

No. 697,878.

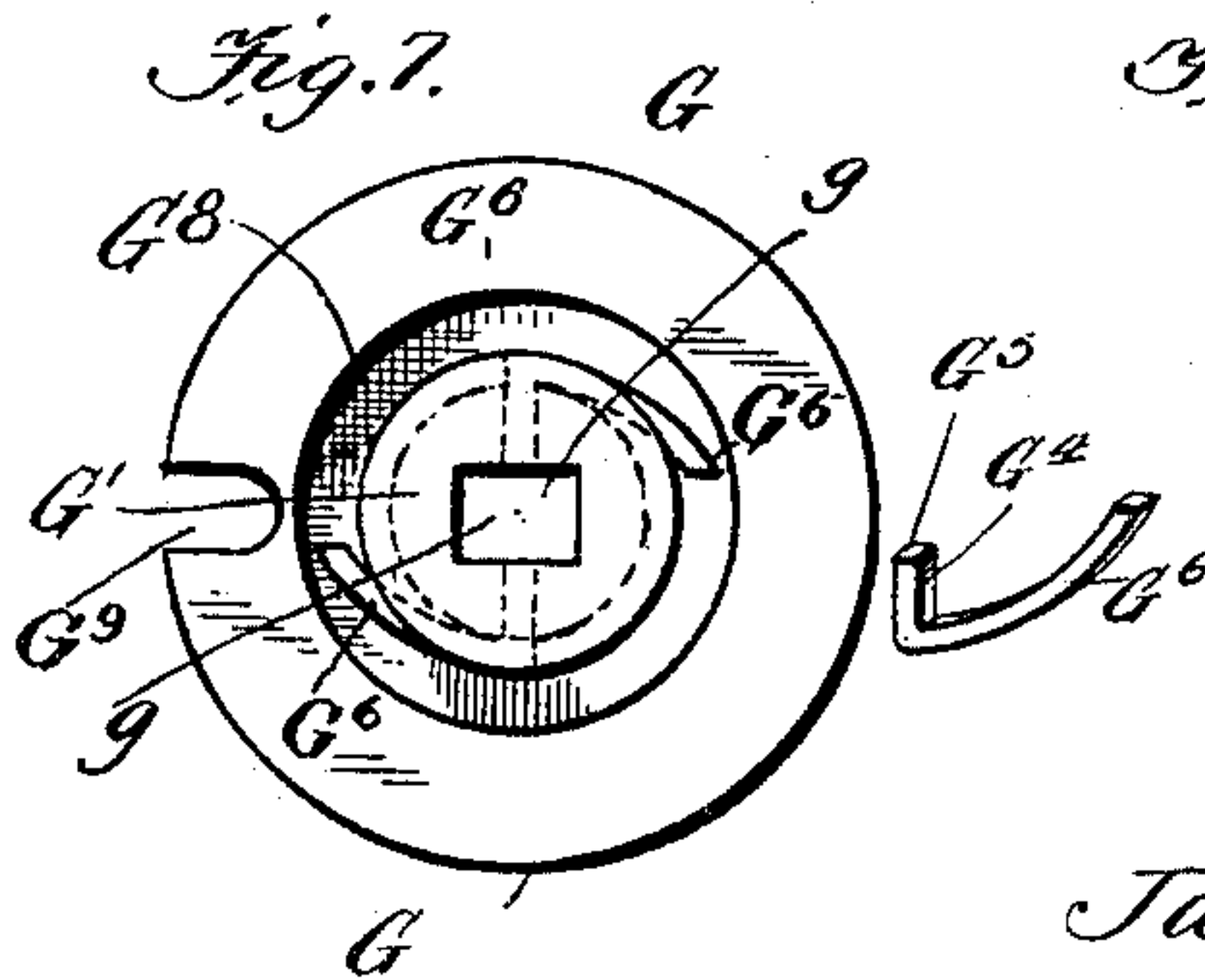
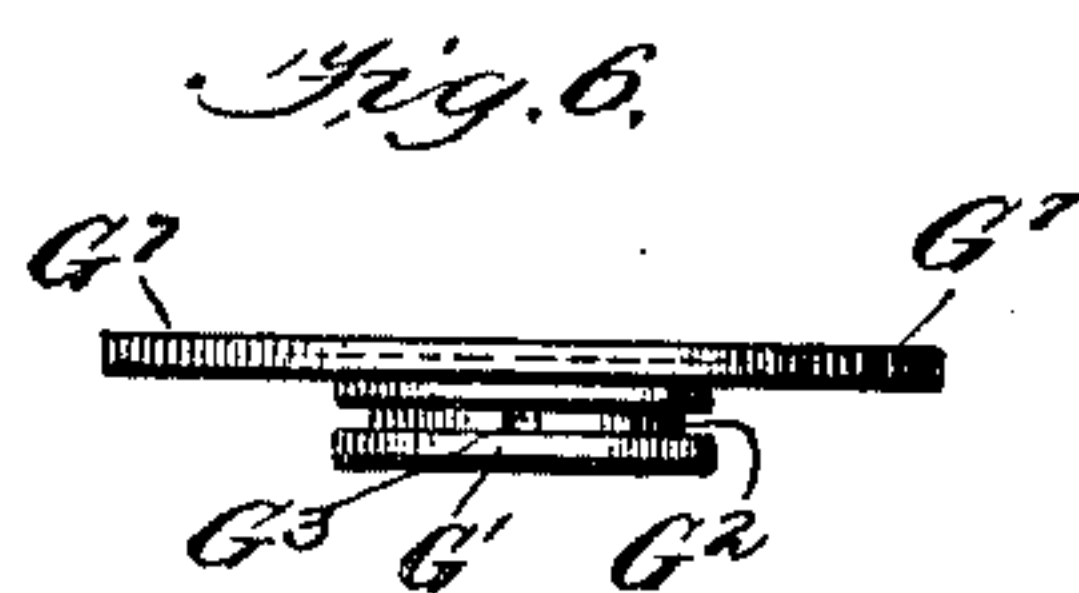
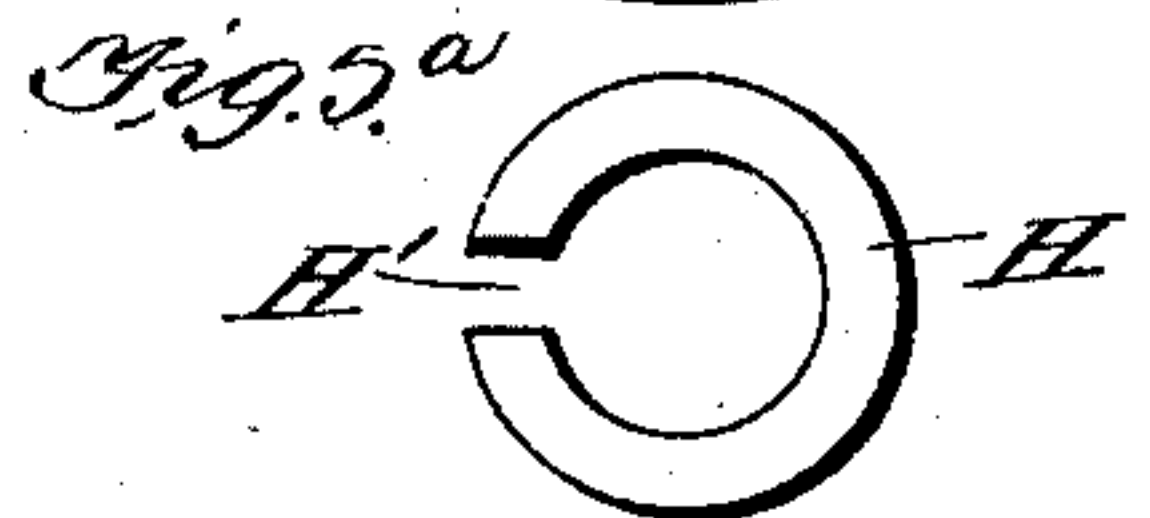
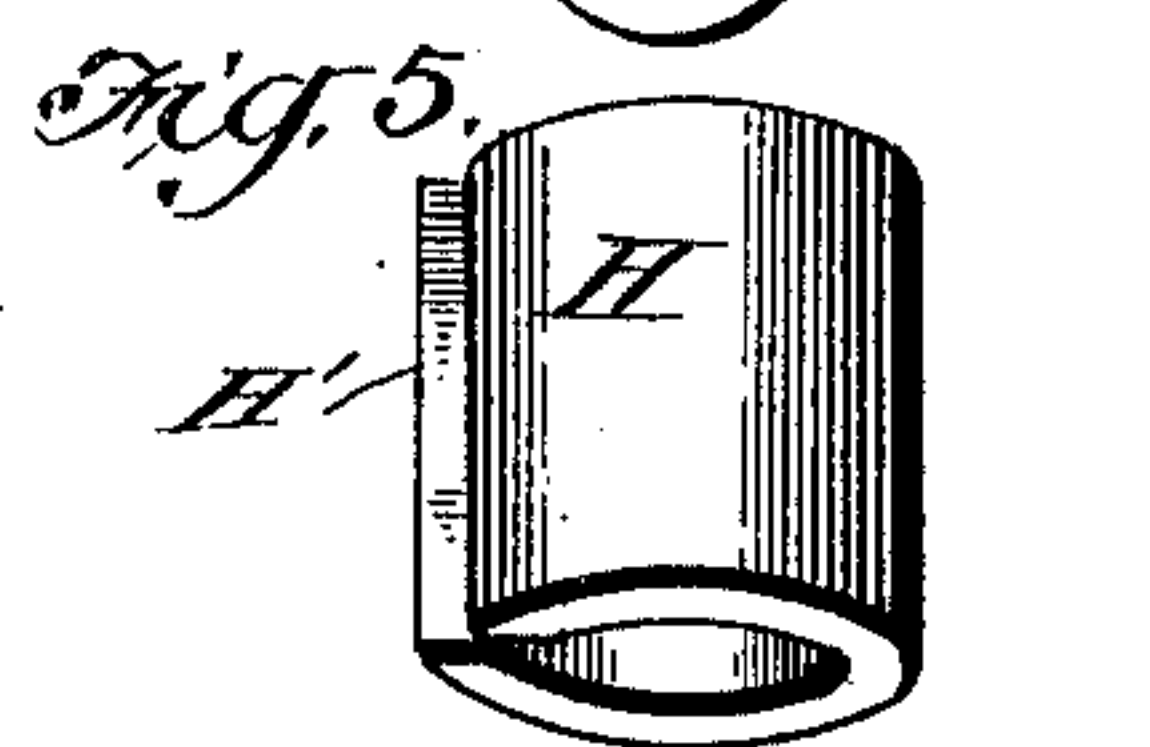
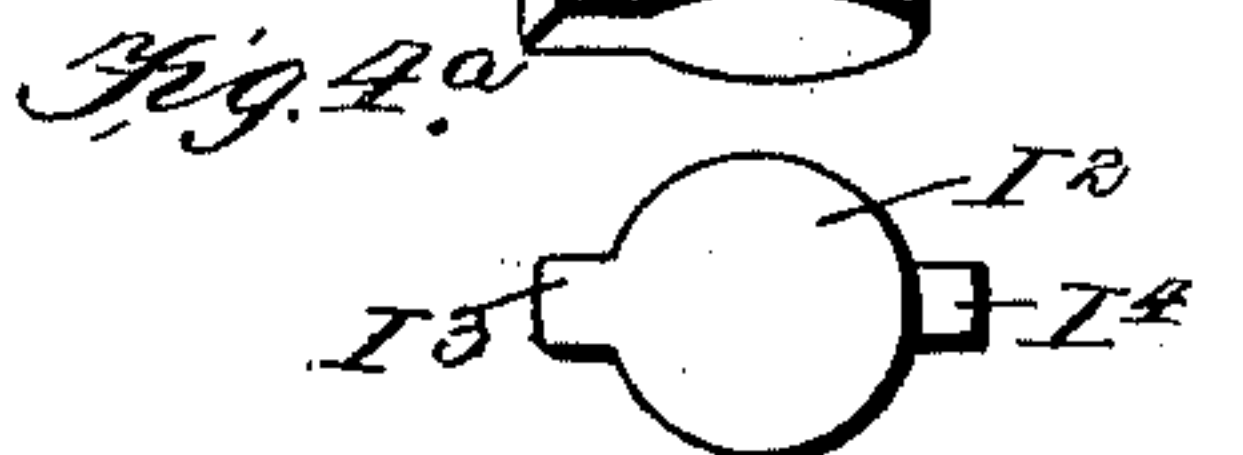
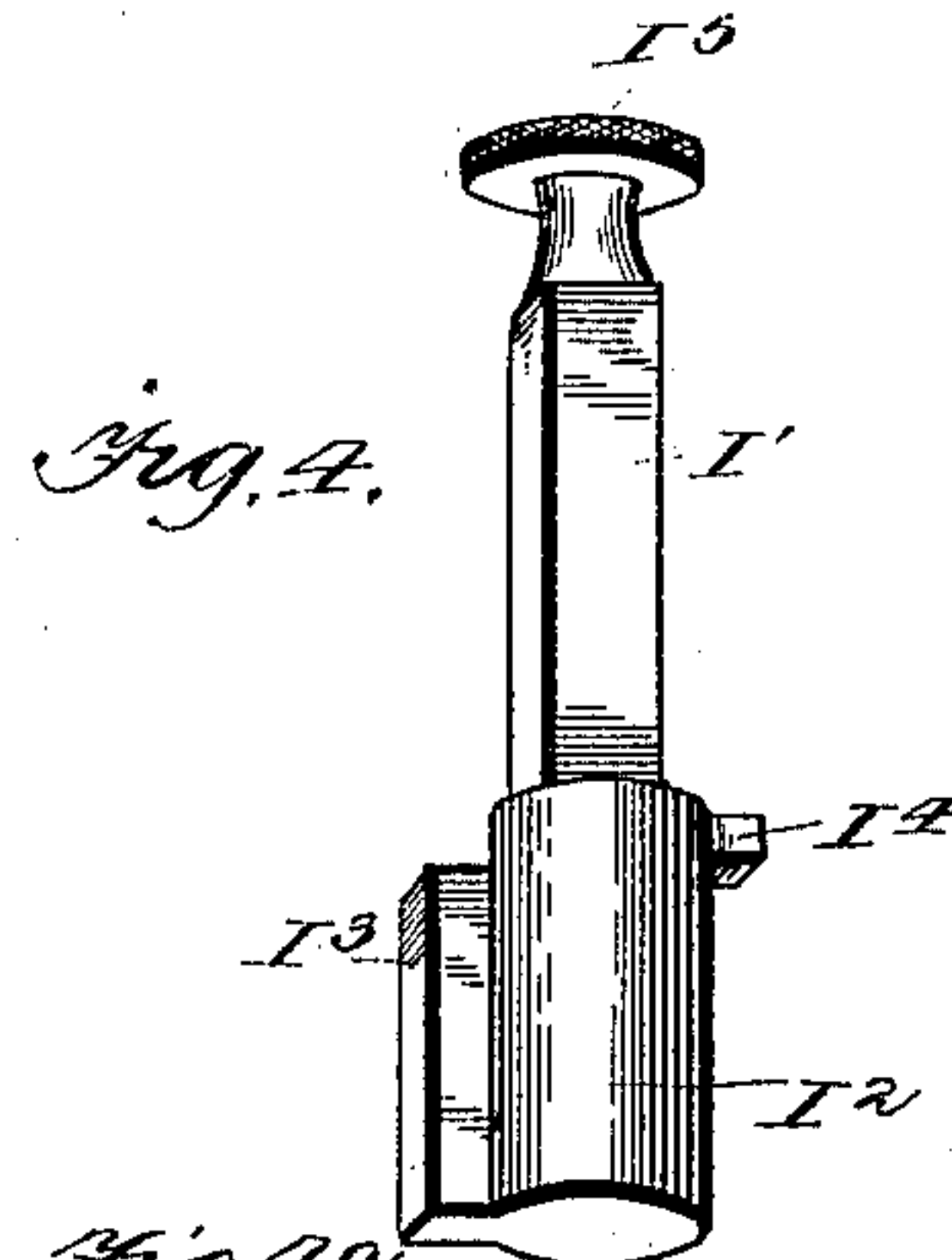
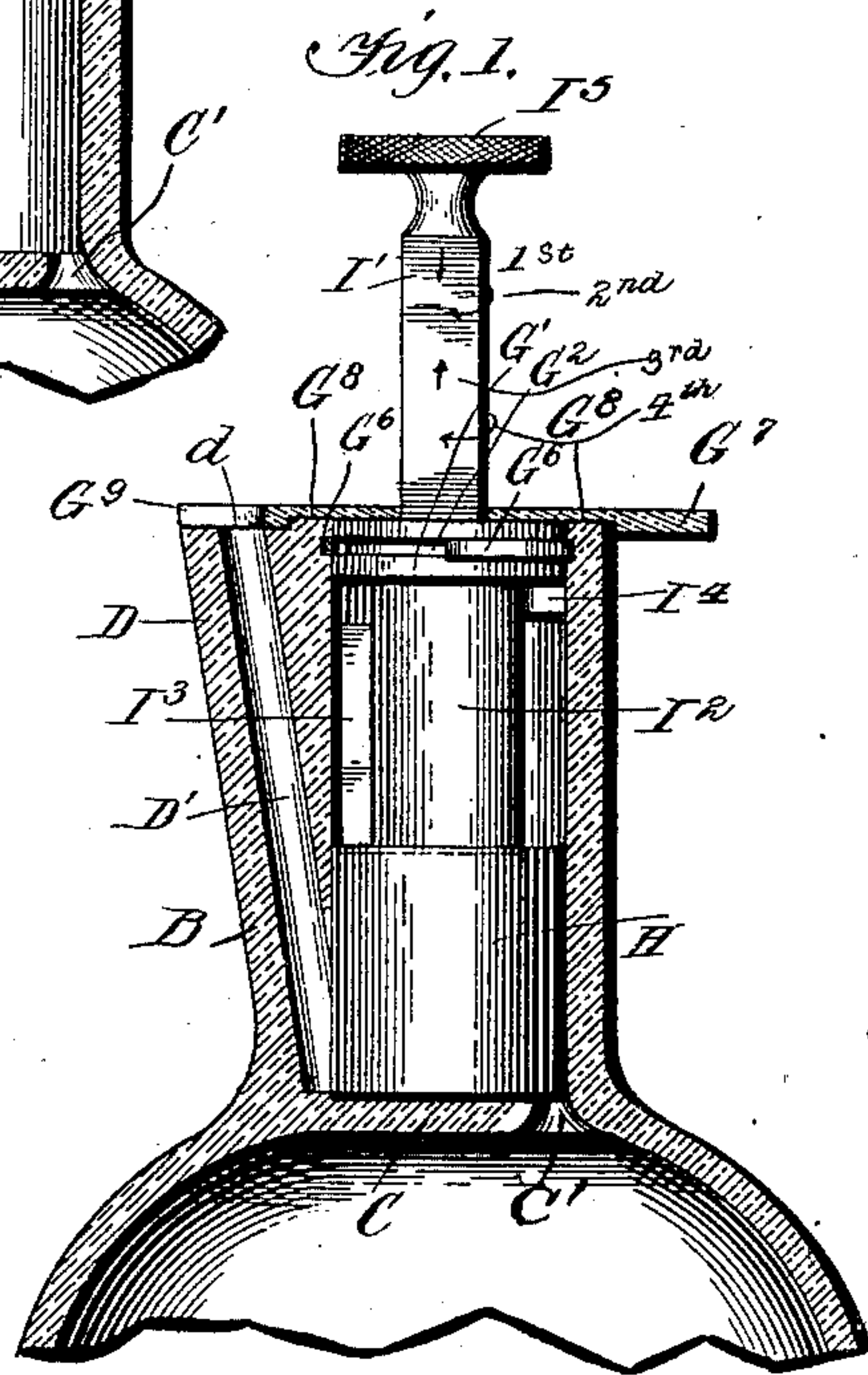
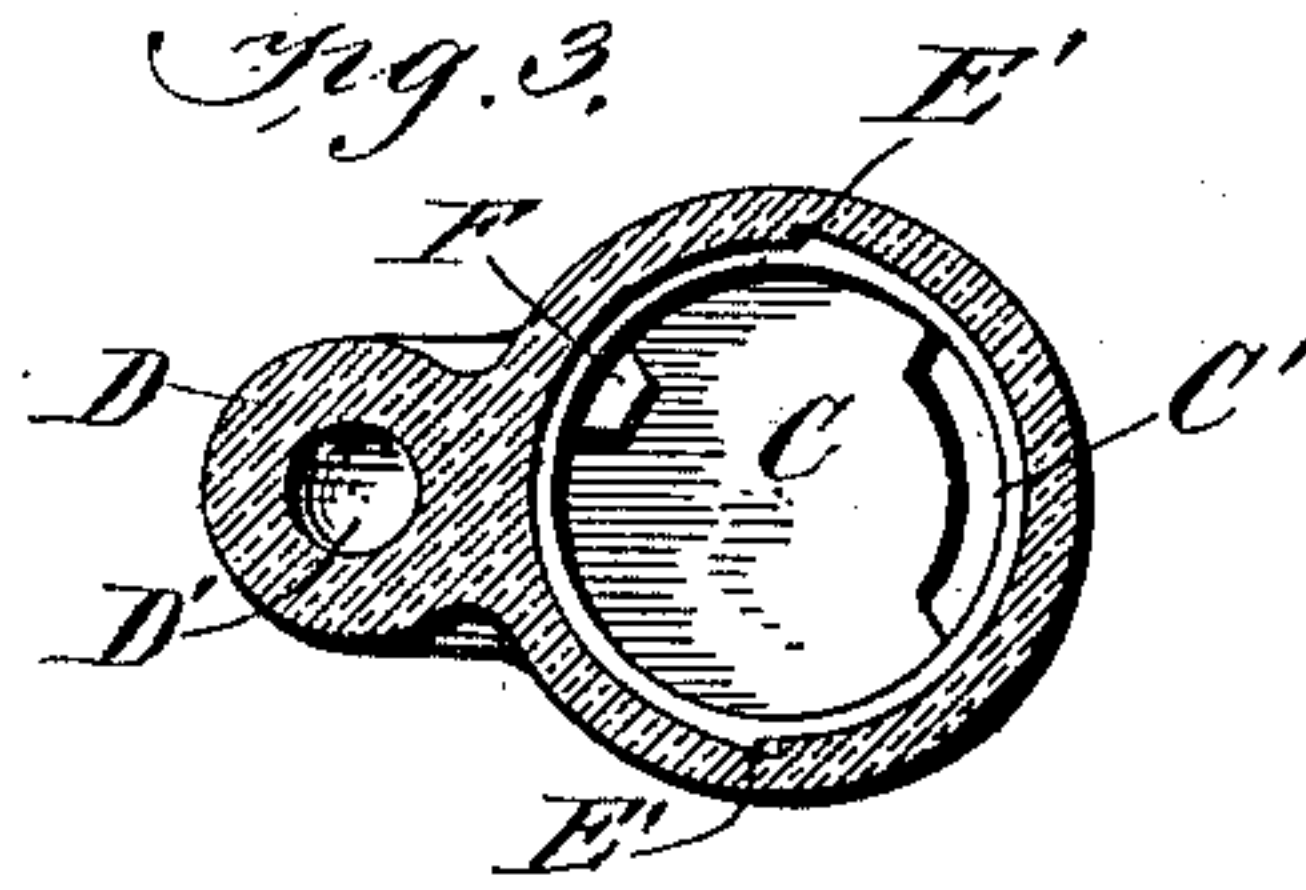
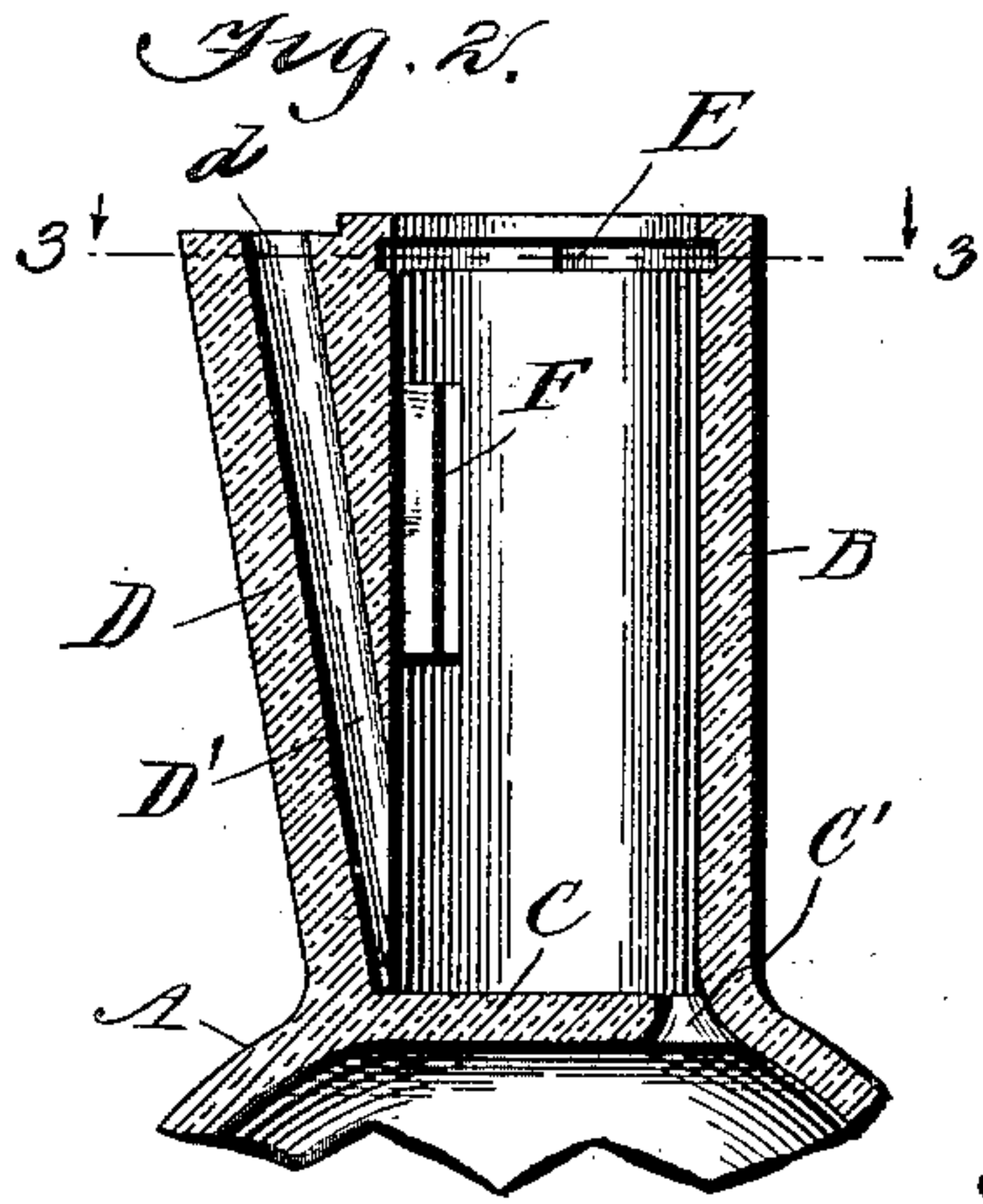
Patented Apr. 15, 1902.

J. Y. PAYTON.
NON-REFILLABLE BOTTLE.

(Application filed Aug. 17, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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2 Sheets—Sheet 2.

Fig. 9.

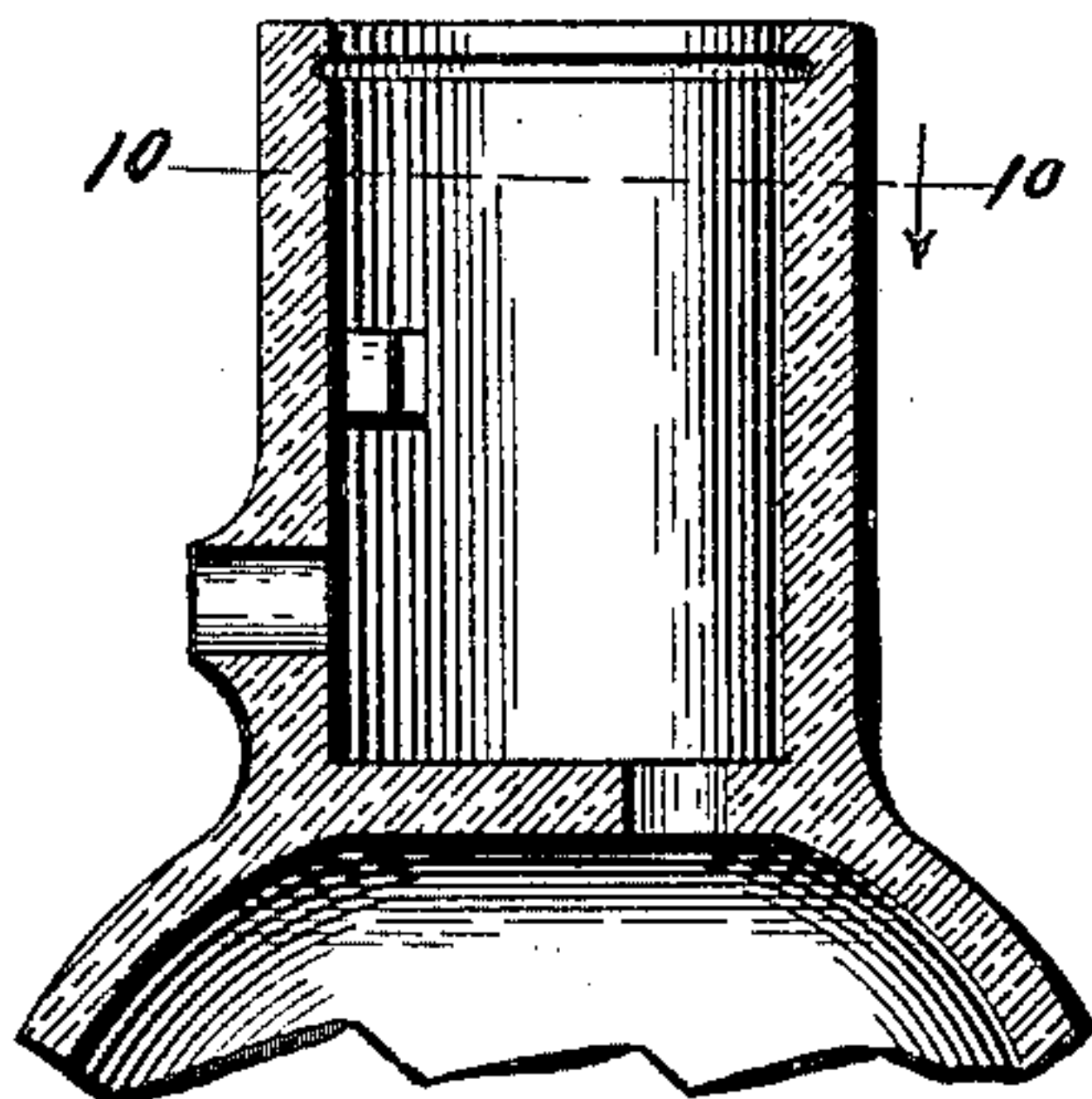


Fig. 10.

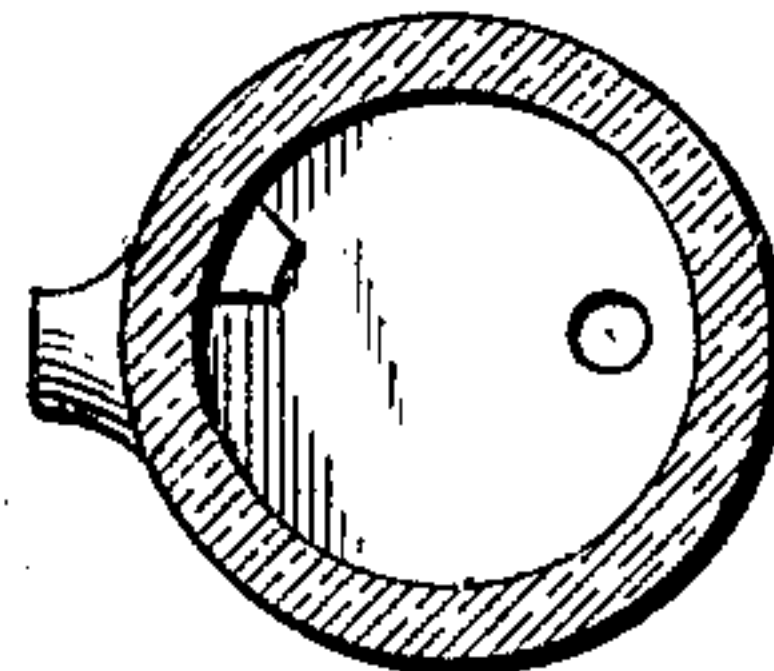


Fig. 8.

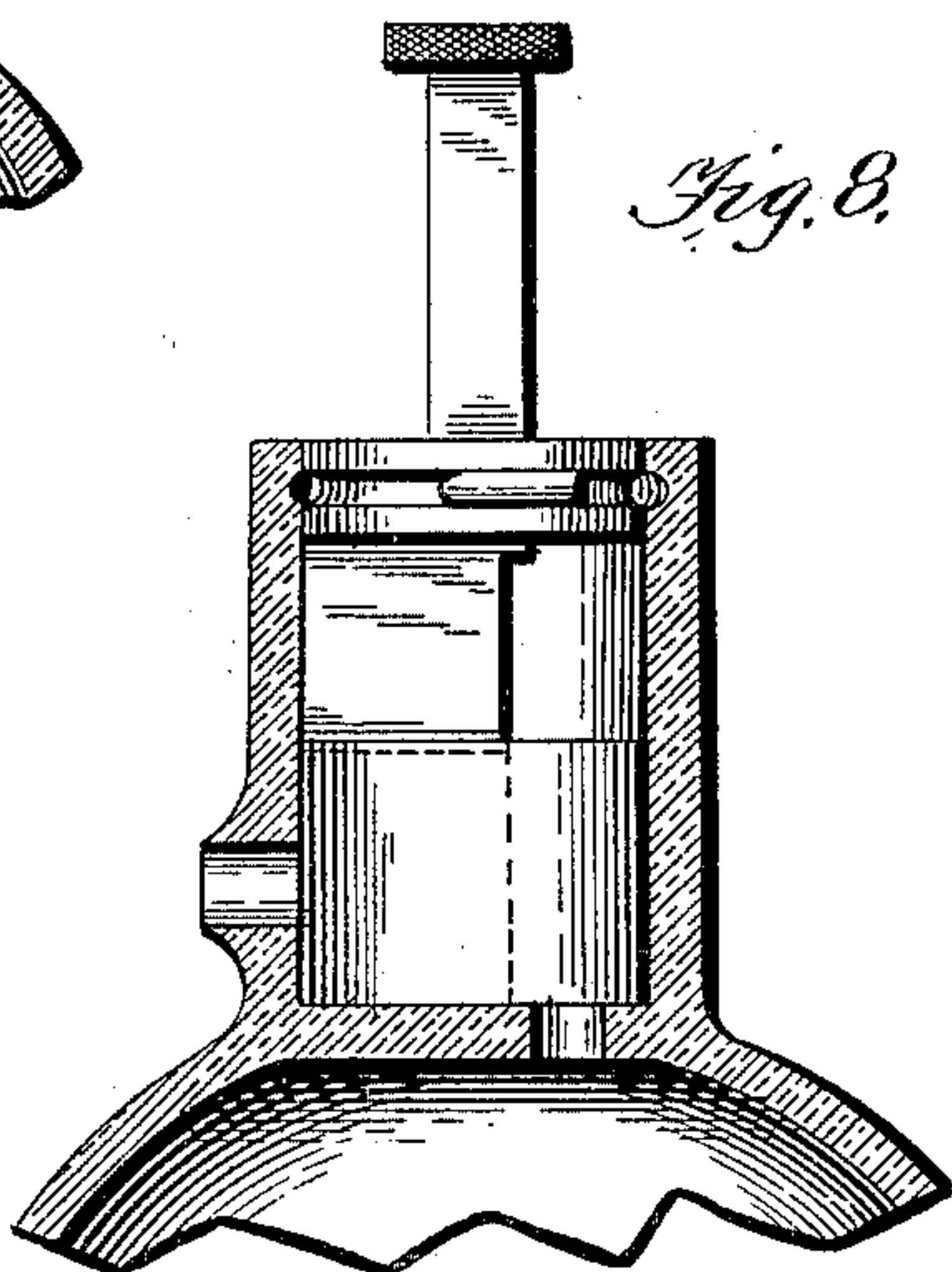


Fig. 11.

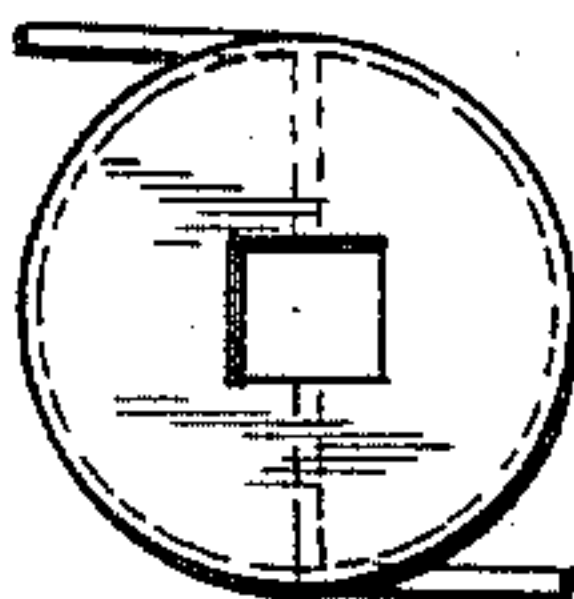


Fig. 12.



Fig. 13.



Fig. 14.

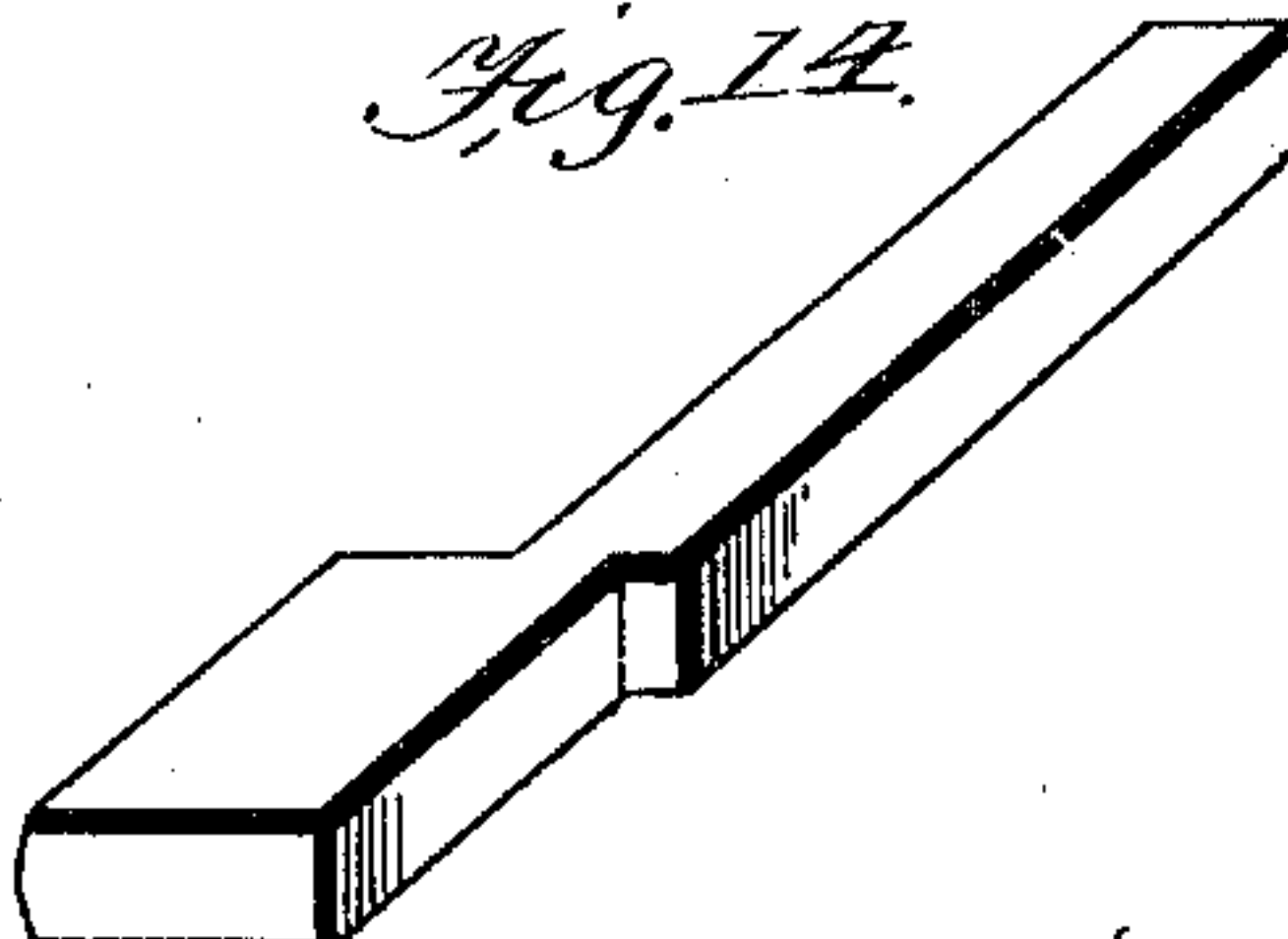
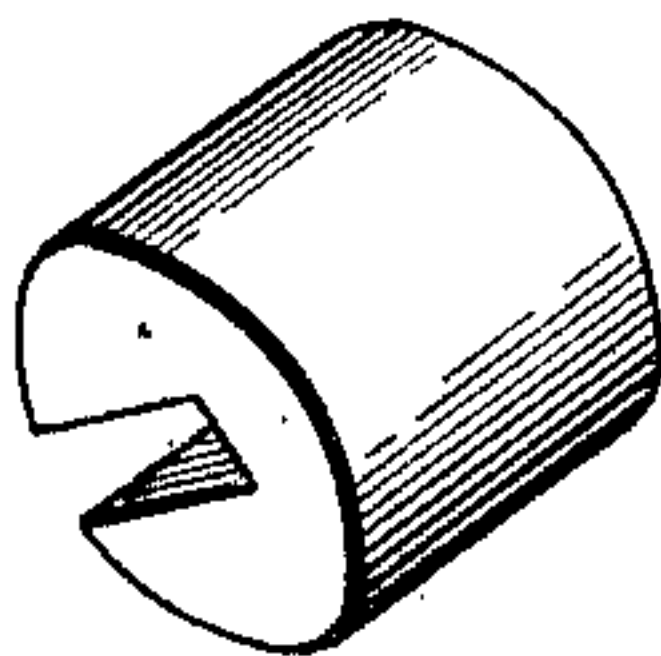


Fig. 15.



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UNITED STATES PATENT OFFICE.

JAMES YELVERTON PAYTON, OF WALDRON, ARKANSAS, ASSIGNOR OF ONE-HALF TO GOODSON COX, OF WALDRON, ARKANSAS.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 697,878, dated April 15, 1902.

Application filed August 17, 1901. Serial No. 72,377. (No model.)

To all whom it may concern:

Be it known that I, JAMES YELVERTON PAYTON, a citizen of the United States, residing at Waldron, in the county of Scott and State of Arkansas, have made certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention is an improvement in non-refillable bottles, and has for an object to provide a novel construction by which the contents of a bottle may be dispensed as desired, but which will prevent the refilling of the bottle; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a vertical longitudinal section of a neck portion of a bottle provided with my improvements, the parts being shown in position for dispensing a portion of the contents of the bottle. Fig. 2 is a vertical longitudinal section of the neck portion of the bottle, the dispensing-cylinder, the plunger, and the cap-stopper being removed. Fig. 3 is a detail cross-sectional view on the line 3 3 of Fig. 2 and looking down the neck of the bottle. Fig. 4 is a detail perspective view of the plunger. Fig. 5 is a detail perspective of the dispensing-cylinder. Fig. 4^a is a detail end view of the plunger. Fig. 5^a is a detail end view of dispensing-cylinder. Fig. 6 is a side view of the cap-stopper, the detent-springs being removed. Fig. 7 is a bottom plan view of the cap-stopper, the detent-springs being in place. Fig. 8 is a longitudinal section of the neck portion of a bottle provided with a modified form of my devices. Fig. 9 is a detail longitudinal section of the bottle-neck. Fig. 10 is a detail cross-section on about line 10 10 of Fig. 9 and looking down the neck of the bottle. Figs. 11, 12, and 13 are detail views illustrating the cap-stopper. Fig. 14 is a detail perspective view of the plunger, and Fig. 15 is a detail perspective view of the dispensing-cylinder.

Referring now to the construction shown in Figs. 1 to 7, inclusive, it will be noticed that the bottle A has its neck B provided with a base-wall C, which is provided at one side of the neck of the bottle with a port C', through which fluid passes between the body of the

bottle and the neck, as will be understood from Figs. 1 and 2. The port C' is preferably elongated in a circumferential direction, as shown in Fig. 3, although this is not absolutely necessary to the operation of the invention as presently described. At a point diametrically opposite the port C' the bottle-neck is provided with an exit-port D', which preferably connects with an aperture formed at one side of the neck of the bottle, as shown at D, the port D' being prolonged through the tubular extension D and opening at the top thereof, as shown at d in Figs. 1 and 2. The upper extremity of the bottle-neck projects slightly above the upper end of the tubular portion D and in practice enters an annular groove in the under side of the lateral flange of the cap-stopper, as presently described. Within the neck of the bottle, near its upper end, I form an annular internal groove E, which is provided with one or more shoulders E', which form ratchets for engagement by the detents carried by the cap-stopper presently described.

Within the bottle-neck is formed a nipple or preferably a longitudinal rib F, which is preferably located slightly out of line with the outlet-port D', is extended in the direction of the axis of the bottle-neck, and is preferably of a length related to the rib I³ on the plunger-piston, as will be presently described, as well as the location of the lower end of the said rib F with respect to the bottom C of the neck as compared to the length of the dispensing-cylinder shown in Fig. 5.

The cap-stopper G has a body portion G', which is provided with an annular groove G², from which extend sockets G³ for the ends of the ratchet-springs G⁴, which ratchet-springs comprise the ends G⁵, to fit in the sockets G³, and the points G⁶, which are extended so they may project out of the groove G² into position to engage the shoulders E' in the bottle-neck when the cap-stopper is applied, as shown in Fig. 1. By preference the cap-stopper is provided with a top flange G⁷, which extends laterally beyond the body G' of the cap, is formed in its under side with an annular groove G⁸, which receives the upper end of the neck of the bottle, said flange G⁷ be-

ing arranged to lie closely upon the upper end of the tubular portion D of the neck and cover the upper end d of the outlet-port. The notch G^9 is formed in the outer edge of the flange G^7 and is so located relatively to the other moving parts of the device, as more fully described hereinafter, that the said notch G^9 will register with the open end d of the port D' when the slot of the dispensing-cylinder is registered with the inner end of the port D', as shown in Fig. 1. The cap-stopper is provided at g with an opening in which the shank of the plunger is movable longitudinally, but cannot turn. This is preferably effected by making the opening g rectangular, as shown in Fig. 7, and fitting the shank of the plunger thereto; but manifestly other non-circular forms might be employed without departing from the invention.

The dispensing-cylinder H is shown in detail in Figs. 5 and 5^a and is applied in position for use in Fig. 1. This cylinder H is of a length to fit snugly between the bottom wall C and the lower end of the rib F of the bottle-neck, so it will have no longitudinal play between said parts and yet can turn within the bottle-neck below the rib F, as will be understood from Fig. 1. The cylinder is a hollow cylinder slitted or divided at one side by a slot H', which is sufficiently wide to receive the rib F in inserting the cylinder within the neck of the bottle and also to permit the filling of the cylinder when its slot H' is registered with the port C' and the emptying of the cylinder when its slot H' is turned to register with the outlet-port D' of the bottle-neck, in which position it is shown in Fig. 1. This cylinder has its wall made sufficiently thick to entirely close the port C' at all times except when the slot H' is turned into register with the opening C', so that the contents of the bottle cannot pass into the cylinder H except at such time as the cylinder is turned to adjust its slot H' into register with the port C' and the piston presently described is raised.

While the plunger may be given a plurality of shanks to some advantage, its preferable form is shown in detail in Figs. 4 and 4^a and comprises a non-circular shank I' to fit the opening g in the cap-stopper, the piston I² at the lower end of the shank I', the rib I³, extending on one side of the piston from the lower end thereof nearly to the upper end of the piston, and the tooth or spur I⁴ on the opposite side of the piston from the rib I³ and located in a circumferential line above the upper end of the rib I³, for reasons which will be understood from what follows. The plunger may also be provided with a detachable cross-bar, knob, or handle I⁵ at its upper end, which may be applied after the plunger is passed through the cap-stopper in applying the parts for use, as will be more fully described hereinafter.

It should be understood that the dispensing-cylinder H fits piston-like within the neck of

the bottle, that the piston I² of the plunger fits as a piston within the cylinder H, and that the rib I³ of the piston fits snugly the slot H' of the cylinder.

The rib I³ is of a length equal to the length of the cylinder H, so that when the piston I² is inserted in the cylinder H the rib I³ will occupy the slot H' and can pass beneath the tooth or rib F of the bottle-neck in turning the dispensing-cylinder from the position shown in Fig. 1, in which its slot H' registers with the outlet-port D' to a position which will bring its slot H' in register with the port C', leading from the body of the bottle into the neck, as before described.

In operation in filling the bottle the liquid may be poured into the bottle through the opening C' before the dispensing-cylinder H, the plunger I, and the cap-stopper G are placed in position within the bottle-neck (see Fig. 2) until the bottle is filled. The detachable finger-piece I⁵ being removed from the plunger, the shank of the latter may be inserted through the opening g in the cap-stopper and the finger-piece I⁵ be reapplied, thus connecting the plunger with the cap-stopper, so the plunger can move longitudinally independent of the cap-stopper, but can only turn in connection therewith. The dispensing-cylinder may be inserted and turned to position in the bottle-neck, its slot H' permitting it to be inserted past the rib F of the bottle-neck, after which the lower end of the plunger may be applied to the dispensing-cylinder, (see Fig. 1,) the detents G⁴ of the cap-stopper having their ends G⁶ pressed into the groove G², so the cap-stopper can be applied to the position shown in Fig. 1. When so applied, the spring-detents not only prevent the removal of the cap-stopper, but also operate to prevent the reverse movement thereof and permit the cap-stopper to be turned in one direction only upon the neck of the bottle, thus operating also to restrict the movement of the plunger to one circumferential direction only. At the same time the spring-detents are so located in the groove of the bottle-neck as to protect the said springs from damage from mechanical injury or by the application of acids, while the flange G operates to protect the end d of the outlet-port, except in the adjustment of the parts necessary for dispensing the liquids. In the position of parts shown in Fig. 1 the dispensing-cylinder is arranged with its slot H' in register with the outlet-port D' of the bottle-neck, and so the said cylinder closes the port C'. In order to adjust the parts so the cylinder can be again filled from the body of the bottle, it is necessary to lower the plunger until its piston I² will occupy a position entirely closing the interior of the cylinder, and its rib I³ will fit within and entirely close the slot H'. Now the first act toward refilling after the contents of the cylinder H have been discharged necessarily involves the complete

filling of the cylinder and its slot by the piston and its lower rib before the cylinder can be turned to the right toward the port C', which may be regarded as the inlet or filling port for the dispensing-cylinder, and it is necessary for the piston to move through its full length of stroke within the cylinder H and bear upon the bottom C of the bottle-neck before it can be turned to the right, as otherwise the rib I³ could not pass beneath the arresting-rib F in the bottle-neck. This insures the entire discharge of any liquid that may be within the dispensing-cylinder, and in case any obstruction has been inserted into the bottle-neck through the outlet-port D' this full-stroke movement of the piston could not be made. It will be easily understood from the foregoing description that this full-stroke movement, made necessary in every revolution of a nicely-fitting piston completely filling the same space previously occupied by the liquid, is a very important feature of my invention. In this connection it should be understood that the dispensing cylinder or chamber H is rigidly held at all times from longitudinal movement in the bottle-neck by the resistance offered by the arresting-rib F, under which it moves, assisted at one point of its circuit by the action of the upper rib I⁴ of the plunger, and that such cylinder can turn in one direction only and cannot be removed. The lower end of the piston I² and of the rib I³ at all times occupy a position within the cylinder H and its slot H', so when the plunger is operated to the right to bring its rib I³ against the arresting-rib F in the bottle-neck the slot H' of the cylinder H will be in full register with the outlet-port D', and when the contents of the cylinder H have been discharged and the piston is lowered into the cylinder so its rib I³ can pass below the rib F, the plunger and the cylinder can be turned to the right until the rib or tooth I⁴ engages the arresting-rib F, when the slot H' will be in full register with the filling-port C', and by adjusting the plunger outward and inverting the bottle the cylinder H may be filled. This outward movement of the plunger will adjust the tooth I⁴ to a position beyond the outer end of the rib F, so the plunger and the cylinder can be again turned toward the right to adjust the cylinder H to position in which its contents can be discharged through the slot H' and the outlet-port D', as before described.

In Fig. 1 I have indicated the four movements of the piston made necessary in every revolution thereof. The first movement is a downward movement of the plunger arrested by the contact of the lower end of the piston with the bottom of the bottle-neck. This movement ejects any liquid that might have been inserted into the chamber within the dispensing-cylinder and reveals the presence of any solids by not permitting the second movement, which second movement is a twist to

the right, the rib I³ passing below the rib F and such twisting movement being stopped by the contact of the tooth or spur I⁴ with the arresting-rib F. This movement brings the slot H' into full communication with the inlet-port C'. The third movement is an upward movement of the plunger, arrested by the contact of the upper end of the piston or of the spur I⁴ with the cap-stopper, such movement opening the chamber of the dispensing-cylinder H for the reception of the liquid in the body of the bottle. The fourth movement is a further twist to the right, the rib I⁴ passing above the rib F, which movement is arrested by the contact of rib I³ with the arresting-rib F of the bottle-neck, such movement bringing the slot H' of the dispensing-cylinder into full register with the outlet-port D' and completing the circuit.

It will be noted that the length of the flange I³, the length of the dispensing-cylinder, and the distance between the lower end of the flange F and the bottom C of the neck are the same. It will be also noticed that the length of the rib I⁴ may equal but should not exceed the distance between the upper end of the arresting-rib F and the under side of the cap-stopper. It will also be noticed that the length of the arresting-rib F is less than the distance between the upper end of the cylinder H and the under side of the cap-stopper, while the length of the piston proper, including the upper rib I⁴, is greater than such distance, so the lower end of the piston and of the rib I³ will never pass out of the dispensing-cylinder H. So the plunger I while it may move longitudinally independent of the cylinder H can only turn with the said cylinder.

It will be noticed that the cap-stopper operates to prevent the removal of the other parts, prevents the reverse movement of the plunger and dispensing-cylinder, protects the detent-springs from mechanical injury or from injury by corrosive acids, limits the upward movement of the plunger, and prevents the freeing of the piston from positive engagement within the dispensing-cylinder.

The plunger insures a common circular movement of all the movable parts, aids in confining the liquid within the dispensing-cylinder, prevents the dispensing-cylinder from operating as a receiving-chamber when registered with the outlet-port, permits the filling of the dispensing-cylinder when registered with the inlet-port, and holds the dispensing-cylinder down in the neck of the bottle when this function is temporarily lost to the arresting-rib. It will be noticed that the arresting-rib has an eightfold function. It holds down the slotted cylinder. At the beginning of the second movement, having now to protect the chamber, it delegates its first function temporarily lost to the flange I⁴ by holding down the flange I³. It protects the chamber by locking down its piston until the outlet-port is passed, it arrests the chamber at the inlet-

port, it enforces the opening of the chamber for the reception of liquid, it arrests the chamber at the outlet-port, it refuses further movement until assured that all the liquid has been expelled, and it enforces the disclosure of solids in the chamber and refuses them passage. The construction is simple, easily adjusted, permits the filling of the bottle in the first instance without any trouble, and operates to prevent the refilling of the bottle as desired, delivers the contents of the bottle freely, but absolutely refuses to receive anything, so the bottle that has been emptied is utterly worthless to the holder.

Referring now to the construction shown in Figs. 8 to 15, inclusive, it will be seen that I employ herein a somewhat different construction of bottle-neck, cap-stopper, plunger, and dispensing-cylinder, but that the operation and particular features of the invention are substantially like those described in connection with the construction shown in Figs. 1 to 7, inclusive, it being noticed, however, that in the construction shown in Figs. 8 to 15 I dispense with the tooth or spur I⁴ and the accompanying advantages of such part, and it should be understood that while the tooth or spur I⁴ might be omitted in some instances it has special advantages before described and is very much preferred.

In Fig. 9 I show the arresting-rib in the form of a short tooth, spur, or nipple occupying the space of the lower end of the rib and situated just above and in contact with the dispensing-cylinder and near the center of the bottle-neck. This may be used in place of a rib such as shown in Fig. 2, since a tooth so situated would operate to accomplish the results preferably secured by the use of the rib, as shown in Fig. 2; but the rib is preferred, as it secures the additional advantages of insuring the arrest and opening of the dispensing-chamber for the reception of liquid at the inlet or filling port.

It is easily seen that my device may be applied to bottles in the form of jars, jugs, &c., as well as to the ordinary form of bottle.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A non-refillable bottle comprising the bottle-neck having a bottom wall provided with a filling-port, port, the neck of the bottle being provided diametrically opposite the filling-port with the discharge-port and with a tubular portion forming a continuation of said port and terminating below the upper end of the neck of the bottle, such bottle-neck being provided internally near its upper end with a groove having a stop-shoulder for engagement by a detent, the longitudinal rib within the bottle-neck and terminating at its ends short of the upper and lower ends of the neck, the cap-stopper fitted to the bottle-neck and having said detent operating in the groove of the bottle-neck and a lateral flange provided in its under side with a groove to re-

ceive the end of the bottle-neck, such flange being arranged to overlie the outer end of the outlet-port and having a notch which may be set into register with such end of the port, the plunger having a shank portion movable longitudinally in the cap-stopper and keyed thereto, whereby it can only turn with the said stopper, said plunger being provided with a piston having a longitudinally-extended rib and opposite the same a tooth or spur occupying a position above the upper end of the said rib, and the dispensing-cylinder fitted within the bottle-neck snugly below the rib therein and having a slot which may be entered by the rib of the plunger-piston, a chamber in which such piston may operate and being movable by the operation of the plunger to adjust said slot into register with the filling and discharge ports of the bottle-neck, substantially as and for the purposes set forth.

2. A non-refillable bottle comprising the bottle-neck having a filling-port and a discharge-port, a dispensing-cylinder having a side slot which may be adjusted to register with one or the other of said ports, and means for operating the said cylinder to cause its slot to register with one or the other of said ports, substantially as set forth.

3. A non-refillable bottle having a bottle-neck provided with a filling-port and a discharge-port, a dispensing-cylinder having a slot through which it may be filled and discharged, and means for operating the dispensing-cylinder including a piston to occupy the chamber thereof in readjusting the cylinder from discharging to filling position, substantially as set forth.

4. The combination of the bottle-neck having a filling-port and a discharge-port, the dispensing-cylinder having a slot which may be turned to register with either of said ports, and will when registered with one port, operate to close the other port, and means for operating the cylinder, substantially as set forth.

5. The combination of the bottle-neck, the dispensing-cylinder arranged to rotate therein, and the plunger having piston movable into the said cylinder and arranged to rotate within the bottle-neck, and the plunger rotating with and movable longitudinally independently of the cylinder, said cylinder being formed to cooperate with the said ports in the bottle-neck, substantially as set forth.

6. A bottle having filling and outlet ports, combined with a dispensing-cylinder having a chamber and a port leading thereto, which port may be adjusted to register with the filling or outlet port of the bottle, and means for occupying the chamber of the dispensing-cylinder in the readjustment of said port from register with the outlet-port to its registry with the filling-port whereby to exclude liquid from said chamber during such operation, substantially as set forth.

7. The combination of a bottle having a fill-

ing-port and a discharge-port, a dispensing device having a chamber and a port leading thereto through which the chamber may be filled from the filling-port, and emptied from the discharge-port, and a piston movable into the dispensing device in the readjustment thereof from registration with the outlet-port to its registration with the filling-port, whereby to secure the discharge of any material within the dispensing device before such device is adjusted into registry with the filling-port, substantially as set forth.

8. A bottle having its neck provided with a bottom wall having a filling-port and provided alongside said neck with a tubular portion communicating at its lower end with the neck and affording an outlet or discharge port, and a rotatable dispensing device in the neck above the bottom wall and having a slot or opening which may be adjusted by the turning of the dispensing device, successively into register with the inlet and outlet ports substantially as set forth.

9. A bottle having inlet and outlet ports provided within its neck with a longitudinally-extending rib which may limit the turning movement of a device inserted in the neck of the bottle, and a rotatable dispensing device controlling said inlet and outlet ports operating in the neck and cooperating with said rib, substantially as set forth.

10. The combination of the bottle-neck having filling and discharge ports, the cylinder in said neck and movable between positions in which it will register with one or the other of said filling and discharge ports, and a piston adapted to fill said cylinder and exclude liquid therefrom and movable into and out of position in which it will fill said cylinder substantially as set forth.

11. The combination in a bottle of the neck having the longitudinal rib and provided with the filling and outlet ports, the dispensing-cylinder operating below said rib and having a slot which may be adjusted into registry with the filling-port, and with the outlet-port, the plunger having a piston movable longitudinally in the dispensing-cylinder and provided with a rib to operate in the slot of the dispensing-cylinder, said plunger being movable longitudinally independent of the cylinder and rotatable with said cylinder, and means whereby to prevent the reverse movement of the plunger, and confine its turning movements to one direction, substantially as set forth.

12. The combination of the bottle-neck having a filling-port and an outlet-port, the cap-stopper held in the bottle-neck and arranged to turn therein, means limiting the turning movement of the cap-stopper to one direction, a longitudinal rib within the neck of the bottle, the dispensing-cylinder operating in the bottle-neck below the said rib and having at one side a slot through which it may be filled and emptied, the plunger having a shank

keyed to and movable longitudinally in the cap-stopper, and a piston movable within the dispensing-cylinder and provided with a rib operating in the slot thereof, substantially as set forth.

13. The combination of the bottle-neck, provided within it near its upper end with an annular groove, and the ratchet-teeth in the base-wall of said groove, the cap-stopper having a portion fitted within the neck of the bottle and provided with an annular groove and with a socket leading therefrom, and the detent having its end portion fitting in said socket and a projecting portion which may be pressed into the groove of the cap-stopper or may spring outward into the groove of the bottle-neck, substantially as set forth.

14. A bottle having its neck provided with a bottom wall having a filling-port and said neck also provided with a lateral outlet-port and a dispensing device having a port which may be registered alternately with the filling and discharge ports of the bottle-neck, and means for operating the dispensing device to adjust its port into register with one or the other of the bottle-ports, substantially as set forth.

15. The combination with the bottle-neck having the internal longitudinal rib and the dispensing-cylinder having a side slot, of the plunger having a piston fitted to the dispensing-cylinder and provided with a rib and with a tooth or spur for engagement with the rib of the bottle-neck, the bottle being provided with filling and outlet ports with which the said side slot may be registered, substantially as set forth.

16. The combination with the bottle-neck, and a dispensing-cylinder operating therein, of the plunger arranged to operate such cylinder and having a portion arranged and adapted to fill the cylinder when the latter is being adjusted to its filling position, the bottle-neck and cylinder having cooperating ports, substantially as set forth.

17. The combination of the bottle-neck having a filling-port and a discharge-port, and an internal rib, a cap-stopper provided with means whereby it may be held in the bottle-neck and for limiting the turning movement thereof to one direction, the dispensing-cylinder having a slot through which it may be filled and emptied and arranged to turn within the bottle-neck beneath the rib thereof, and the plunger having a shank keyed to and movable longitudinally in the cap-stopper and a piston to operate in the dispensing-cylinder, such plunger being provided with a stop-rib, and with an opposite tooth or spur to cooperate with the rib in the bottle-neck, substantially as set forth.

18. A bottle-neck, provided with a bottom wall having a filling-port at one side and provided with an opposite discharge-port and with a tubular portion communicating with said discharge-port, and provided within said

neck near its outer end with an annular groove having a stop-shoulder and beneath said groove with a longitudinally-extending rib, the cap-stopper having pawl devices operating in said groove, the cylinder having an opening cooperating with said filling and discharge ports, and the piston operating in

said cylinder and having its shank passed through the cap-stopper, substantially as set forth.

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Witnesses:

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