

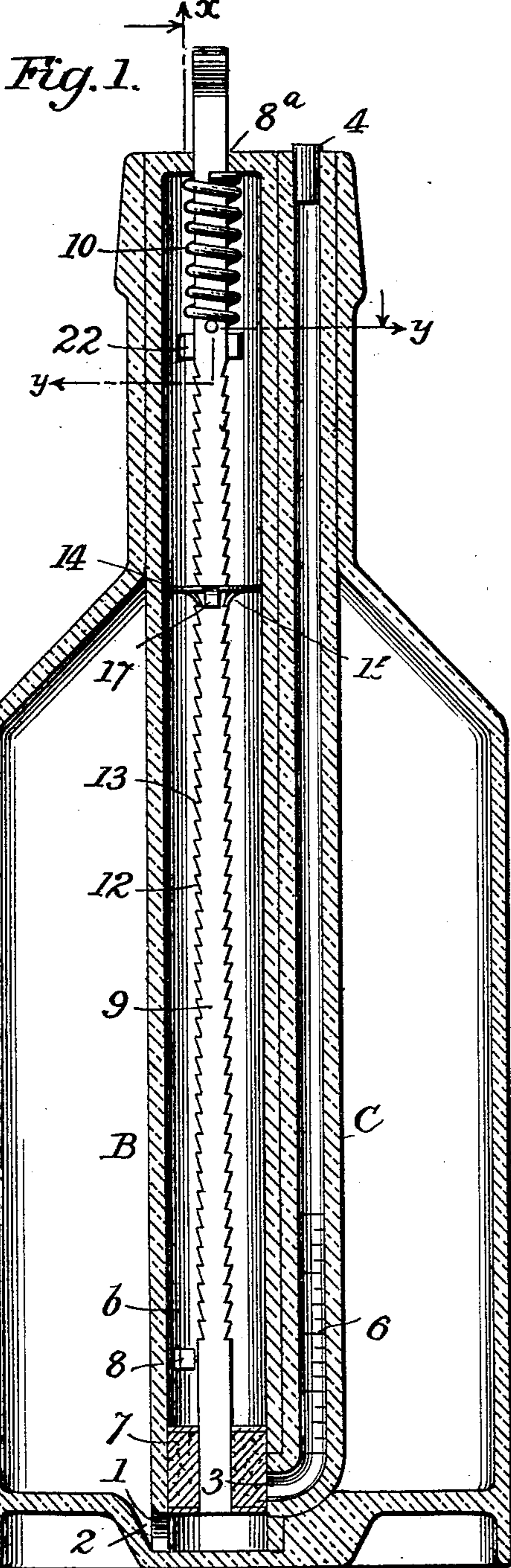
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Patented Aug. 15, 1899.

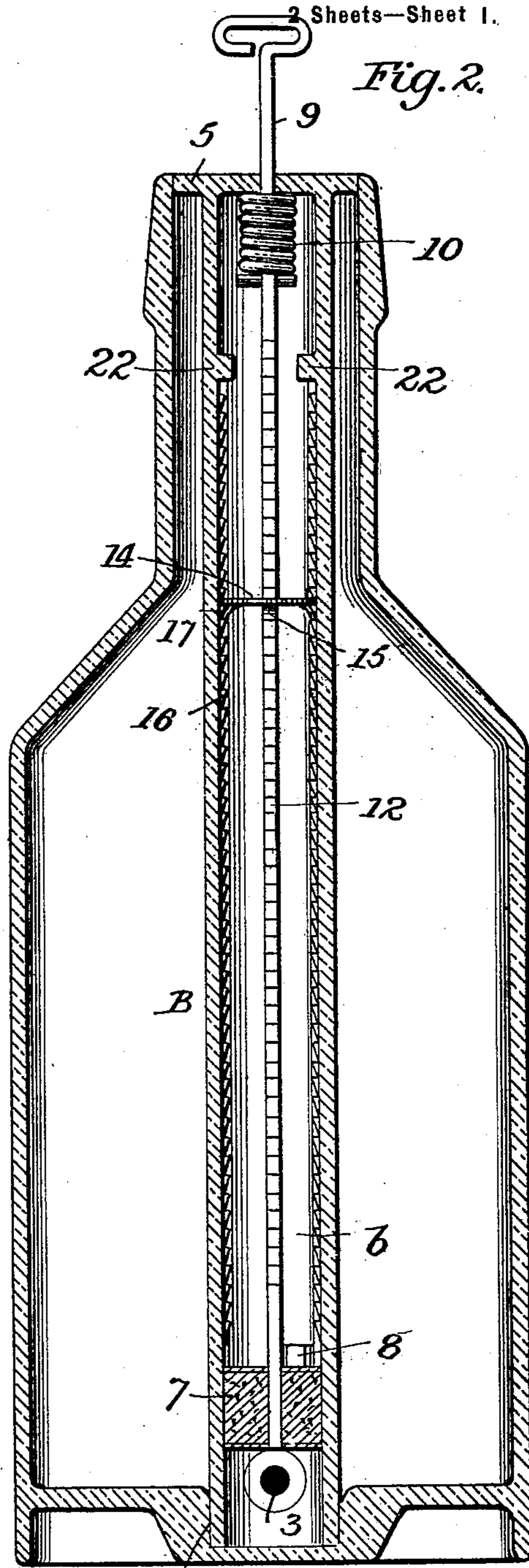
J. P. ERIE.
BOTTLE STOPPER.

(Application filed Mar. 24, 1897.)

(No Model.)



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2 Sheets—Sheet 2.

Fig. 4.

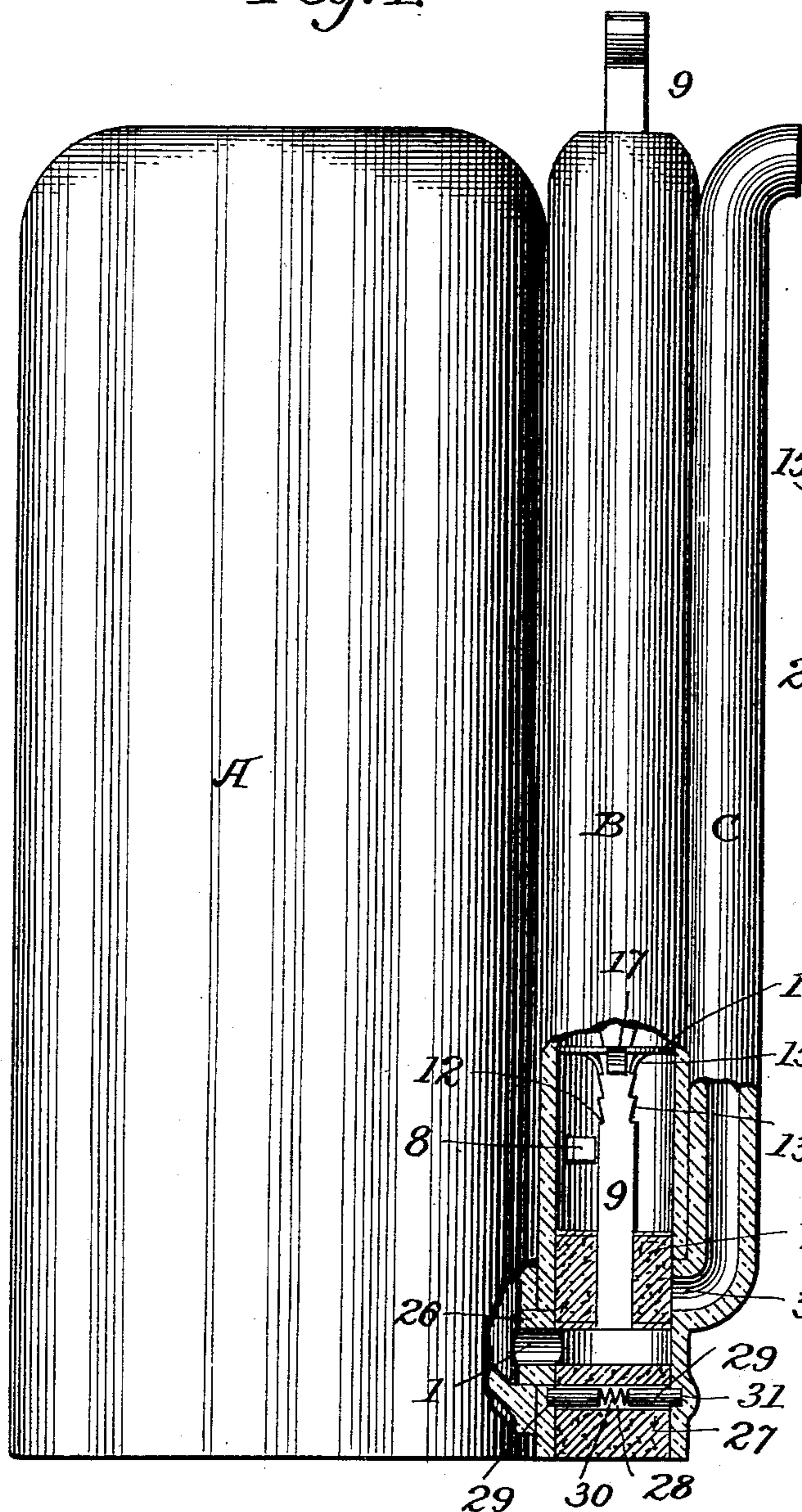


Fig. 3.

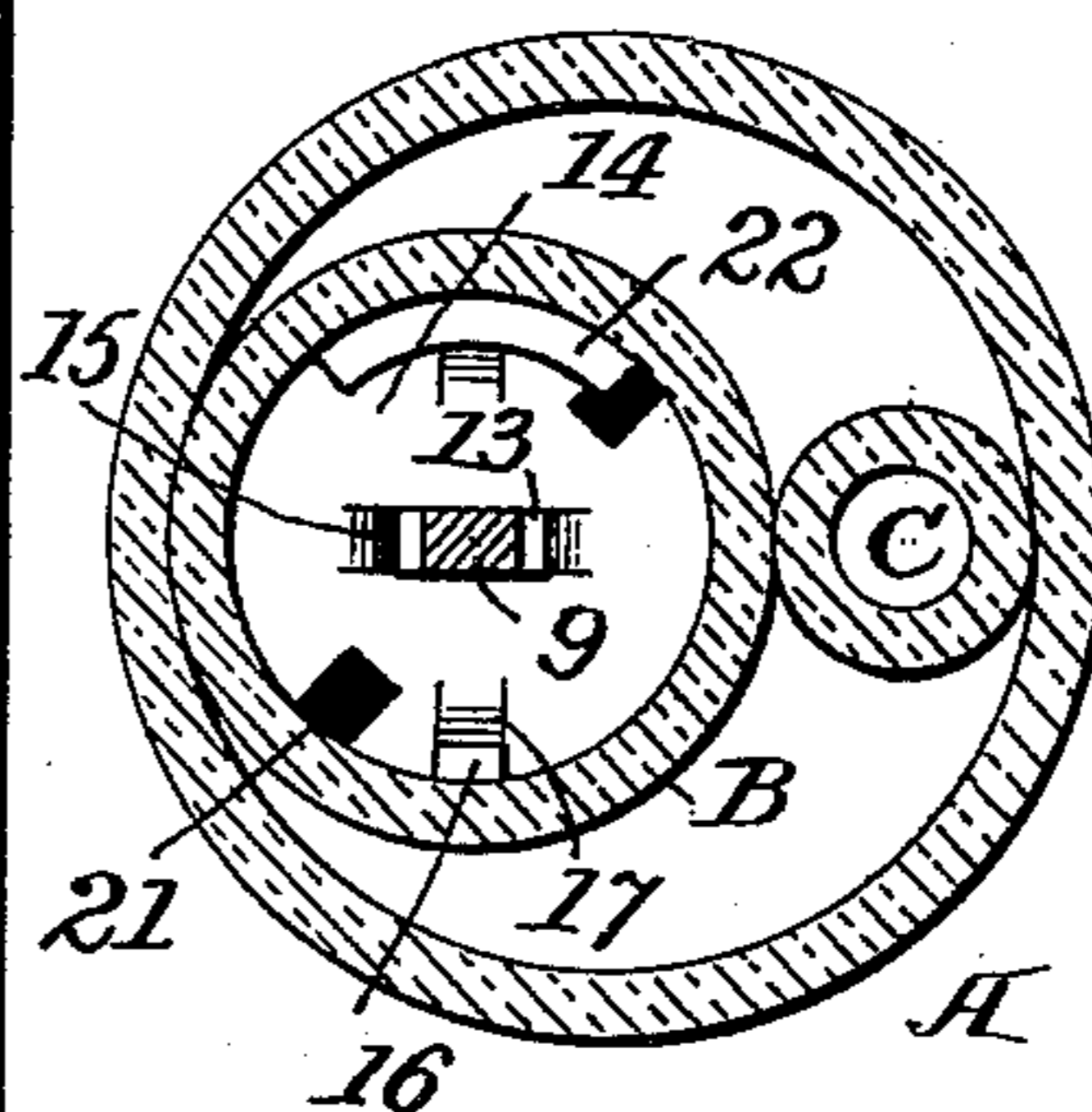
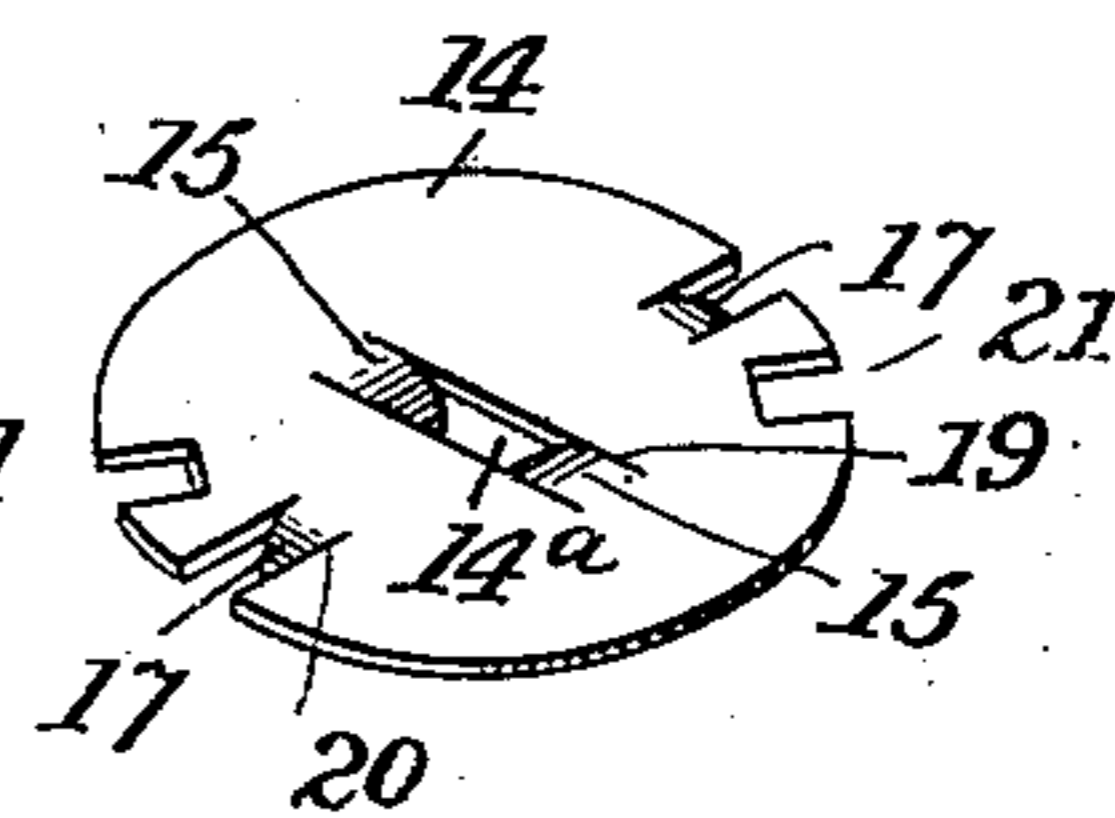


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES PHILIP ERIE, OF LOS ANGELES, CALIFORNIA.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 631,068, dated August 15, 1899.

Application filed March 24, 1897. Serial No. 629,090. (No model.)

To all whom it may concern:

Be it known that I, JAMES PHILIP ERIE, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Bottle-Stoppers, (patented to me in England, No. 9,001, April 8, 1897; in France, No. 266,081, April 17, 1897; in Belgium, No. 127,665, April 17, 1897; in Italy, No. 44,565, April 17, 1897; in Canada, No. 55,838, May 6, 1897; in Spain, No. 20,737, May 18, 1897, and in Austria, No. 48/2,233, April 18, 1898,) of which the following is a specification.

This invention relates to certain new and useful improvements in bottles or analogous vessels and seals or stoppers therefor; and it is the object of the invention to provide a bottle with inaccessible means to indicate when a portion of the contents of the bottle has been withdrawn.

It is a further object of the invention to provide the bottle with a non-accessible self-closing stopper or seal adapted normally to be actuated from the exterior of the bottle to open and close the outlet thereof and with means for automatically operating the stopper to close the outlet at a predetermined time and for locking the stopper against further movement; and a still further object of the invention is to provide means for accurately measuring and separating the quantity of liquid which it is desired to withdraw from the bottle before such liquid is poured from the bottle.

With these objects in view the invention consists in such features of construction and arrangement and combination of the parts as will be hereinafter more particularly referred to.

In the accompanying drawings, forming a part of this specification, and in which like letters and numerals of reference indicate corresponding parts, Figure 1 is a vertical sectional view of a bottle constructed in accordance with the invention. Fig. 2 is a similar view on the line *xx* of Fig. 1. Fig. 3 is a horizontal sectional view on the line *yy* of Fig. 1. Fig. 4 is a vertical sectional view of a modified form of the invention, and Fig. 5 is a detail perspective view of the combined stopper-lock and registering-disk.

Referring more particularly to the drawings, A designates a suitable vessel or closure, of glass, pottery, or other suitable material, adapted to contain a fluid, and this vessel may be of any desired capacity and of any suitable shape. In the present instance the vessel A is in the shape of a bottle, communicating with which at or near its lower end through an opening 1 is a vertical closed casing B, of glass or other suitable material, preferably transparent and coincident in height with the bottle or with the main body thereof. As shown in Figs. 1 and 2, this casing is cylindrical and is arranged within the bottle to extend from the mouth thereof through the neck into a depression or recess 2 in the bottom of the bottle, and the lower end of said casing is left open to constitute the opening 1.

Communicating with the chamber *b* of the casing B, near the lower end thereof, through an opening 3, is a vertical tube C, which is preferably transparent and coincident with or of greater height than the bottle. This tube preferably extends parallel to the casing B through the neck of the bottle, and its outer end is left open for reception of a suitable stopper 4.

In the interest of cheapness and convenience in assembling the bottle casing B and tube C are each formed separately, the tube and casing being subsequently connected together by fusion, while they may be secured within the neck of the bottle by fusion or by cementing them thereto. A flange or filling-piece 5 is inserted into the neck of the bottle to completely fill the spaces not occupied by the casing B and tube C, thereby preventing any communication with the interior of the bottle through its mouth.

Upon the interior or exterior of the tube C are formed a series of gradations 6 to indicate spoonfuls, drams, ounces, &c., by means of which the quantity of fluid which enters the tube may be accurately measured before it is poured therefrom. As shown, the gradations are upon the interior of the tube C.

The interior of the casing B at its lower end for a distance both above and below the opening 3 is smooth, and within this space is a cork or stopper 7, which is adapted to be reciprocated therein to close the said open-

ing and to be raised above it to permit the contents of the bottle to flow through the opening 1 into the chamber *b* and opening 3 into the tube C. Upon the interior of the casing B above the opening 3 are stops 8, which serve to limit the upward movement of the stopper 7. Connected to the stopper and extending centrally and longitudinally through the chamber *b* and through an opening 8^a in the upper closed end thereof is a rod or bar 9, having at its upper end a ring or knob, by means of which it may be lifted, and preferably the bar is formed rectangular in cross-section, and the opening 8^a in the upper end of the casing is correspondingly formed to prevent rotation of the bar in the chamber *b*. Within this chamber is a spring 10, preferably bearing upon the end wall of the casing B and connected to the rod 9 in such manner as to move the rod and its attached stopper to automatically close the opening 3 whenever the rod has been released by the operator after having been lifted to uncover the opening 3.

Upon opposite sides of the rod 9 and extending practically the whole length thereof are series of teeth or projections 12, the lower faces of the teeth of the opposite series being oppositely inclined and the upper faces constituting shoulders or bearings 13. Loosely mounted upon the toothed rod 9 is a disk 14, which is adapted to be moved step by step through the chamber of casing B. This disk serves both as an indicator or telltale to indicate when a portion of the contents of the bottle has been removed and as a lock to hold the stopper 7 permanently closed after the disk has been moved to a predetermined point, and said disk is provided with a central rectangular opening 14^a for reception of the rod 9 and with spring-catches 15, the ends of which engage the bearings or shoulders 13 of the rod 9.

Upon the interior of the casing B, at opposite sides and extending longitudinally thereof from points just above the stops 8 to near the top of the casing, are series of teeth 16, the upper faces of which constitute bearings or shoulders, and preferably these series of teeth are arranged out of transverse alignment with the teeth 12 of the rod 9. Arranged to engage with the teeth 16 are spring-catches 17, carried upon the indicating-disk at its periphery and adapted to slide freely over the teeth when the disk is being lifted and to spring into engagement with the shoulders or bearings of the teeth to prevent a retrograde movement of said disk.

It will be seen from the above that the relative arrangement and construction of the teeth 12 and 16 of the rod 9 and casing B and the engaging spring-catches 15 and 17 of the disk 14 are such that when the operator lifts the rod 9 to draw the stopper 7 above the opening 3 the disk will also be lifted by reason of the engagement of the catches 15 with the bearings of the teeth 12. This lifting of

the rod 9 causes the catches 17 to slide freely over one or more successive teeth of the series 16, according to the extent to which the rod is moved, and to spring into engagement with the bearings of the said teeth 16. As the rod 9 is lifted the spring 10 is put under sufficient tension to automatically lower the rod and the stopper when the rod is released by the operator, and thereby close the opening 3.

The spring-catches 15 and 17 may be formed separately from the indicating-disk 14 and secured thereto; but preferably said catches are integral with the disk and are formed by providing the disk with parallel slits 19 20, which extend from the central opening 14^a and from the periphery thereof, respectively, and then bending down the portions of the disk between said slits, as indicated in Fig. 5. The disk is also provided at its periphery with recesses 21, which coincide with and permit the free passage therethrough of the stops 8 when the disk is being inserted into the chamber *b*.

Projecting upon the interior of the casing B, immediately above and in alignment with the ends of the series of teeth 16, are segmental stops 22, which are of greater width than the teeth of said series. The function and arrangement of these stops are such that when the indicating-disk has been lifted through the chamber *b* and the catches 17 thereof brought to engage with the bearings of the extreme upper teeth of the series 16 further upward movement of the disk will be prevented by reason of the said stops 22 coming into contact with the non-yielding edge of the disk, and when the rod 9 has been lifted to bring the disk to this position and to simultaneously draw up the stopper 7 and then released the spring 10 will depress the rod and stopper and the catches 15 will spring into engagement with the bearings of the teeth 16. After this the rod and stopper cannot be lifted again for the reason that further upward movement of the indicating-disk is impossible and such movement is necessary in effecting the raising of the rod and stopper.

Preferably, although it need not necessarily be the case, the discharge end of the tube C is provided with the cork or stopper 4 in order that when the stopper 7 is lifted above the opening but a small quantity, if any, of the liquid will enter the tube C, the entrance of the liquid into the tube being resisted by the air confined therein, and by gradually removing the stopper 4 the flow of the liquid into the tube may be increased. This is especially desirable when the liquid is to be withdrawn in small regulated quantities.

In the modification of the invention illustrated in Fig. 4 of the drawings the construction is substantially identical with that shown in the remaining figures except that the casing B and tube C are arranged upon the exterior of a closed vessel of somewhat different shape and the casing is provided with a nip-

ple 26, which is secured in an opening in the lower end of the vessel, as by fusing it to the vessel. In this modification the end of the casing is extended below the opening 1 for reception of a stopper 27, which is inserted into the casing to close it at its lower end after the vessel A has been filled and the parts assembled. This stopper is provided with a transverse opening 28, into the opposite ends of which are inserted pins 29, and between the inner ends of these pins a spring 30 is interposed to press the pins outwardly into engagement with recesses 31, formed in the interior of the casing. It will thus be seen that after the stopper 27 has once been seated it is impossible to remove it without first breaking the casing, thereby rendering the bottle or vessel incapable of further use.

Without limiting myself to the precise construction and arrangement of parts shown and described, I claim as my invention—

1. A bottle provided with a discharge-opening and a stopper controlling the same, of a visible inaccessible intermittently-movable indicating device and connections between the stopper and indicating device for operating the latter to indicate when the bottle has been opened, substantially as described.

2. A bottle provided with a discharge-opening and an inaccessible stopper for controlling the discharge-opening, means for operating the stopper from the exterior of the bottle, a traveling indicating device for automatically locking the stopper to close the discharge-opening at a predetermined time, and con-

nections between the stopper and indicating device substantially as described.

3. A bottle provided with a discharge, and an inaccessible stopper, adapted to be moved from the exterior of the bottle to open and close the discharge-opening, inaccessible means for automatically locking the stopper to close the discharge-opening after the stopper has been moved a number of times, and connections intermediate the stopper and its locking means for operating the latter substantially as described.

4. A bottle provided with a discharge-opening, and an inaccessible self-closing stopper, adapted to be moved from the exterior of the bottle to open the discharge-opening, and inaccessible means for automatically locking the stopper in its closed position, substantially as described.

5. A bottle provided with a discharge-opening and a stopper, of inaccessible means for locking the stopper to close the discharge-opening at a predetermined time, and devices connecting the stopper and locking means actuated at each opening of the discharge to move the said locking means, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES PHILIP ERIE.

Witnesses:

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