

No. 816,822.

PATENTED APR. 3, 1906.

S. S. RIDER & D. J. O'DONNELL.

DISPENSING RECEPTACLE.

APPLICATION FILED MAY 22, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

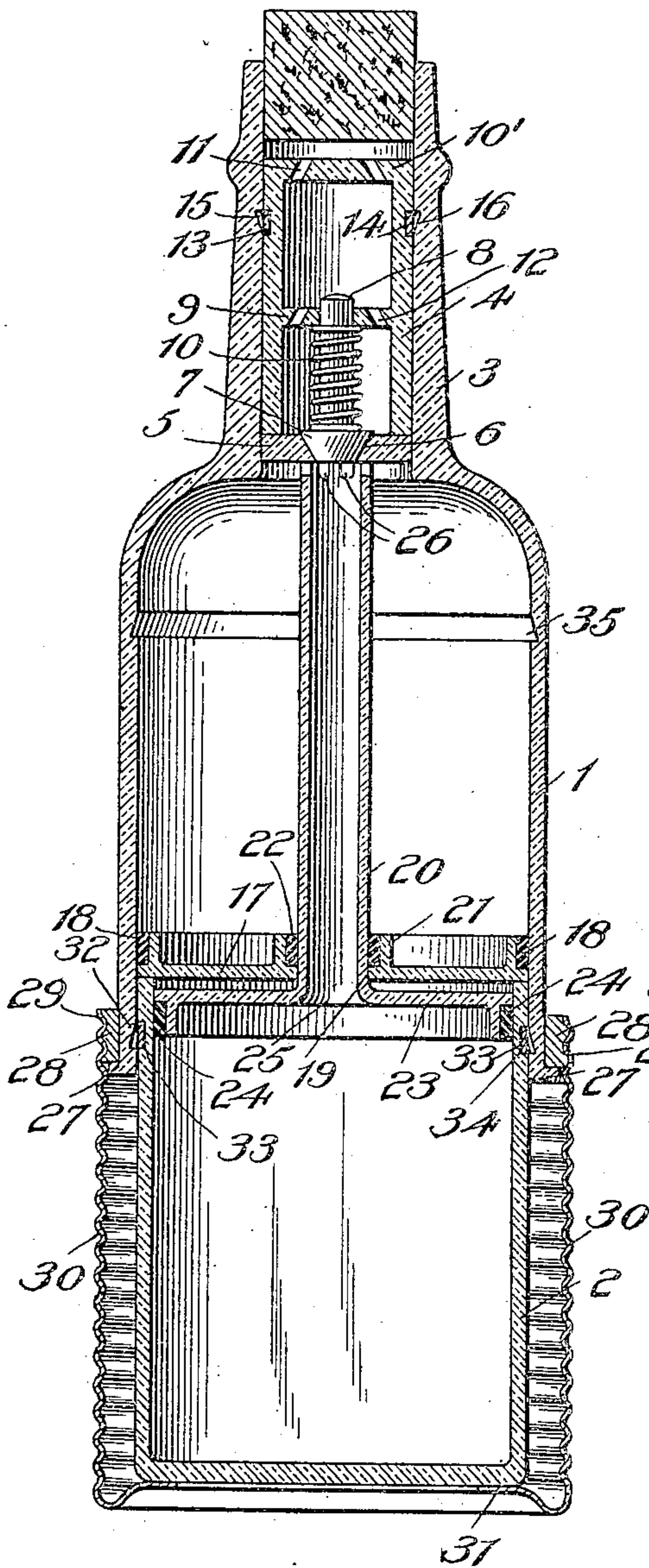
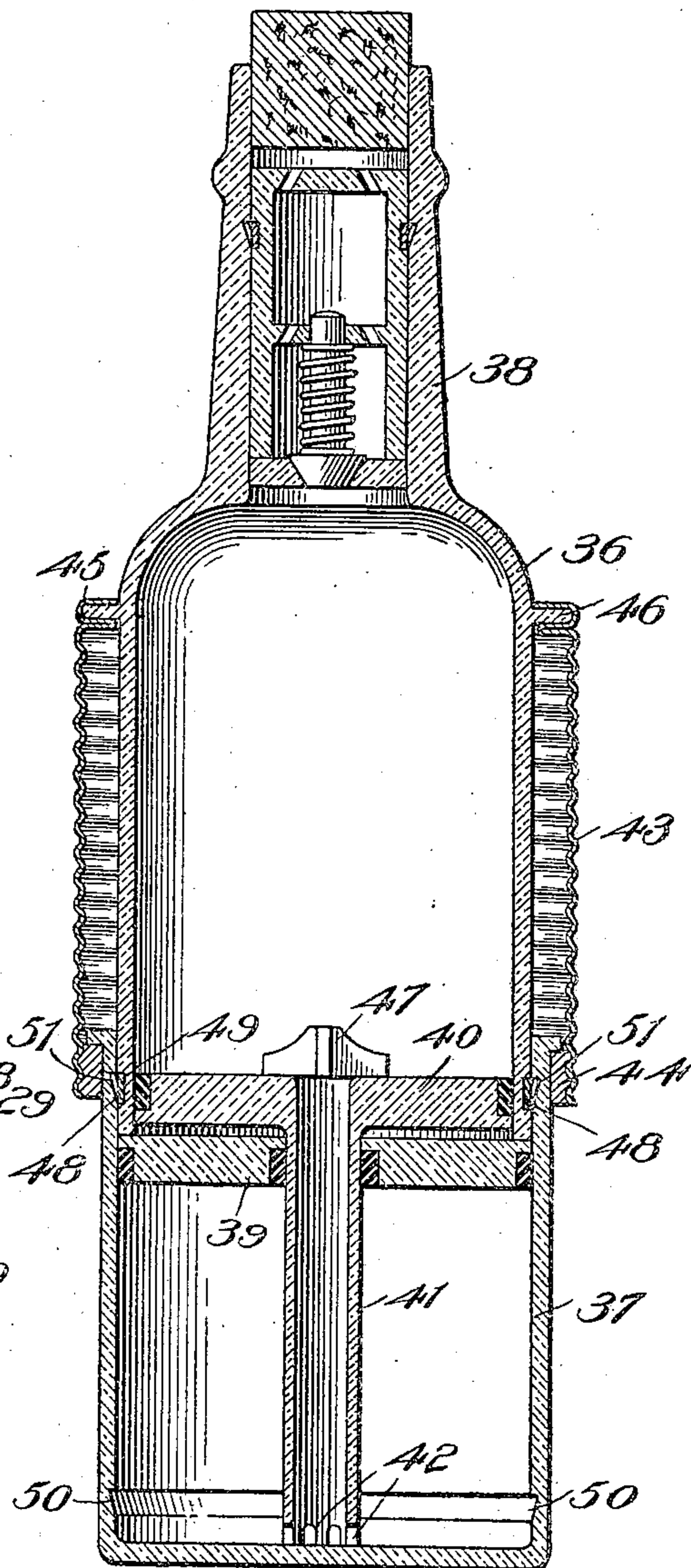


Fig. 2.



Witnesses

Edwin L. Bradford
C. H. Heylman

Inventors
Samuel S. Rider
Daniel J. O'Donnell,

By J. Lawrence Meyer
Attorney

No. 816,822.

PATENTED APR. 3, 1906.

S. S. RIDER & D. J. O'DONNELL.

DISPENSING RECEPTACLE.

APPLICATION FILED MAY 22, 1905.

2 SHEETS—SHEET 2.

Fig. 3.

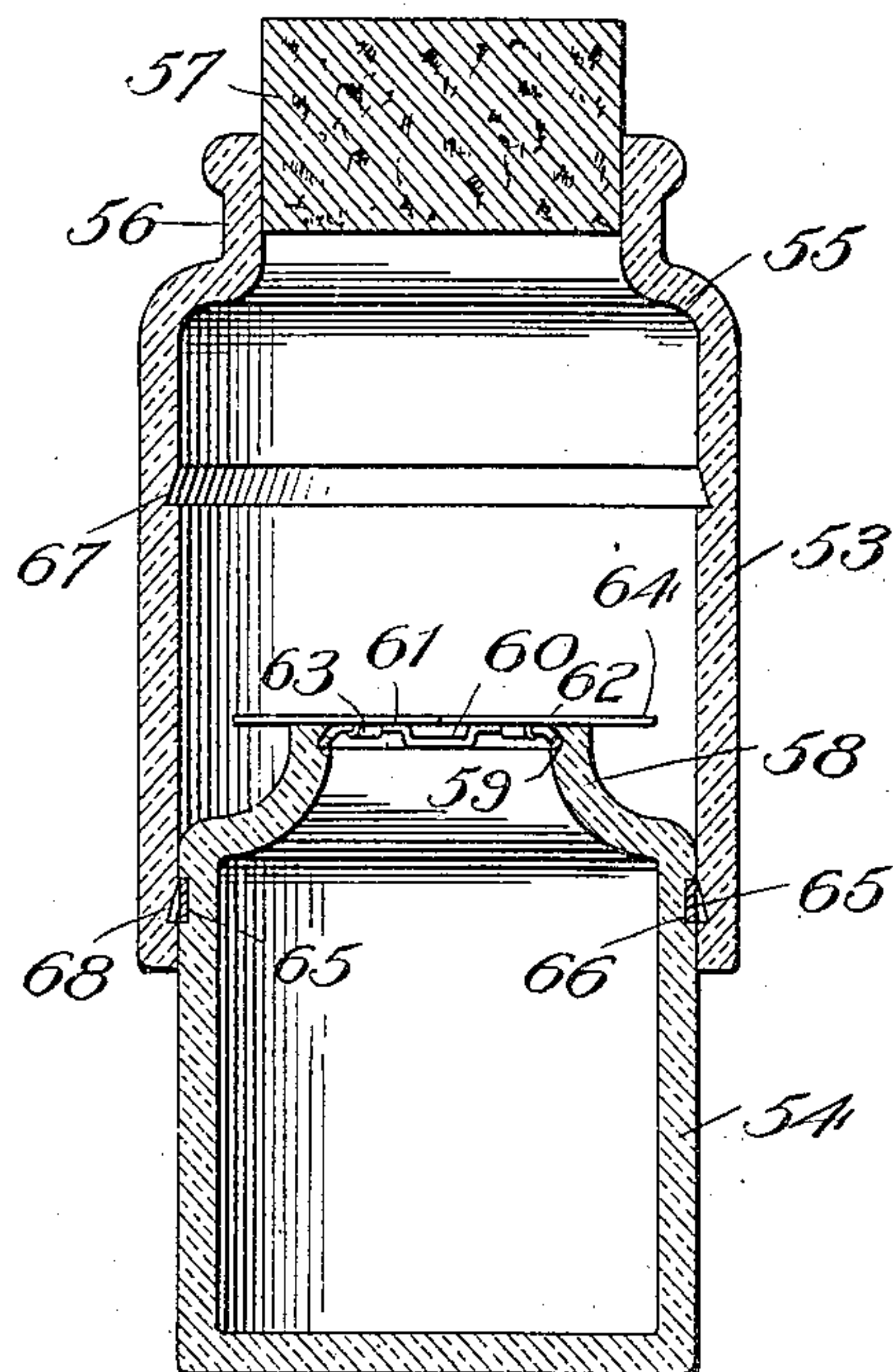


Fig. 4.

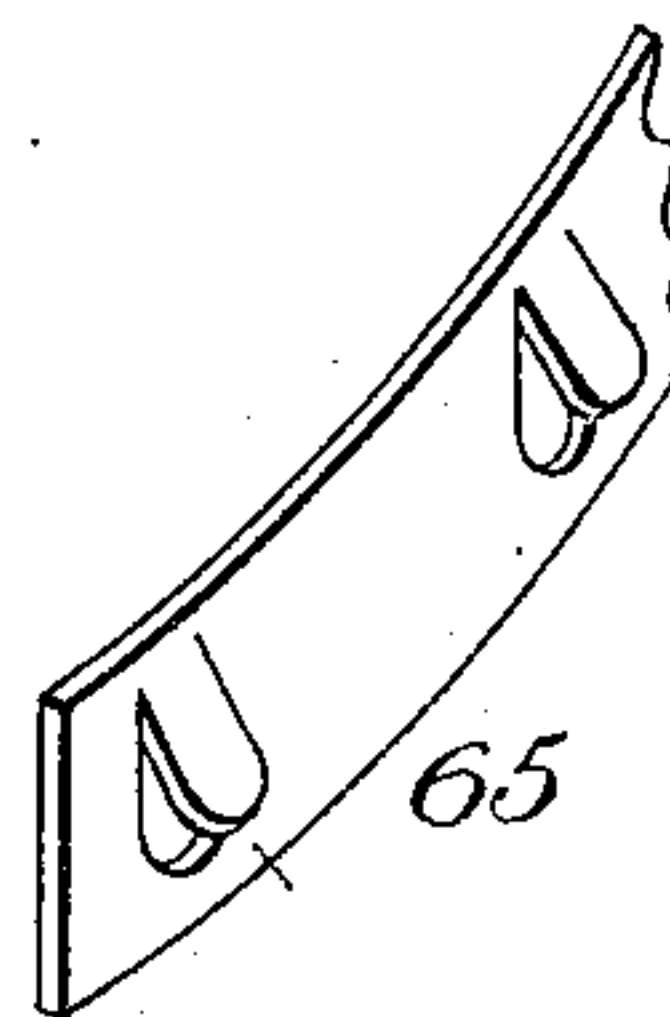


Fig. 5.

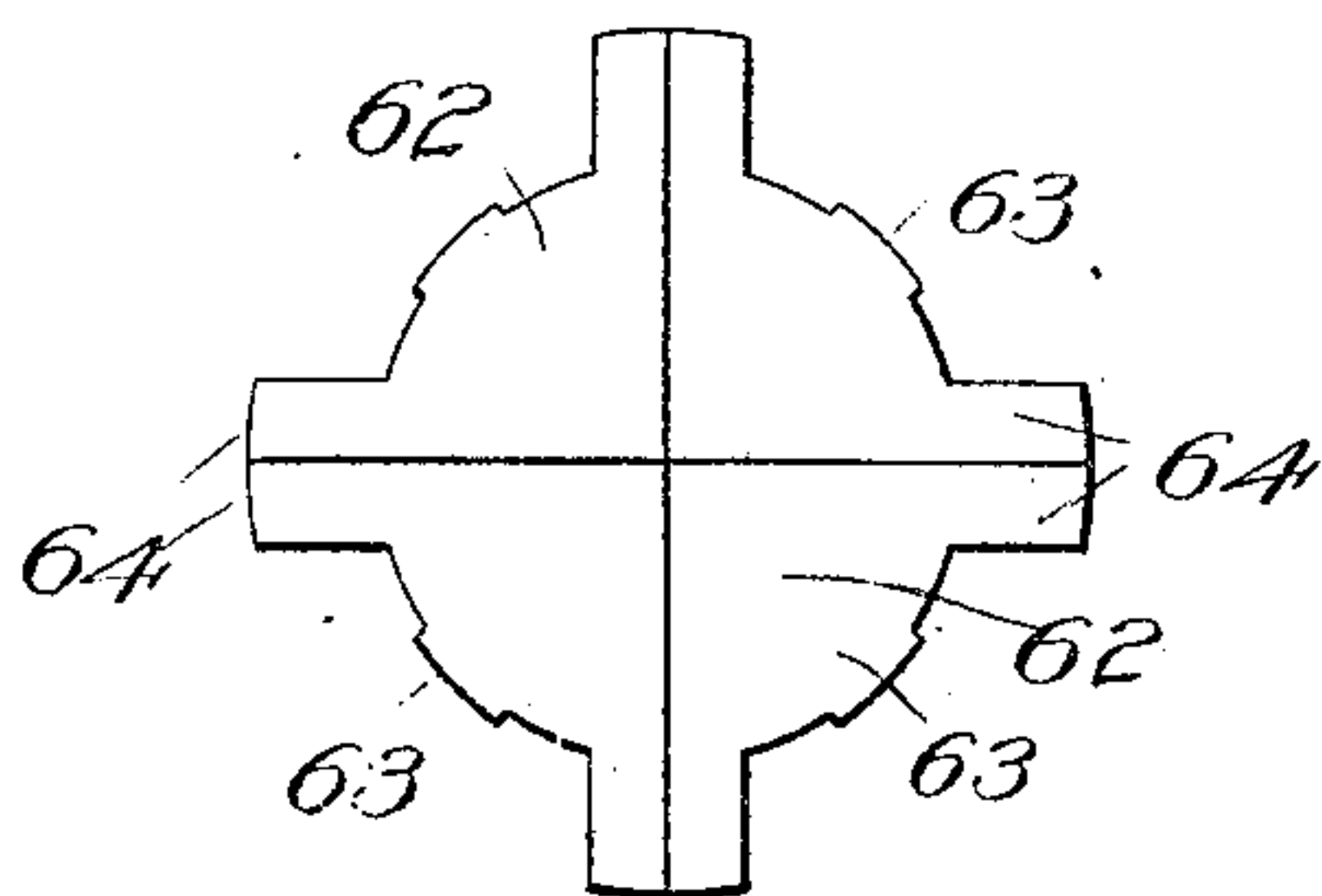


Fig. 6.

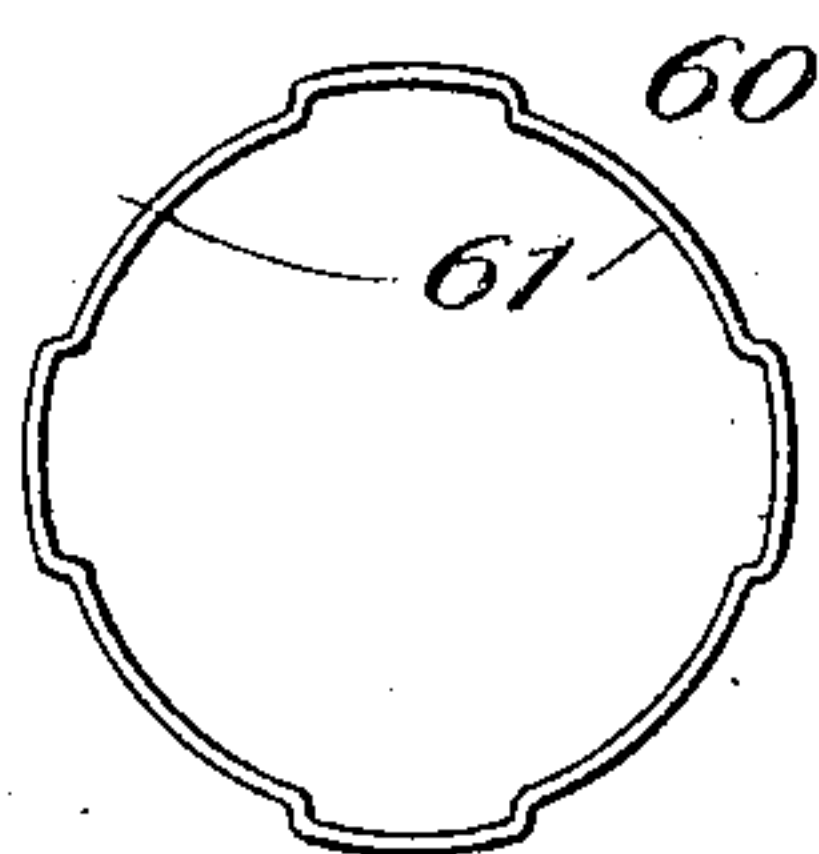
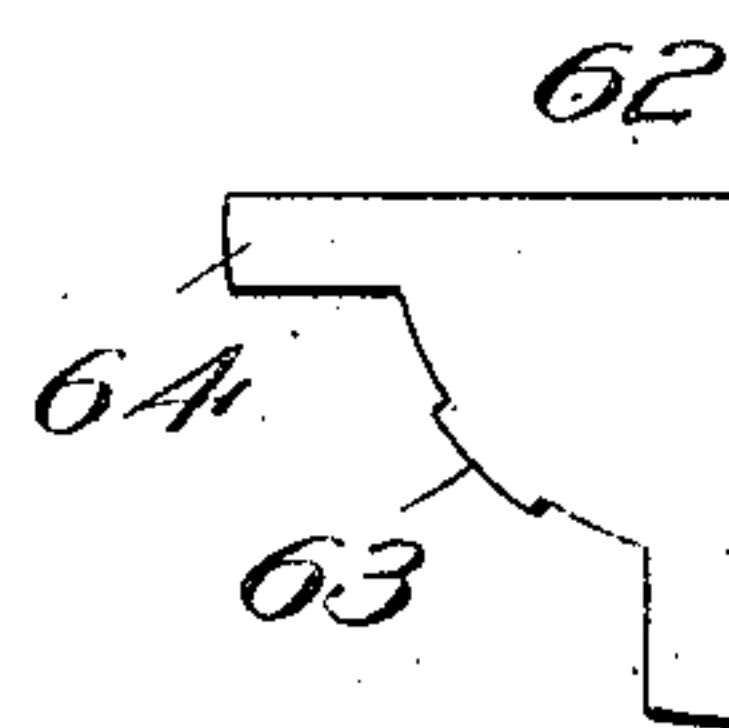


Fig. 7.



Witnesses

Edwin L. Bradford
C. J. Heyman

Inventors

Samuel S. Rider
Daniel J. O'Donnell,

By J. Lawrence Meyers

Attorney

UNITED STATES PATENT OFFICE.

SAMUEL S. RIDER AND DANIEL J. O'DONNELL, OF WASHINGTON,
DISTRICT OF COLUMBIA.

DISPENSING-RECEPTACLE.

No. 816,822.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed May 22, 1905. Serial No. 261,612.

To all whom it may concern:

Be it known that we, SAMUEL S. RIDER and DANIEL J. O'DONNELL, citizens of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Dispensing-Receptacles, of which the following is a specification.

Our invention has relation to new and useful improvements in dispensing-receptacles generally, and particularly contemplates improvements in bottles and similar receptacles which are provided with means for forcing the contents therefrom.

The primary object of the invention is to provide a receptacle of the character mentioned which is comparatively simple in construction, which is easy of operation, and which will positively force the contents of the receptacle therefrom as desired.

A further object is to so construct the receptacle that when once emptied of its contents it will be impossible to entirely refill the same.

The invention broadly and generally consists in a receptacle comprising two telescopically-arranged fluid or material containing compartments or sections constructed to telescope upon each other to force the contents of the receptacle therefrom, means being provided for locking the sections together when at the extent of their inward movement, so as to prevent the extension of the sections and the refilling of the receptacle.

The invention further consists in providing a receptacle composed of telescoping sections one of which is provided with an outlet through which fluid passes from the receptacle, both being adapted to contain fluid and each of which is provided with a piston operating in the other section, means being provided whereby fluid is forced from both sections through the outlet during the telescoping of the sections.

We have fully and clearly illustrated the invention in the accompanying drawings, to be taken as a part of the invention, and wherein—

Figure 1 is a view, in central longitudinal section, of a bottle constructed to embody the present invention. Fig. 2 is a view, in central longitudinal section, of a modification of the invention, which consists of a reversal of

the parts shown in Fig. 1. Fig. 3 is a central longitudinal section of a further modification which is especially adapted to contain powdered or granular substances. Fig. 4 is a detail view of a section of a locking-ring to be employed in connection with the invention. Fig. 5 is a detail plan view of a form of valve employed in connection with the embodiment of the invention shown in Fig. 3. Figs. 6 and 7 are detail views of parts of the valve shown in Fig. 5.

Referring to the drawings, 1 and 2 designate, respectively, upper and lower sections of a bottle telescopically arranged with relation to each other, the lower section 2 being located within the upper section, and both of which sections are adapted to contain fluid. The upper section is formed at its top portion with a vertically-extending neck 3, through which the contents of the bottle are ejected, the opening through said neck being controlled by a normally closed valve, which, however, is constructed so as to open automatically to permit egress of the fluid when pressure of sufficient strength is exerted thereon from the interior of the bottle. This valve and the means for maintaining it in position consists in a hollow cylindrical plug 4, constructed to fit closely within the neck of the bottle and closed at its lower end by means of a partition 5, the latter being formed with a central conical opening 6, through which the fluid passes from the bottle in being discharged through the neck. Coöperating with this conical opening 6 is a vertically-moving conical valve 7, having a stem 8 projecting from its upper side, which stem extends through an opening in a horizontal partition 9 within the cylindrical plug, said opening serving as a guide for the vertical movements of the valve and its stem.

Surrounding the stem 8 and abutting with its opposite ends the top of the valve and the under side of the partition 9 is an expansive coil-spring 10, the function of which is to exert its force to normally maintain the valve to its seat. The upper end of the plug is closed by means of a head 10', and this head and partition 9 are formed with a plurality of openings 11 12, respectively, through which the fluid passes when forced out of the bottle, and to prevent the valve being tampered

with by a wire or other sharp article being inserted through said openings the latter are inclined, as shown, in a well-known manner.

The plug 4 is locked within the neck of the bottle by means of a locking-band 13, located in a groove 14 in the plug and formed with upwardly and outwardly projecting tongues 15, which engage the shoulder of a groove 16, formed in the bottle-neck, said arrangement serving to prevent removal of the plug from the bottle-neck. Said band is clearly shown in Fig. 4 of the drawings.

From the description it will be seen that the valve 7 cannot be moved from its seat by means exterior to the bottle and can only be operated to open the passage 6 by pressure exerted against its under side from the interior of the bottle.

We will now proceed to describe the means by which the fluid or other contents of the bottle is dispensed or forced from both of the telescopic sections. Secured upon the upper edge portion of the section 2, or that portion which projects within the section 1, is a partition 17, which separates the sections 1 and 2 into distinct compartments, each of which is adapted to contain fluid, and this partition constitutes a piston the periphery of which is provided with suitable packing 18, closely engaging the inner surface of the bottle-section 1. This partition or piston, it will be seen, when the parts are in the position shown in Fig. 1 is located adjacent the extreme lower end of the section 1, and it will be apparent that when the sections are telescoped the partition will move upwardly in said section, and the fluid therein being compressed between the piston and the valve 7 and the latter being subjected to pressure exerted by the piston through the fluid said valve will be forced from its seat and the contents of the bottle be permitted to flow out through the opening 6 and the cylindrical plug.

It will be evident that by the operation as just described the fluid will be forced only from the upper section 1 and that which is in the lower section will still remain in the bottle. Therefore, means is provided whereby simultaneously with the forcing of fluid from the upper section the contents of the lower section will also be discharged, so that when the sections are completely telescoped all, or substantially all, of the fluid will be discharged from both sections. The means just referred to consists in connecting to the upper section a second piston which operates within the lower chamber, so that as the sections are moved together the fluid is forced from the lower section to a point within the upper section, from which it may readily pass out through the opening 6, or it may be delivered directly to said opening. As clearly shown in the drawings, the partition 17 is formed with a central opening 19, through which passes a hollow tube 20, constituting a

piston-rod, said rod having its upper end in engagement with the under side of the cylindrical plug 4 and opening directly against the bottom of the valve 7. The upper side of the partition 17 is formed about the opening 19 with a vertical annular flange 21, between which and said tube 20 is interposed suitable packing 22, as shown.

The lower end of the tube or piston-rod 20 extends to a point within the lower chamber 2 and carries on said end a piston-head 23, the periphery of which engages the inner face of the lower section and is provided with suitable packing 24, for a purpose which is obvious, the end of said tube or hollow piston-rod opening into the lower section through a central opening 25 in said piston, so that communicating is established between both of the sections through said hollow tube.

At the point at which the hollow piston-rod abuts the under side of the plug 4 said rod is provided in its wall with a plurality of openings 26, through which fluid in the upper section passes to the opening 6 when the sections are telescoped.

It will be seen from the above description, taken in connection with the drawings, that when the sections are moved together the piston 23 and bottom of the lower section 2 will approach each other, so that the fluid in said section will be forced upward through the hollow piston and piston-rod and exerting its pressure against the bottom of the valve 7 forcing the same from its seat, which permits the fluid to pass out of the bottle through the opening 6. The movement of the sections together simultaneously with the operation just stated moves the piston 17 up into the section 1, which forces the liquid in said upper section through the openings 26 and out through the opening 6. It will thus be apparent that as the chambers are telescoped the fluid is simultaneously forced from both sections.

While the sections may be telescoped by simply forcing the lower section up into the section 1, we prefer to provide means for accomplishing this object, which consists in providing the upper section at its lower edge portion with an exterior annular flange 27, upon which rests a ring 28, the exterior of which is threaded, as at 29. This ring is engaged by a threaded metal sleeve 30, which is carried by the lower section 2, said sleeve having an inturned flange 31, which projects over the bottom edge of the bottle. It will be seen that by rotating the metal sleeve 30 in the proper direction the sections 1 and 2 will be drawn together and the fluid discharged in the manner above set forth. The sleeve 30 may be of no particular construction; but we prefer to strike it up from sheet metal, so that it may be formed at small expense.

Means is provided for preventing the sec-

tions from being pulled apart and also for locking them together when completely telescoped, which means will now be described. Located adjacent the lower edge of the section 1 and formed in the inner side thereof is an annular groove 32, and formed in the lower section adjacent its upper edge and in the outer face of said section is an annular groove 33, in which is located a locking device 34, constructed to cooperate with the interior groove in the upper section. This device 34 consists of a ring made of a band of metal, which is arranged in the groove 33, said band being of the same form as that previously described, and shown in Fig. 4, and the tongues of which are formed to project beyond the groove 33 and are adapted to enter the groove 32 in the section 1 and prevent the sections from being pulled apart.

To lock the sections together when they are completely telescoped and after the fluid has been forced from the bottle, we provide the inner surface of the section 1 with an annular groove 35, which the tongues on the locking-band enter when the section 2 is pushed up within the section 1. When the sections reach the extent of their telescoping movement, it will be seen that they will be securely locked together, so that they cannot be extended, and that for this reason it is impossible to refill the bottle after the latter has once been discharged of its contents.

In Fig. 2 we have shown a modified form of the invention, which is a substantial reversal of the construction shown in Fig. 1. In this modified form, 36 designates the upper section, and 37 the lower section, the latter being adapted to telescope over the first-named section instead of within the latter, as shown in Fig. 1. The upper section is provided with a neck portion 38, having a plug and valve device similar to that employed in connection with the form shown in Fig. 1. In this modified form the partition constituting one of the pistons is carried by the lower end of the upper section, as shown at 39, and operates in the lower section, and the hollow piston and tubular piston-rod are carried by the lower section, as shown at 40 and 41, respectively, and said piston 40 operates within the upper section 1 of the bottle. In this form the piston-rod 41 instead of discharging against the valves, as in Fig. 1, abuts the bottom of the lower section, as clearly shown, and is formed with apertures 42, through which the fluid passes from said lower section into the said hollow piston-rod.

In the form just described the metal threaded sleeve is mounted upon the upper section, as shown at 43, and engages a threaded ring 44, carried by the lower section, said sleeve being secured to the upper section by means of an annular flanged portion 45, which sets over a circumferential rib or flange 46, formed on the bottle-section.

As an additional feature in this modified form the piston 40 carries a centrally-arranged projection in the form of a spider 47, which when the sections are collapsed is so arranged as to engage the under side of the valve 7 and force it from its seat, so that all of the fluid may be poured from the bottle-sections. It will be obvious that the fluid passing from the hollow rod 41 will flow between the arms of the spider during the telescoping of the sections.

The telescoping sections in the modified form are locked together, when in their telescoped position, by means of a locking-band 48, constructed the same as the band heretofore described, said band 48 being held in a circumferential groove 49, formed adjacent the lower edge of the upper section, the tongues of said band being adapted to engage an internal groove 50, formed in the lower section. When the sections are extended and the bottle filled, the tongues on the locking-band enter an internal groove 51, formed in the upper part of the lower section, whereby said sections are prevented from being pulled apart.

In Fig. 3 of the drawings we have illustrated a further modification of the invention which is especially constructed to be employed as a dispensing-receptacle for powdered or granular substances. In this figure the reference-numerals 53 and 54 designate, respectively, upper and lower sections or compartments, the latter of which is telescoped within the upper section, the latter being formed at its upper portion with an annular shoulder 55, from which rises the neck 56 of the bottle, which in this instance is closed by an ordinary plug-stopper 57. The lower section 54 is also formed at its upper end with a neck 58, which is closed by a valve of peculiar construction, which is opened only when the sections are completely telescoped and all of the substance has been forced from the upper section.

The valve above referred to and its manner of operation will now be described. Formed within the interior of the neck of the bottle is an annular groove 59, in which is seated a ring 60, formed with inwardly-projecting portions 61, shown in the present instance as being four in number, and to each of which is pivotally secured a quadrantal-shaped valve-segment 62, the pivotal connection being made with the ring 60 by means of a loop 63, formed on the curved edge of said segment, said loop being bent downward within the neck of the bottle-section and around the projecting portions 61. These segments 62 are normally disposed in horizontal position, as shown in Fig. 3, so that said segments close the opening through the neck of the bottle, as shown in plan in Fig. 5. Each segment is provided at each of its rear corners with a rearwardly-projecting member 64,

said members lying in the same plane as the segment and extending out beyond the outer face of the neck a sufficient distance to be below the shoulder 55 of the upper section, for a purpose to be presently set forth.

Both of the sections 53 54, above referred to, are adapted to contain a powdered or granular substance, and the said substance is ejected from the upper section by telescoping the lower section therein, the valve-segments being maintained in their horizontal position by means of the substance in the lower section, upon which substance said segments rest, and it will be seen that when the sections are telescoped the valve-segments combine to form a partition between the upper and lower sections which serves as a piston or plunger to force the contents of the upper section out through its neck.

When the lower section reaches the limit of its movement within the upper section, the rearwardly-projecting members 64 on the valve-segments will be thrown into engagement with the shoulder 55, which will force said members 64 downward and swing the segments on their pivots to open the passage to the lower chamber and permit the material to be poured therefrom.

When the lower section is telescoped within the upper one and all the material has been emptied from the latter, said sections are locked together against extension by means of a tongued locking-band 65, similar to the one heretofore described, located in a groove 66 on the lower section, at the upper portion thereof, the tongues of which band enter an internal groove 67 in the upper section. The sections are prevented from being pulled apart by providing the upper section with an internal groove 68 at its lower edge to receive the tongues on the locking-band.

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

1. In a receptacle of the character described, the combination of telescoping sections, both of which are adapted to contain fluid, and one of which has an outlet through which the fluid passes from the receptacle, each section being provided with a piston, said pistons operating during the telescoping of the sections to force the fluid from both sections out through said outlet.

2. A receptacle of the character described, comprising two telescopic sections both of which are adapted to contain fluid and one of which has an outlet-opening through which the fluid may pass from the receptacle, a partition carried by one of the sections and separating the receptacle into two compartments, said partition having an opening therethrough to establish communication between the two compartments, and a piston in the opposite section, said partition and piston operating

during the telescoping of the sections to force the fluid from both compartments out through said outlet-opening.

3. In a receptacle of the character described, the combination of telescoping sections both of which are adapted to contain fluid, and one of which has an outlet through which the fluid passes from the receptacle, said outlet being controlled by a normally closed valve, and each section being provided with a piston which operates in the opposite section, whereby during the telescoping of the sections the pistons act to force the fluid from both sections out through said outlet.

4. In a receptacle of the character described, the combination of telescoping sections both of which are adapted to contain fluid, one of which has an outlet through which fluid passes from the receptacle, each section being provided with a piston which operates in the opposite section whereby during the telescoping of the sections the pistons act to force fluid from both sections out through said outlet and means for locking the sections together when at the end of their inward telescoping movement.

5. In a receptacle of the character described, the combination of telescoping sections both of which are adapted to contain fluid and which have a threaded connection with each other, one of which sections has an outlet through which fluid passes from the receptacle, and a piston carried by each section and operating in the opposite section, whereby during the telescoping of the sections the pistons act to force fluid from both sections out through said outlet.

6. In a receptacle of the character described, the combination of two telescopically-arranged fluid or material containing compartments, means whereby the telescoping of the sections acts to force the contents of the receptacle from both compartments, and means for locking the sections together when at the end of their inward telescoping movement.

7. In a receptacle of the character described, the combination of telescoping sections both of which are adapted to contain fluid and one of which has an outlet through which fluid passes from the receptacle, each section having a piston therein which operates in the opposite section, one of said pistons having an opening communicating with the interior of the section to which it is connected.

8. In a receptacle of the character described, the combination of telescoping sections both of which are adapted to contain fluid and one of which has an outlet through which fluid passes from the receptacle, each section carrying a piston which operates in the opposite section, one of said pistons having an opening therethrough, and the other

piston being provided with a hollow piston-rod which passes through the opening in the first-named piston and through which communication is established between the sections, the arrangement being such that during the telescoping of the sections, fluid is forced from both sections out through the said outlet.

9. In a receptacle of the character described, the combination of telescoping sections both of which are adapted to contain fluid, and one of which has an outlet through which the fluid passes from the receptacle, each section being provided with a piston which operates in the opposite section, one of said sections being provided with a screw-threaded jacket, and the opposite section having a threaded part engaging the threads of the jacket whereby the rotation of the shell relative to the sections telescopes said sections, and causes the pistons to force the fluid from both sections out through said outlet.

10. A receptacle of the character described, comprising two telescoping fluid or material containing compartments, and means for locking the compartments together when at the end of their inward telescoping movement.

11. A receptacle of the character described, comprising two telescoping fluid or material containing sections, a normally closed valve in one of said sections, and means for locking

the sections together when at the end of their inward telescoping movement.

12. A receptacle of the character described, comprising two telescoping fluid or material containing compartments, a normally closed valve in one of said sections, and rotatable means external of the receptacle for causing the two sections to telescope.

13. A receptacle of the character described, comprising two telescoping fluid or material containing compartments, a normally closed valve in one of said sections, and rotatable means engaging the two sections for causing them to telescope.

14. A receptacle of the character described, comprising two telescopic sections, both of which are adapted to contain fluid and one of which has an outlet through which the fluid may pass, a piston in each section, and rotary means operable during turning movement to cause the sections to telescope and the pistons to move in opposite directions whereby to force the fluid from both sections out through said outlet.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

SAML. S. RIDER.

DANIEL J. O'DONNELL.

Witnesses:

THOMAS DURANT,

J. GRANVILLE MEYERS.