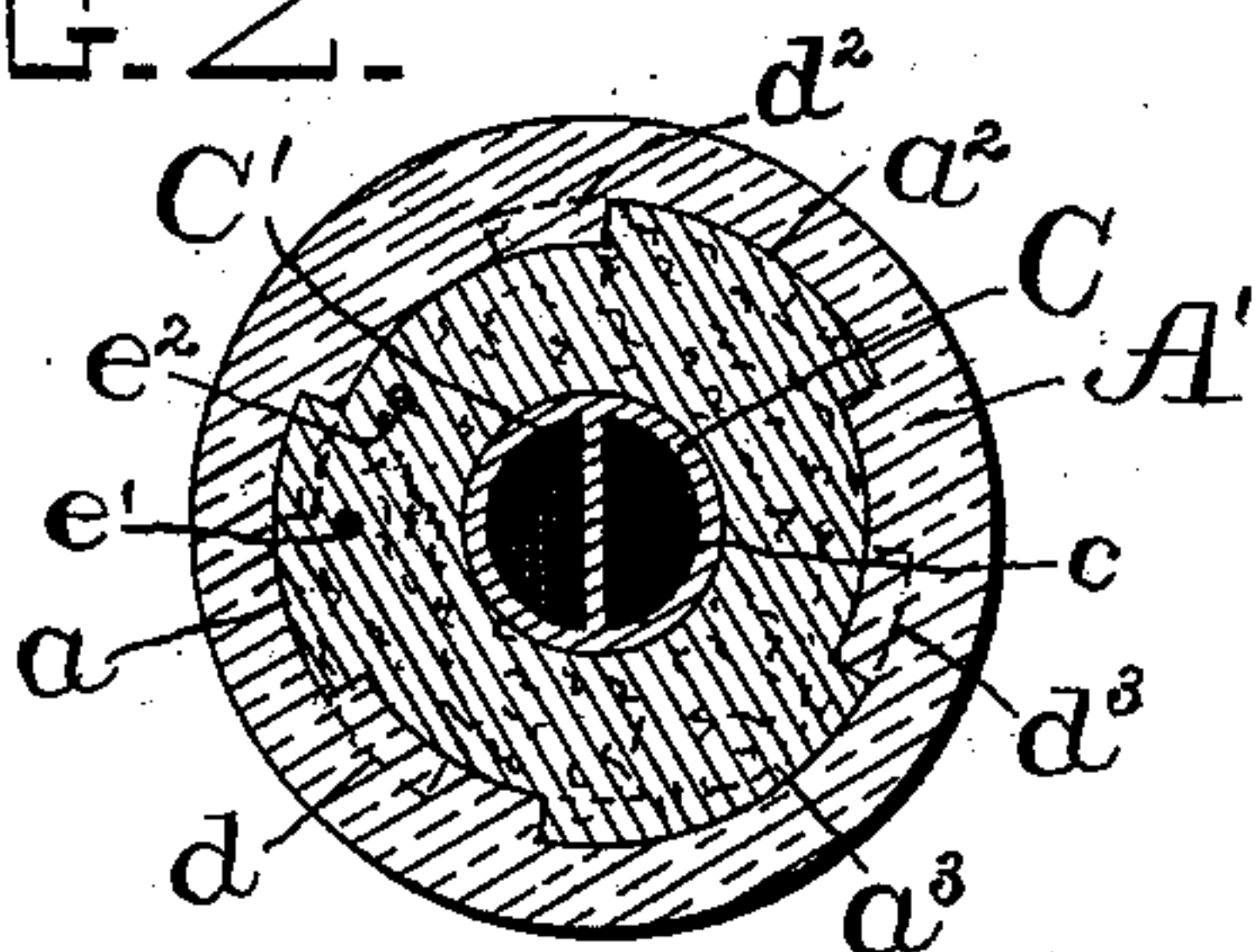


FIG. 4.

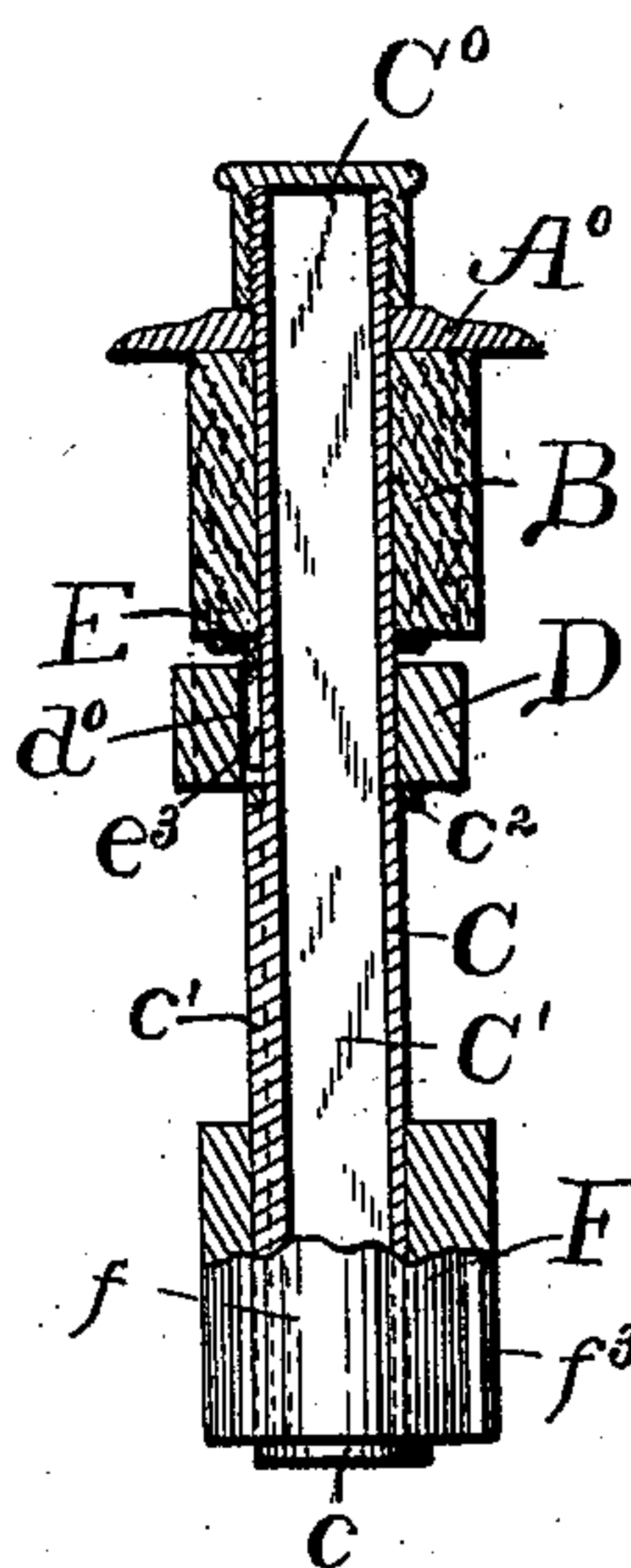
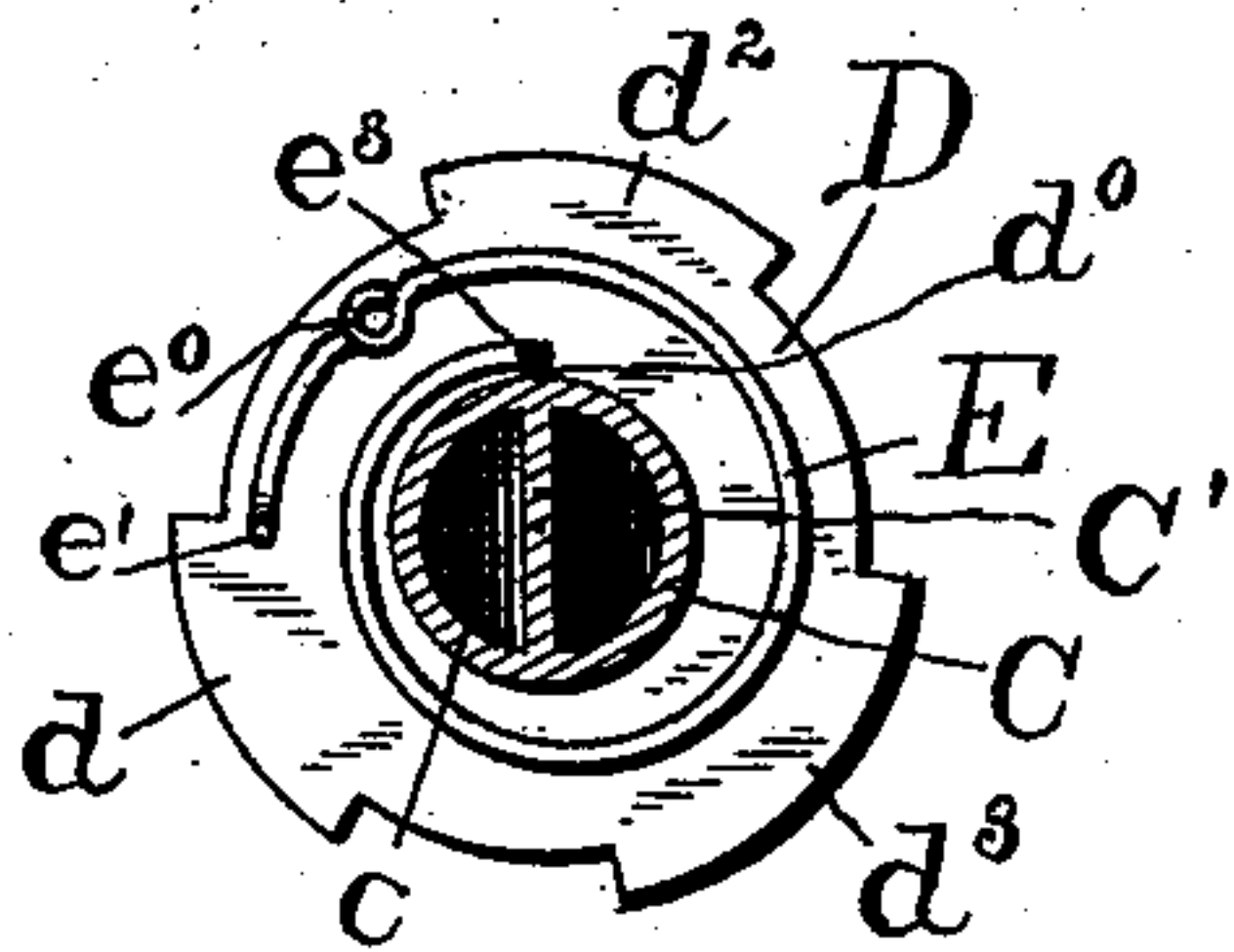


FIG. 3.



Witnesses
D. H. Blakelock
John R. Tiller

Inventor
Le Roy C. Webster,
By William & Fisher,
Attorneys

UNITED STATES PATENT OFFICE

LE ROY C. WEBSTER, OF THE UNITED STATES NAVY.

BOTTLE-STOPPERING DEVICE.

SPECIFICATION forming part of Letters Patent No. 603,304, dated May 3, 1898.

Application filed August 28, 1897. Serial No. 649,856. (No model.)

To all whom it may concern:

Be it known that I, LE ROY C. WEBSTER, a captain in the United States Marine Corps, a citizen of the United States, stationed at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Bottle-Stoppering Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in stoppers for bottles, jugs, and similar vessels, and has for its object to provide a stopper which after the vessel has been once filled and the stopper inserted cannot be removed from the vessel without so marring its appearance as to render the same useless for refilling, thus preventing the fraudulent filling of the vessel with impure or spurious liquids, to the injury of the original vender of the bottle and contents.

My invention, which consists in the novel devices hereinafter described and claimed, will be understood by reference to the accompanying drawings, wherein the same parts are indicated by the same letters throughout the several views.

Figure 1 is a central vertical section through the neck of the bottle provided with my improved stopper. Fig. 2 is an enlarged section taken on the line 2 2 in Fig. 1. Fig. 3 represents an enlarged plan view of the locking-disk and spring, the central tube being shown in section. Fig. 4 represents a section through the stopper and its attachments, taken on the line 4 4 in Fig. 1 and looking in the direction indicated by the arrows. Fig. 5 illustrates a modification of the stoppering devices shown in Figs. 1 and 4, and Fig. 6 represents an inverted central longitudinal section of the said devices in position in a bottle-neck.

A represents the neck of a bottle or other similar vessel, the upper end of which has an internally-thickened portion A', provided with a plurality of inner vertical grooves, such as a , a^2 , and a^3 . These grooves are of dissimilar widths or shapes, so as to allow the passage of a solid non-compressible plug, formed with corresponding ribs thereon, only when presented in one position relative to the

bottle-neck, as will be hereinafter more fully described.

The main portion of the neck may be straight or tapering or of any other suitable form.

B represents a stopper, which may be either of hard wood and provided with axial ribs and grooves to correspond with the grooved portion of the bottle-neck or of cork and not ribbed and grooved, but preferably somewhat tapered. The compressibility of a cork stopper will allow it to be forced into the grooved portion of the neck even though the diameter of the said cork stopper be somewhat greater before being inserted than the smallest diameter of the grooved portion of the neck of the bottle, and while being inserted, as well as afterward, the said cork stopper will expand into the grooves in the bottle-neck, so that the exterior of the cork will eventually assume the shape of the interior of the neck of the bottle, as will be obvious. The stopper shown in the drawings is represented as being of cork.

C represents a hollow tube of some non-corrosive material, preferably metal, which is fitted through a central axial opening in the stopper B and is secured therein in any suitable manner. One end of said tube extends a short distance above the upper end of the stopper B and is preferably screw-threaded to receive a screw-cap C⁰ for closing the upper end of said tube, as shown in Figs. 1 and 4. A circular disk A⁰ is also preferably fitted over the tube C upon the stopper B, and this disk should be large enough to extend over the mouth of the bottle when the stopper is inserted, as seen in Fig. 1. The tube C extends some distance below the stopper into the neck of the vessel and is closed at its lower end by means of a disk c, which is of a somewhat larger diameter than the outer diameter of the tube, thus forming a stop for the sliding plug F, hereinafter referred to.

The tube C has a longitudinal partition C' therein which reaches from its lower end to or near its upper end, thus forming in the said tube two non-communication chambers or passages, as seen in Fig. 1. At or near the lower end of the tube C is an opening c⁰⁰, which communicates with one of said cham-

bers or passages, and a short distance above this opening and on the opposite side of the tube is a similar opening c^0 , which communicates with the other chamber or passage.

5 F represents a hard solid plug provided with a central axial opening which fits snugly but loosely over the tube C, whereon the said plug may slide of its own weight between the stops c and c^2 upon said tube. The said plug
10 is preferably held against rotary motion upon the tube C by means of a rib c' on the said tube which engages a corresponding groove in the inner periphery of the plug, as seen in Fig. 4, so that the ribs thereon may not fall
15 into line with the corresponding ribs on the rotary plug D, hereinafter referred to.

The plug F is long enough to cover both of the openings c^0 and c^{00} when in its lowest position—that is, resting upon the stop c —and
20 the length of the tube C between the upper opening c^0 and the stop c^2 is great enough to allow the two openings to be entirely uncovered when the said plug is in its other extreme position—that is, resting against the
25 upper stop c^2 on the tube. The said plug F is formed with axial ribs upon its periphery, such as f and f^3 , which correspond with the grooves in the bottle-neck through which the said plug is to be inserted.

30 D represents a solid plug or disk having axial ribs d , d^2 , and d^3 upon its periphery corresponding to the grooves a , a^2 , and a^3 in the bottle-neck, and this plug or disk D also has a central axial opening therethrough for the passage of the tube C, as shown. The
35 said disk D fits over the tube C and is retained in its position beneath and near the stopper by means of the annular rib or stop c^2 , fitted upon said tube, as seen in Figs. 1 and 4. A coil e^0 may also be formed in this
40 wire and a pin e^2 passed through this coil into the stopper, as seen in Figs. 1 and 3. This spring connection between the stopper and the disk D will allow the one to turn through
45 a small arc relative to the other when both are held; but when one is released it will return to its normal position relative to the other. The plugs and stopper may be placed upon the tube in any preferred order. Thus
50 the disk c at the lower end of the tube may be made integral therewith, and the plug F may be slipped on first over the upper end of the tube and then secured by the annular rib c^2 being applied, the disk D and the stopper
55 being afterward put on in their proper order, or the disk c may be applied after the plug F has been slipped over the lower end of the tube.

The operation of my invention is as follows:
60 The parts being fitted together as shown in Figs. 1 and 4, except that the screw-cap C^0 should preferably be removed and put on later, the plug F is turned to its proper position and inserted through the grooved portion
65 A' of the neck. Then the disk D is started in the said grooved portion. After

starting the disk D the stopper and tube are given a twist, and the stopper is then forced down into the grooved portion A' of the neck. By the time the stopper has been forced down
70 as far as it will go the disk D will have passed entirely through the grooved portion of the neck, and as soon as it does so the spring connection E by the tension put thereon in twisting the stopper will cause the disk D to jump
75 around to its normal position relative to the stopper, which motion will throw the ribs on said disk out of line with the corresponding grooves in the bottle-neck, thus rendering it impossible without destroying the stopper to
80 turn said disk back to the position necessary to its withdrawal, the said stopper being held in the grooves against turning and the disk thus effectually locking the stopper against
85 being pulled straight out.

In Figs. 5 and 6 I have shown a slight modification in connection with the plug F'. In these figures the plug F' is shown as slotted upon opposite sides, as at h^0 h^0 , and wire arms
90 H and H' are pivoted at one end, as at h and h' , in these slots in the said plug, as seen most clearly in Fig. 6. These arms are of different lengths, the shorter arm, such as H, carrying a heavy block or weight h^2 , having
95 a concave inner face conforming to the exterior surface of the tube C and adapted to fall over the opening c^{00} in the said tube when the plug F' is in its uppermost position and the bottle turned so as to cause the said weight to fall upon the tube, and the longer arm, such
100 as H', carrying a similar block or weight h^3 , adapted to fall over the opening c^0 in the tube C. When the bottle is held upright, the weights h^2 and h^3 will hang vertically, as shown in Fig. 5; but upon the bottle being
105 tilted past a horizontal line one of the weights will swing off and the plug will slide along the tube toward the disk D, the other weight holding its corresponding opening closed. When the bottle is held at an angle between
110 the vertical and the horizontal with its mouth downward, the uppermost weight will hold the corresponding opening in the tube closed; but when the bottle is held in a vertical position the weights h^2 and h^3 will both fall away
115 from the tube C and the openings c^0 and c^{00} will remain clear for the passage of liquid from the bottle. The function of these swinging weights is to keep at least one of the openings c^0 and c^{00} closed at all times, except
120 when the bottle is inverted vertically, so that liquid cannot flow into or out of the bottle, except when held in a vertical inverted position, when the weights fall off from the tube C and leave the openings c^0 and c^{00} free for
125 the passage of liquid and air. Thus it will be seen the bottle cannot be refilled by immersion in a horizontal position in a volume of the liquid, although it can only be partially refilled in such a position without the
130 assistance of these swinging weights. While these swinging weights may be advantageous

to use, yet they may be omitted, if preferred, inasmuch as it will be impossible to completely refill the bottle even without them.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a device for stoppering bottles, jugs, and similar vessels, the combination with a stopper, and a hollow tube passing through an axial opening through said stopper and extending some distance below the said stopper, said tube being closed at its lower end and having a plurality of openings therein near said end; of a hollow plug inclosing the lower part of said tube and adapted to slide thereon; stops limiting the movement of said plug; a locking-disk encircling said tube beneath and near said stopper; and a flexible connection between said disk and said stopper, substantially as described.

2. In a device for stoppering bottles, jugs, and similar vessels, the combination with a stopper, and a hollow tube passing through an axial opening through said stopper and extending some distance below said stopper, said tube being closed at its lower end and having two non-communicating longitudinal chambers or passages therethrough with openings near the lower end of said tube leading to said chambers; of a hollow plug inclosing the lower part of said tube and adapted to slide thereon; stops limiting the movement of said plug; a locking-disk encircling said tube beneath and near said stopper; and a flexible connection between said disk and stopper, substantially as described.

3. In a device for stoppering bottles, jugs and similar vessels, the combination with a stopper, and a hollow tube, passing through an axial opening in said stopper and extending some distance below said stopper, said tube being closed at its lower end and having two non-communicating longitudinal chambers or passages therethrough, with an opening entering each chamber near the lower end of said tube, but the one being nearer said end than the other; of a hollow plug inclosing the lower part of said tube and having one or more ribs and grooves thereon, said hollow plug being adapted to slide on said hollow tube and to cover and uncover said opening therein; a locking-disk encircling said tube beneath and near said stopper and having an outer periphery similar to that of said hollow plug; and a flexible connection between said disk and stopper, substantially as described.

4. The combination with a bottle or jug, having a neck provided with a specially-formed contracted internal passage; of a stopper adapted to fit into said passage; a hollow tube passing through an axial opening in said stopper, and adapted to extend into the neck of the bottle or jug, said tube being closed at its lower end and having a plurality of openings near said end; a hollow plug in-

closing the lower portion of said tube and adapted to slide thereon of its own weight and thus cover and uncover said openings; stops limiting the movement of said plug; a locking-disk having its periphery formed to correspond with the contracted passage in said neck; encircling said tube beneath and near said stopper; and a flexible connection between said locking-disk and said stopper; substantially as described.

5. The combination with a bottle or jug, having a neck provided with a specially-formed contracted internal passage; of a stopper adapted to fit into said passage; a hollow tube passing through said stopper and adapted to extend into the neck of the bottle or jug some distance, said tube being closed at its lower end and having a pair of openings therein near but at unequal distances from said end; a longitudinal partition dividing said tube into two non-communicating internal passages; a hollow plug inclosing the lower portion of said tube and adapted to slide thereon of its own weight, and thus cover and uncover said openings, stops limiting the movement of said plugs, a locking-disk having its periphery formed to correspond with the contracted passage in said neck encircling said tube beneath and near said stopper, and a flexible connection between said locking-disk and said stopper, substantially as described.

6. The combination with a bottle or jug, having a neck provided with a specially-formed contracted internal passage, of a stopper adapted to fit into said passage; a hollow tube passing through an axial opening in said stopper and adapted to extend some distance into the neck of the bottle or jug, said tube being closed at its lower end; a longitudinal partition in said tube dividing the latter into two non-communicating internal passages an opening in said tube communicating with one of said passages near the lower end of said tube; another opening communicating with the other of said passages at a greater distance from the end of said tube; a hollow plug having a periphery formed to correspond with the contracted passage in said neck, inclosing the lower portion of said tube and adapted to slide thereon of its own weight and thus cover and uncover said opening; stops limiting the movement of said plug; a locking-disk having its periphery formed to correspond with the contracted passage in said neck, encircling said tube beneath and near said stopper, and a spring-wire connection between said locking-disk and said stopper, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LE ROY C. WEBSTER.

Witnesses:

BERNARD F. BENSON,
CHAS. H. BULKLEY.