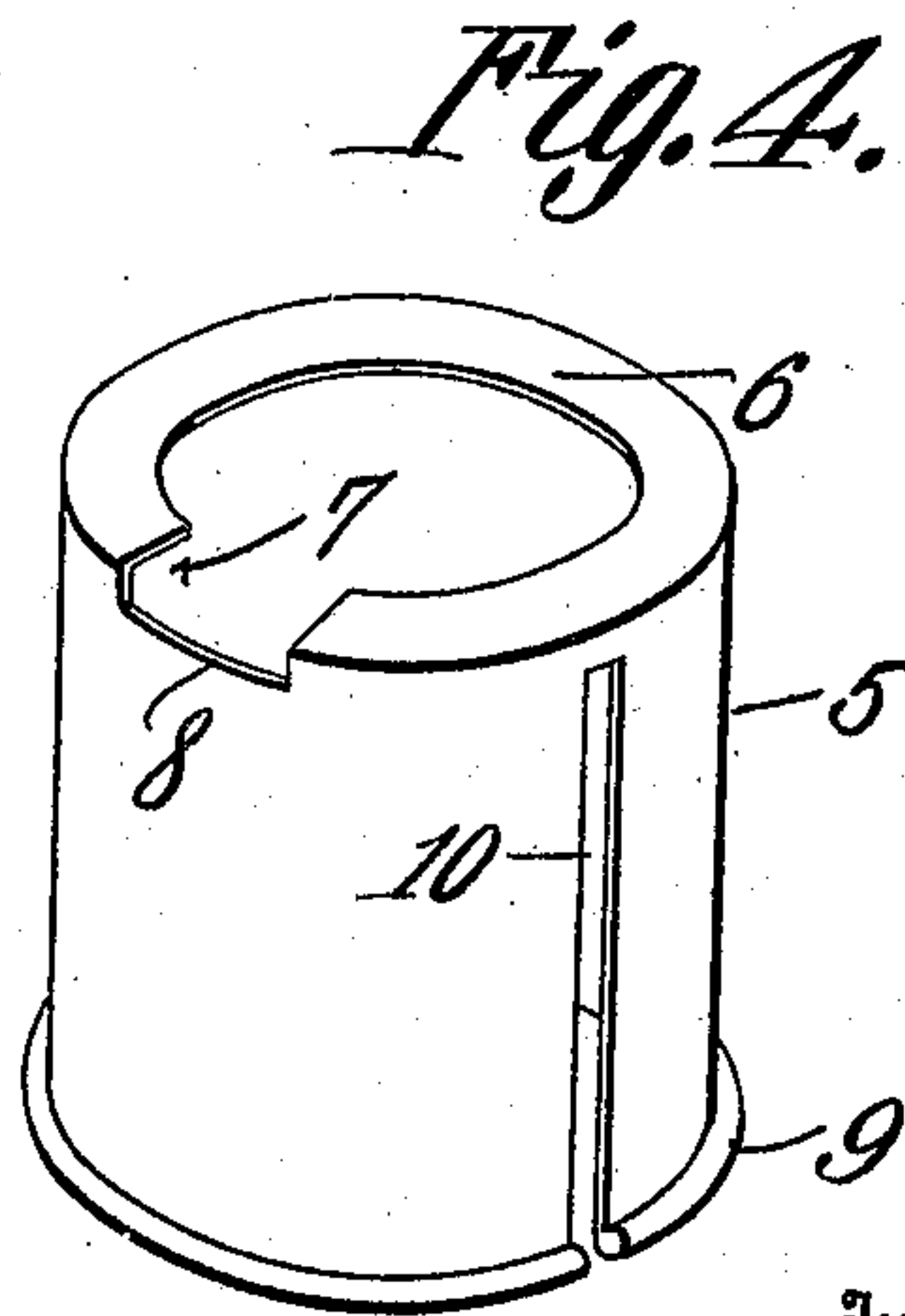
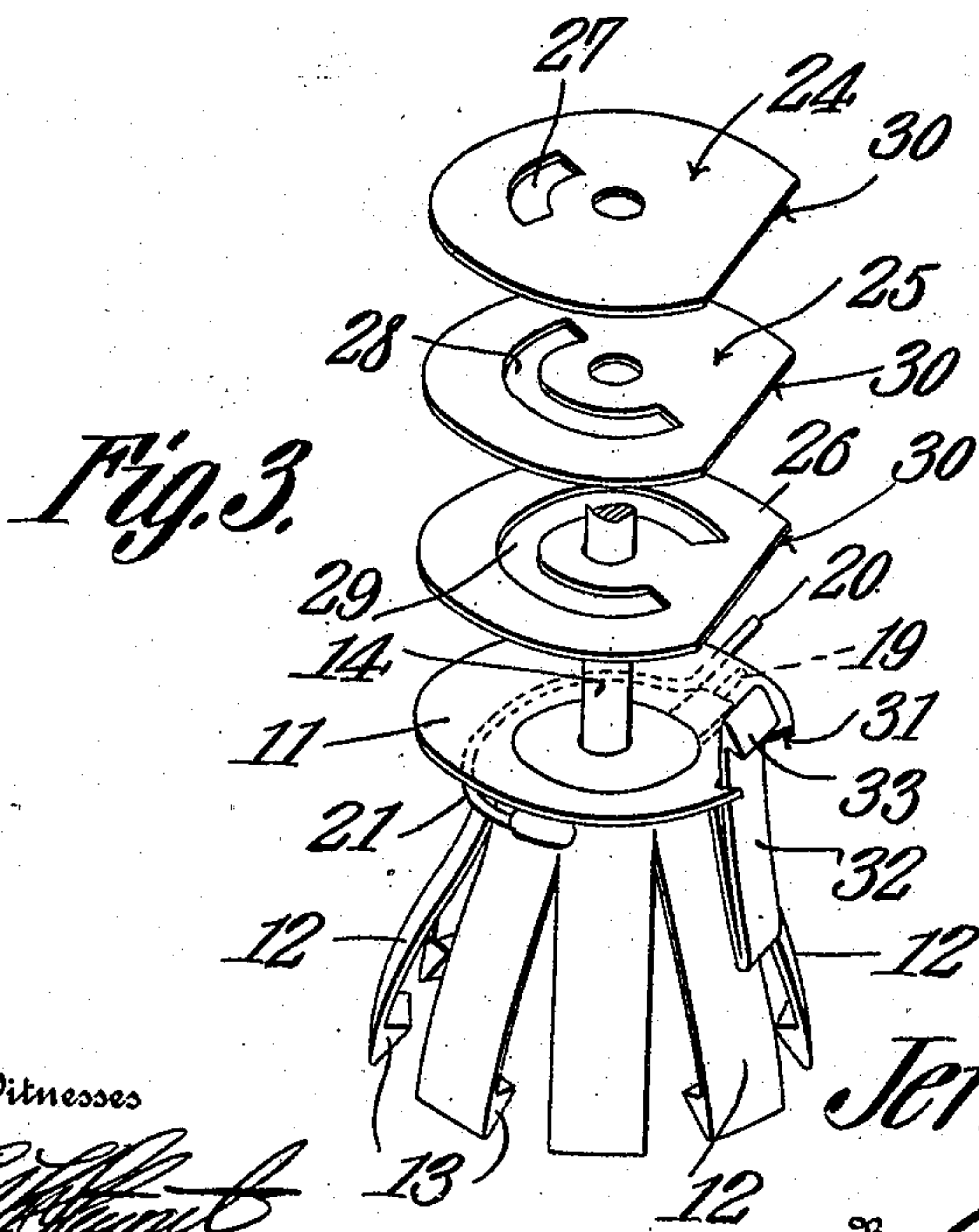
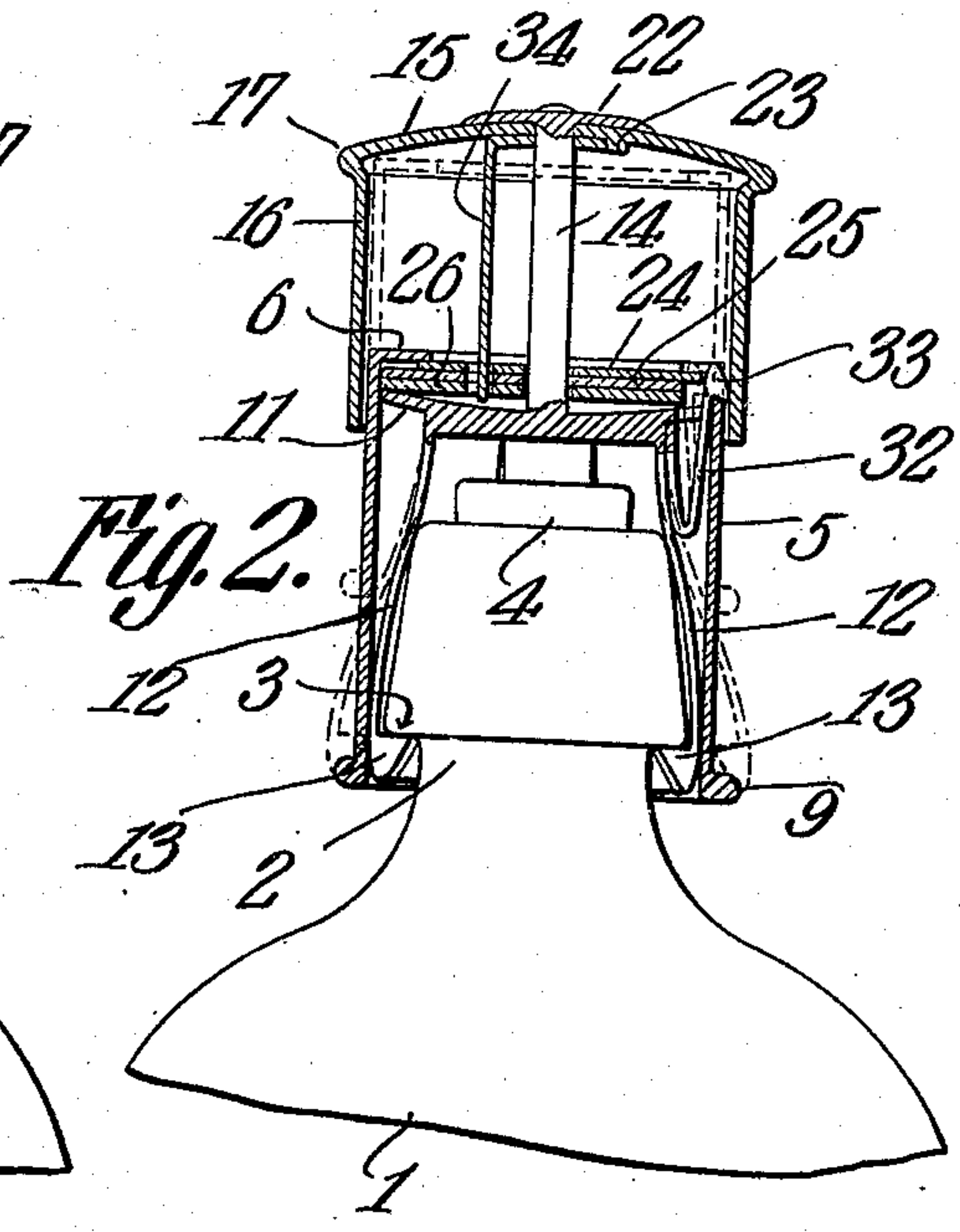
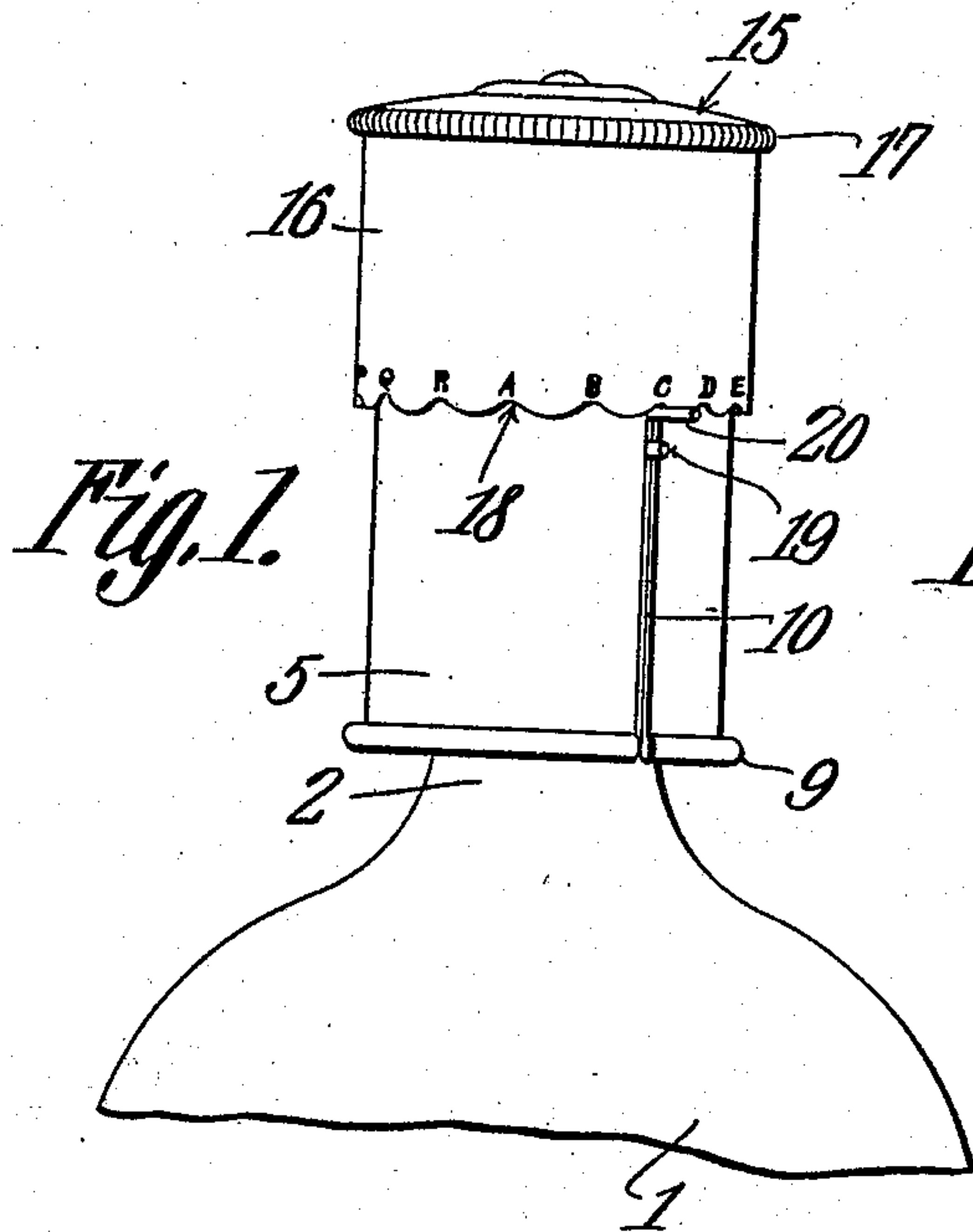


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 STOPPER LOCK FOR BOTTLES.
 APPLICATION FILED JUNE 15, 1908.

924,375.

Patented June 8, 1909.



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STOPPER-LOCK FOR BOTTLES.

No. 924,375.

Specification of Letters Patent.

Patented June 8, 1909.

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To all whom it may concern:

Be it known that I, JEREMIAH L. PETERS, a citizen of the United States, residing at Allentown, in the county of Lehigh and State of Pennsylvania, have invented a new and useful Stopper-Lock for Bottles, of which the following is a specification.

This invention has reference to improvements in stopper locks for bottles, and is designed to provide a cap for bottles which may be securely locked in place so as to prevent the removal of the bottle closure except by a person familiar with the combination of the lock employed, or is in possession of means for manipulating the lock when the lock is not of the combination type.

The invention is particularly useful when it is desirable to prevent unauthorized use of the contents of bottles, or where it is desirable to prevent access to the contents of bottles where such contents are of a dangerous character, as, for instance, when they are of a poisonous nature.

The invention comprises essentially a removable cap for the neck of a bottle, which cap when in place will prevent the removal of the cork of the bottle and which cap is readily applied to or removed from the neck of any of the ordinary types of bottles.

In accordance with the present invention, the cap is provided with fingers adapted to engage behind the ordinary flange surrounding the mouth of the neck of the bottle, and these fingers are caused to grasp the neck of the bottle behind the flange when the cap is placed upon the bottle neck, and these fingers become locked to the bottle neck so that the cap cannot be removed therefrom except when the cap is in the unlocked position.

Any suitable type of locking means may be employed in connection with the cap for retaining the locking fingers which grasp the neck of the bottle behind the flange but in the preferred form of the invention a permutation lock may be employed since this avoids the use of keys or other such implements and the entire cap is therefore self contained.

The invention will be best understood from a consideration of the following detailed description taken in connection with

the accompanying drawing, forming a part of this specification, in which drawings,

Figure 1 is an elevation of the neck end of a bottle with the improved cap applied thereto. Fig. 2 is a central section through the cap with the bottle neck shown in elevation. Fig. 3 is a perspective view of the locking members of the cap with the parts separated. Fig. 4 is a perspective view of a sliding member for actuating the spring locking fingers.

Referring to the drawings, there is shown a bottle 1 which may be taken as typical of any bottle provided with a neck 2, which latter terminates in an annular flange or rib 3 or other enlargement surrounding the mouth of the bottle neck, and the cork is indicated at 4. It will be understood that while in the drawings a very common form of bottle neck is shown, this is to be taken as illustrative of any one of a great variety of forms of bottle necks, the invention being applicable without change to all the commoner forms of bottles.

There is provided a sleeve 5 separately shown in Fig. 4, and this sleeve is open at each end and is provided at one end with an inwardly turned radial flange 6 which, however, is cut away at one point in its circumference as indicated at 7, and this cut away portion matches a notch or recess 8 in the body of the sleeve 5. The other end of the sleeve is formed with an exterior annular strengthening rib 9, although if desired this rib may be omitted, and extending longitudinally throughout the greater portion of the length of the sleeve at one side thereof is a slot 10 extending to that end of the sleeve on which is formed the rib 9.

Within the sleeve there is a movable head 11, the exterior diameter of which is such as to permit the head to move freely within the sleeve in the direction of the longitudinal axis thereof, while at the same time this head is substantially centered in the sleeve by a moderately close fit in said sleeve.

The head 11 has fast thereto on one face an annular series of spring fingers 12, which fingers may be separately formed and suitably secured to the head, or may all be struck up from a single piece of sheet metal, and then properly secured to the head as by

soldering or otherwise. These spring fingers are made to normally diverge one from the other toward their free ends, which free ends are formed into inwardly directed teeth 13 made either by simply turning over the ends of the fingers, or by thickening the ends of the fingers to form the inwardly directed teeth radial to the axis of the series.

The normal tendency of the fingers 12 is to separate these fingers in a radial outward direction to an extent sufficient to permit them to pass easily over the flange 3 on the free end of the bottle neck and the internal diameter of the sleeve 5 is such as to cause these fingers to approach when engaged by said sleeve to a sufficient extent to become firmly locked behind the flange or rib 3 of the bottle neck.

In the operation of the device, there is a relative longitudinal movement between the sleeve 5 and the fingers 12 carried by the head 11 so that when the rib end of the sleeve 5 is moved toward the head 11, the fingers will be caused to project beyond the said rib or open end of the sleeve, and their resiliency will cause them to expand and spread away one from the other, but when the sleeve 5 is moved toward the free ends of the fingers, the engagement of the sleeve with the fingers as it approaches the toothed ends of these fingers will cause the fingers to be moved readily inward until the toothed ends are entirely housed within the corresponding end of the sleeve 5.

Projecting from that face of the head 11 remote from the springs 12 and central thereto is a stem 14 carrying at its outer end a cylindrical cap 15 formed with a cylindrical extension 16 concentric with the stem 14 and projecting toward the head 11 and of such diameter and length as to inclose the end of the sleeve 5 provided with the flange 6. That portion of the cap 15 where it merges into the cylindrical extension 16 is formed with a bead 17 which may be milled on its exterior for convenience of manipulation, as will presently appear. The free end of the extension 16 is formed with sinuosities in the form of an annular series of rounded indentations 18, and each one of these indentations is provided with some characteristic designation which may take the form of a letter, as indicated in the drawings, or a numeral, or any other means for identifying particular indentations. Nor is it necessary that the series of indentations in the edge of the cylindrical extension 16 be continuous, or if continuous be equally spaced, but it is preferred that these indentations be both equally spaced and continuous throughout the circumference of the free end of the extension 16.

Fast on the head 11 or an adjacent portion of the spring fingers 12 is a pin 19 in fixed

relation to the said head or spring fingers, and immediately adjacent to the pin 19 is another pin 20 formed with an elastic extension 21, the end of which is made fast to the head 11 or spring fingers 12 at an appropriate point. The construction of these two pins is such that the pin 20 is normally removed a short distance from the pin 19 and both pins project radially from the head 11 or adjacent parts and extend through the slot 10 in the sleeve 5 to the exterior thereof, although it is not necessary that the pin 19 extend entirely through the said slot 10. The pin 20 is of sufficient length to be engaged by the free edge of the extension 16 of the cap 15, and in the operation of the device the rotation of the cap 15 about the stem 14 as an axis will cause the pin 20 to snap into any one of the notches 18 which may be coincident with it, while the rounded form of these notches will permit the turning of the cap 15 about its axis with but little effort on the part of the operator.

In order that the cap 15 may be retained in its proper relation to the stem 14 and still be rotatable thereon, the outer end of the stem 14 is extended through the center of the cap 15, and beyond the same is expanded into a head or flange 22 fast on the stem 14, and interior to the cap is a washer or plate 23 fast on the inner face of the cap 15.

Loosely mounted on the stem 14 are a number of disks 24, 25, 26, the number of disks being shown in the drawings as three, but it will be understood that this is illustrative only, since a greater or less number of disks may be used, but for convenience of description it will be assumed that three disks are employed.

In the particular arrangement shown in the drawings, the disk 24 is provided with a curved slot 27 concentric with the axis of the disk. The disk 25 is shown as provided with a curved slot 28 concentric with the axis of the disk and disposed at the same distance therefrom in a radial direction as is the slot 27 of the disk 24, while the disk 26 is provided with a slot 29 similarly disposed as are the slots 27 and 28 in their respective disks. In the particular structure shown in the drawings, the slot 27 is comparatively short, while the slot 28 is materially longer than the slot 27 and the slot 29 is materially longer than the slot 28. Each disk is cut away on one side to form a straight portion 30 and these straight portions 30 of the several disks are alike but may or may not be in the same relative position to the respective slots 27, 28 and 29.

The head 11 on one side is notched or recessed as shown at 31 for the passage of the arm 32 of a spring catch 33, the said arm 32 being returned on itself for a distance and slotted or otherwise secured to the

head 11, or to an adjacent portion of one of the spring fingers 12. The catch 33 which in the present instance is shown in the form of a tooth on the end of the arm 32 projects beyond the face of the head 11 remote from the spring arms 12, and the catch or tooth 33 is so located as to engage over the edge of the sleeve 5 at the notch or recess 8 when the spring fingers 12 are housed within the said sleeve 5, the tendency of the spring arm 32 being to carry the catch or tooth 33 away from operative engagement with the sleeve 5 and into the notch or recess 31 in the head 11 and the tooth or catch 33 is only forced into operative engagement with the sleeve 5 against the action of the spring arm 32 under conditions which will presently appear. When the spring arms 12 are housed within the sleeve 5 then the disks 24, 25 and 26 are confined between the flange 6 of the sleeve 5 and the head 11, and under these conditions a finger 34 carried by the washer 23 and projecting parallel with the stem 14 extends through the several slots 27, 28 and 29 and into engagement with the corresponding face of the head 11. This finger prevents longitudinal movement of the cap 15 on the stem 14, because of its engagement with the head 11, but does not interfere with the rotative movement of the cap upon said stem.

If it be assumed that the several disks 24, 25 and 26 are in the positions when their flat portions 30 are all coincident and in operative relation to the spring arm 32, then any rotative movement of any one or more of the disks 24, 25 and 26 will force the spring or arm 32 against its normal tendency and will carry the tooth or catch 33 into operative relation to the sleeve 5 at the notch or recess 8 and when this catch is in engagement with the sleeve 5, the head 11 is held in closed relation to the flange 6 with the several disks 24, 25 and 26 confined in the space between the head 11 and flange 6 and with the toothed ends 13 of the spring fingers 12 all housed within the other end of the sleeve 5 and therefore in their positions of close approach to the longitudinal axis of the sleeve 5.

By rotating the cap 15 for an appropriate distance in an appropriate direction, the flat portion 30 of the disk 26 will be brought back of the spring arm 32. Then by rotating the cap 15 in the opposite direction for an appropriate distance, the flat portion 30 of the disk 25 will be brought into coincidence with the spring arm 32, and finally the further rotation of the cap 15 in the appropriate direction, the flat portion 30 of the disk 27 will be brought into coincidence with the spring arm 32, so that the latter is then free to move into the recess 31 away from its engagement with the sleeve 5, thus unlocking the said sleeve from the head 11. The cap 15

together with the head 11 and spring arms 12 may now be moved longitudinally with reference to the sleeve 5 so that the toothed ends 13 of the arms 12 are projected from the corresponding end of the sleeve 5 when their resiliency will cause them to move upward away from the axis of the sleeve 5, thus expanding the several toothed ends of the said arms.

When the parts are in the position last described, that is when the spring arms 12 are projected beyond the corresponding end of the sleeve 5, and are expanded, the distance between the teeth 13 is sufficient to permit the entire structure to be placed over the neck of a bottle in which a cork has been properly inserted, and then by moving the sleeve 5 toward the toothed ends of the fingers 12, these fingers are retracted about the neck of the bottle and the toothed ends are caused to engage behind the flange or rib 3 on the neck of the bottle, thus securely locking the cap to the bottle neck beyond the possibility of removing the same without destroying the structure. When the sleeve 5 has been moved over the spring fingers 12 to a sufficient extent, the catch or tooth 33 on the end of the arm 32 is brought to a position permitting it to be moved readily outward over the end of the sleeve 5 at the notch or recess 8. Now, by turning the cap 15 in either direction, one or more or all of the disks 24, 25 and 26 are rotated and their flattened portions 30 are moved out of coincidence with the spring arm 32, thus forcing the tooth or catch 33 into operative engagement with the sleeve 5. Rotative movement of the cap 15 is not prevented by the spring pin 20, since the latter will yield to a moderate force, but the notches 18 coacting with the spring finger 20 operates as a yielding stop to arrest the cap 15 at any desired point.

In order to remove the cap after having been first applied and locked in place, it is necessary for the operator to be aware of the combination of the lock so as to move the cap 15 in the proper directions and to the proper extent to bring all of the disks 24, 25 and 26 into proper operative relation to the spring arm 32, so as to permit the catch 33 to move away from engagement with the sleeve 5.

While the specific description of the particular embodiment of the invention shown in the drawings has been confined to the use of a combination or permutation lock for securing the cap in place upon the bottle neck, it will be understood that any type of lock by means of which the spring fingers are held in operative engagement with the bottle neck may be used and therefore the type of lock shown is, in the preferred aspect of the invention, to be taken as typical of any form of lock for retaining the cap in place against surreptitious removal.

It will be seen that by the present invention the cork or stopper applied to an ordinary bottle may be locked in place against accidental or malicious removal while the locking device may be readily and entirely removed from the bottle by any one having knowledge of the proper combination, or in the case of another type of lock, by any one having possession of the proper implement for operating the lock.

The pin 19 serves to prevent the sleeve from turning and guides it in its longitudinal movement.

The pin 20 is advantageous in permitting the turning of the cap 15 to the proper points by simply counting the number of notches passed, so that the device may be unlocked in the dark if desired or necessary.

While the shown and described means of indicating is to be preferred, any other suitable indicating means may be employed if so desired.

What is claimed is:—

1. A stopper lock for bottles comprising a head having a series of spring fingers adapted to engage the neck of a bottle, a sleeve movable along said fingers, a cap member carried by the head and into which the sleeve is movable, said cap member being rotatable with reference to the head, and a lock for the sleeve controlled by the said rotatable cap member.

2. A stopper lock for bottles comprising a head having a series of spring fingers adapted to engage the neck of a bottle, a sleeve movable along said fingers, a cap member carried by the head and into which the sleeve is movable, said cap member being rotatable with reference to the head and provided with notches on one edge, means for engaging said notched edge to temporarily position the cap, and a lock for the sleeve controlled by the said rotatable cap member.

3. A stopper lock for bottles comprising a head having a series of spring fingers adapted to engage the neck of a bottle, a sleeve movable along said fingers and having a longitudinal slot, a cap member carried by the head and into which the sleeve is movable, said head having a pin projecting through the slot in the sleeve, and said cap member being rotatable with reference to the head and provided on one edge with notches into which the pin carried by the head engages, and a lock for the sleeve controlled by the said rotatable cap member.

4. A stopper lock for bottles comprising a head having a series of spring fingers adapted to engage the neck of a bottle, a sleeve movable along said fingers and having a longitudinal slot, a cap member carried by the head and into which the sleeve is movable, said head having an elastically mounted pin projecting through the slot in

the sleeve, and said cap member being rotatable with reference to the head, and provided on one edge with notches into which the pin carried by the head engages, and a lock for the sleeve controlled by the rotatable cap member.

5. A stopper lock for bottles comprising a member having a series of spring fingers adapted to engage the neck of a bottle, a sleeve movable longitudinally over said fingers, a rotatable cap member into which the sleeve is movable and a permutation lock in the cap member and controlled by the rotational movement of the said cap member and adapted to lock the sleeve when in position to cover the spring fingers.

6. A stopper lock for bottles comprising an annular series of spring fingers adapted to engage the neck of a bottle, said fingers having a normal outward tendency, a carrier for said fingers, a sleeve on said carrier and movable relative to said fingers to contract the same against their normal spring tendency, a spring catch upon the carrier, and means for controlling said catch to lock the sleeve and carrier for the spring fingers together in one position of the sleeve and to release the sleeve for movement to another position.

7. A stopper lock for bottles comprising a head having a series of spring fingers tending normally away from each other and adapted to embrace the neck of a bottle, a cap carried by said head, a sleeve movable longitudinally over the spring fingers and into the cap, a latch member in the cap having a normal tendency to move to a position to leave the sleeve unlocked, and a lock in the cap for moving the latch member against its normal tendency to lock the sleeve when covering the spring fingers.

8. A stopper lock for bottles comprising a head having a series of spring fingers tending normally away from each other and adapted to embrace the neck of a bottle, a rotatable cap carried by said head, a sleeve movable longitudinally over the spring fingers and into the cap, a latch member in the cap having a normal tendency to move to a position to leave the sleeve unlocked, and lock in the cap for moving the latch member against the normal tendency to lock the sleeve when covering the spring fingers, said lock comprising rotatable tumblers movable by the cap and engaging the latch except in a predetermined position.

9. A stopper lock for bottles comprising an annular series of spring fingers having a normal outward tendency, a head to carry said fingers, a stem projecting from the head, a sleeve carried by said head and movable longitudinally with reference to said spring fingers exterior thereto, a cap carried by the stem and into which the sleeve is

movable, a series of permutation members carried by the stem, means carried by the cap for controlling said permutation members, and a locking member carried by the head and under the control of the permutation members for locking the sleeve to said head.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JEREMIAH L. PETERS.

Witnesses:

JAS. M. WALKER,
M. E. COLLIE.