

No. 840,403.

PATENTED JAN. 1, 1907.

E. WEBER.
NON-REFILLABLE BOTTLE.
APPLICATION FILED JULY 3, 1906.

Fig. 1.

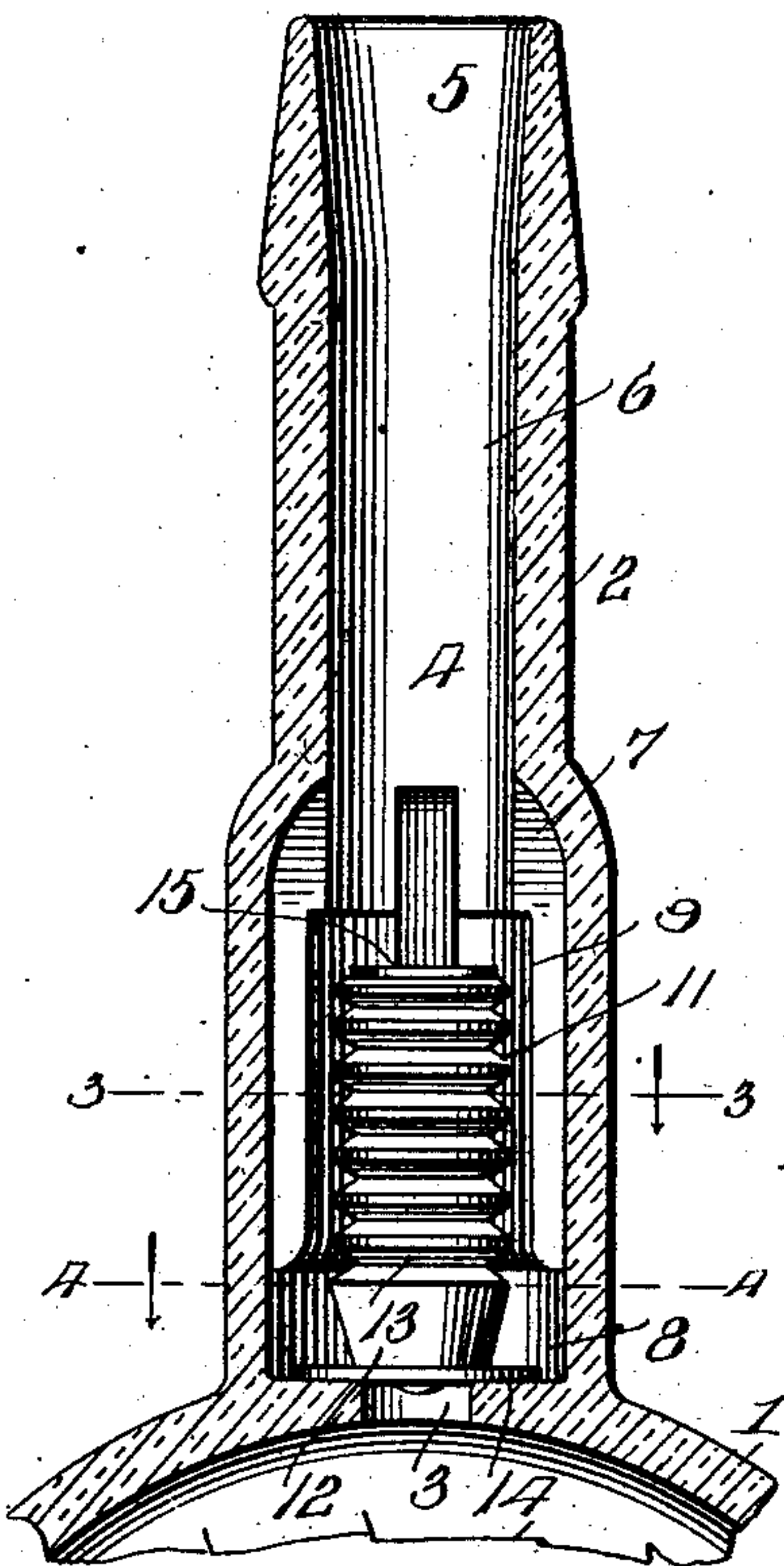


Fig. 2.

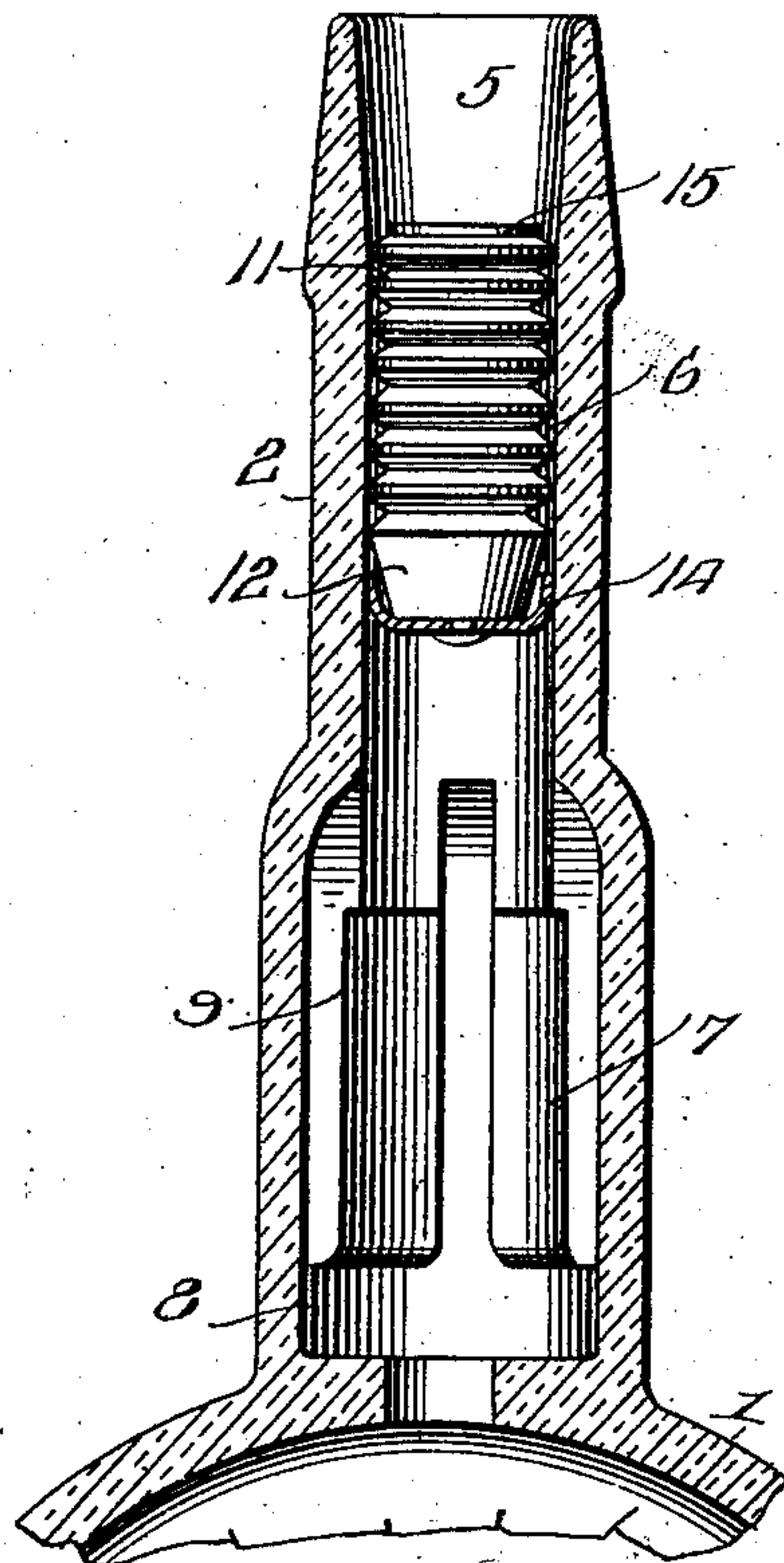


Fig. 3.

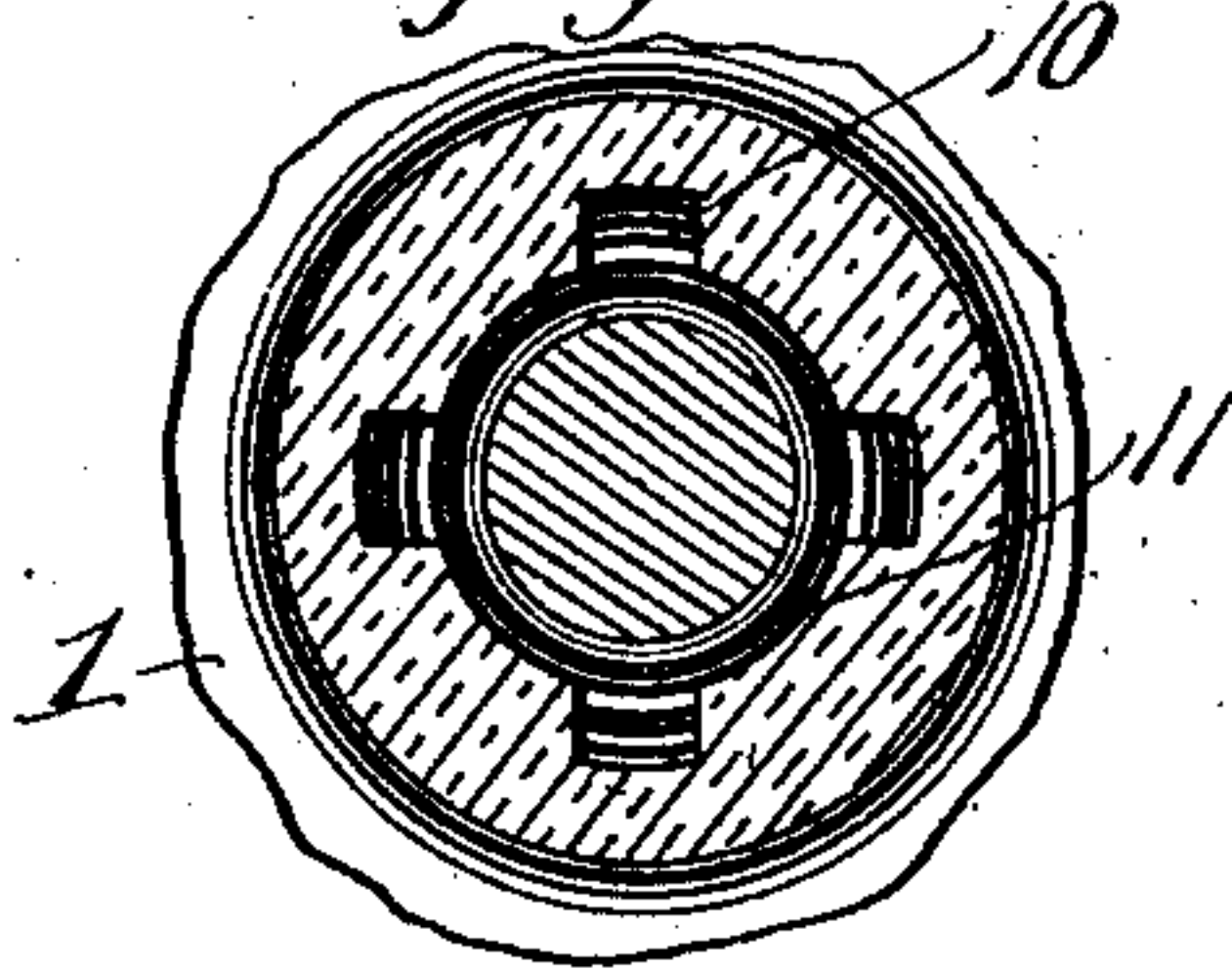
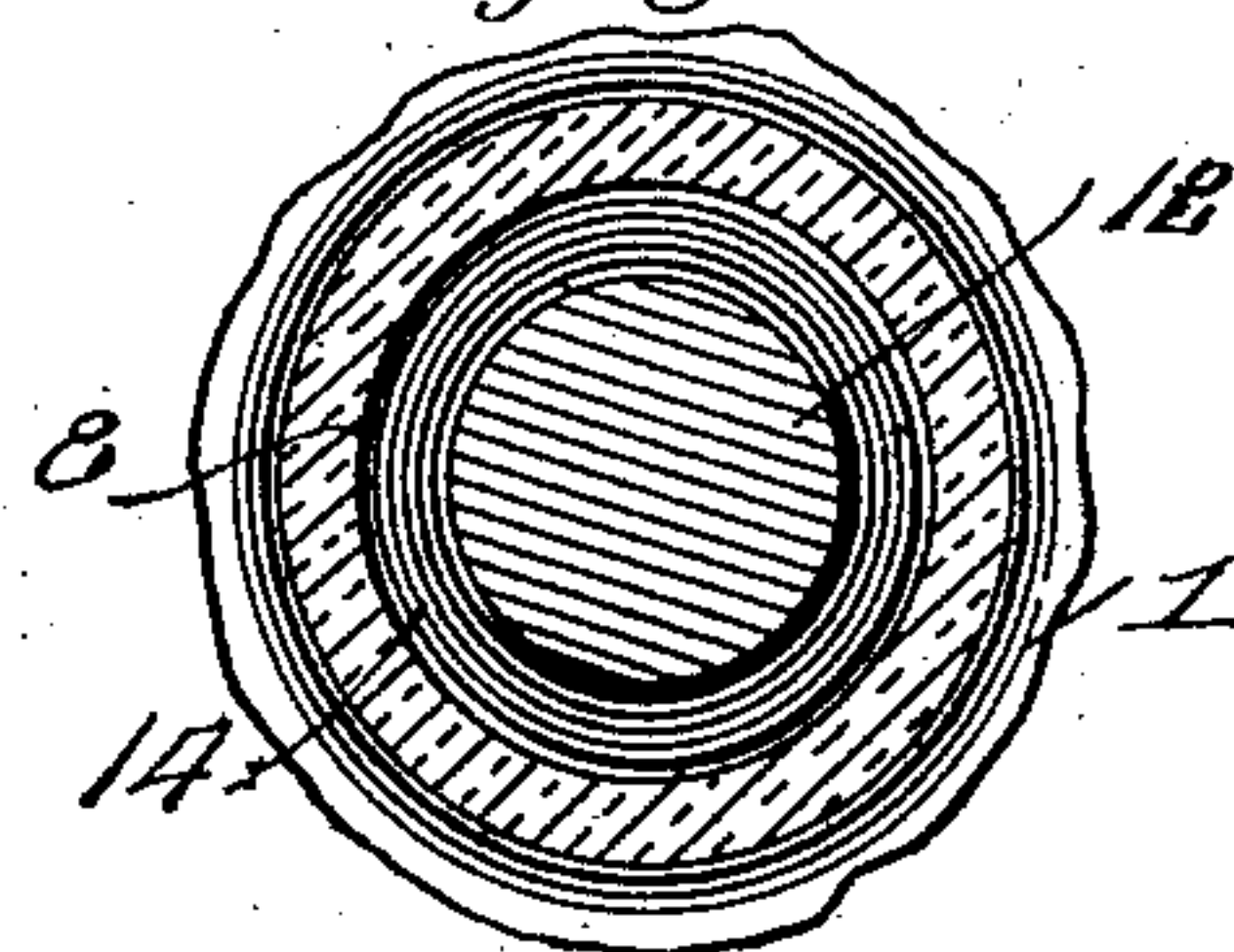


Fig. 4.



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NON-REFILLABLE BOTTLE.

No. 840,403.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EMILE WEBER, a citizen of the United States, residing at Baker City, in the county of Baker and State of Oregon, have invented new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

The invention relates to an improvement in bottles, and particularly to a bottle of the non-refillable type wherein means are provided for preventing the reuse of the bottle as a liquid-container.

The main object of the invention is the provision of a bottle so constructed as to provide for the reception of a valve-plug in an initial position for service as a stopper, the bottle being further formed with a valve-plug-receiving chamber into which the valve-plug is to be forced when it is desired to pour from the bottle and in which chamber the valve-plug is permitted a limited movement and is adapted when in operative position to close an outlet.

The invention in the preferred details of construction will be described in the following specification, reference being had particularly to the accompanying drawings, in which—

Figure 1 is an enlarged broken sectional view of a bottle, illustrating particularly the formation of the neck, the valve-plug being shown in the operative position for service as a valve in the use of the bottle. Fig. 2 is a similar view showing the valve-plug in the initial or inoperative position wherein it is effective as a stopper. Fig. 3 is a section on line 3 3 of Fig. 1. Fig. 4 is a section on line 4 4 of Fig. 1.

Referring particularly to the drawings, my improved bottle comprises a body 1, having the usual neck 2, which is in communication with the body through an opening 3, preferably of less diameter than the neck and hereinafter referred to as the "valve-opening." The wall of the opening is arranged at a right angle to the plane of the body within the neck, so that the upper edge of said opening is of angular formation to provide an effective valve-seat.

The neck is formed with the usual longitudinal bore 4, which for the purposes of the present invention is of peculiar sectional formation. At the upper or mouth end of

the bore the wall thereof converges inwardly and downwardly toward the body of the bottle, as at 5, and below the portion 5 the wall of the bore extends at right angles to the plane of the mouth for a comparatively short distance, providing what is hereinafter termed the "plug-seat," which is of equal diameter throughout its length. Below the plug-seat the bore of the neck is circumferentially enlarged to provide a valve-chamber 7, which chamber in order to avoid undue thickness in the material of the bottle-neck is preferably formed by suitably bending or shaping the wall of the neck, as clearly shown in the drawings.

Immediately below the valve-chamber 7 and above the valve-opening the bore of the neck is further enlarged at 8 to provide for the reception of the valve proper, carried by the valve-plug, as hereinafter described. The wall of the chamber 7 is formed with a plug-recess 9, which is of slightly greater diameter than that of the chamber 7 and extends from the lower end of the chamber to a point slightly below the upper end thereof. The lower wall of the chamber is suitably rounded and is formed with longitudinally-extending grooves 10, preferably arranged in diametrically opposite paths and forming a medium of communication between the valve-recess 8 and the bore of the neck above the chamber 7 in the pouring operation of the bottle.

11 represents the valve-plug, which is preferably a cylindrical body practically equal in diameter to the diameter of the plug-seat 6 of the bottle-neck and is formed at the lower end with a conical projection 12. The free or lower end of the conical projection is of slightly greater diameter than the diameter of the valve-opening 3, and the body of the plug above said projection is formed with a series of circumferentially-arranged parallel grooves 13, providing the body with a series of circumferentially-spaced edges of comparatively narrow extent longitudinally of the plug. By preference the grooves 13 are of triangular form in section, with the wall of one groove terminating practically coincident with the wall of the adjacent groove, whereby to provide a thin edge of material between the grooves.

Secured on the free end of the conical pro-

jection 12 of the valve-plug is the valve proper, comprising a sealing-disk 14 of rubber or the like and of somewhat less diameter than the diameter of the valve-recess 8.

5 With the bottle-neck interiorly constructed as described and the bottle containing the desired liquid the valve-plug 11, carrying the valve 14 secured to the lower end thereof, is introduced into said neck through
10 the mouth thereof. The plug is preferably constructed of a comparatively soft or yielding material—such as lead, tin, or the like—and therefore may be forced longitudinally of the neck until wholly disposed within the
15 plug-seat 6. As the diameter of the plug and seat are approximately equal said plug will be firmly secured in the seat against the possibility of accidental movement, it being understood that said seat is so disposed rela-
20 tive to the mouth of the bottle as to prevent the withdrawal of the valve-plug by the introduction of any tool through the mouth of the neck. To further prevent the use of any device for the unauthorized withdrawal of
25 the plug, the upper end thereof is preferably covered by a disk 15, of hardened material, which is of slightly less diameter than the diameter of the plug.

The arrangement of the valve-plug within
30 the seat 6 is the initial position of said plug—that is, the position occupied by the plug after the original filling of the bottle and until the contents of the bottle are desired for use. In this position, which is clearly shown
35 in Fig. 2, the plug serves as a cork or stopper for the bottle, as will be fully evident. The diameter of the plug relative to that of the plug-seat must of course be such as to afford a secure frictional engagement between said
40 plug and seat when the parts are in the initial position, and for this particular purpose it is preferred that the diameter of the plug be slightly in excess of that of the seat, as the material of the plug will yield sufficiently
45 during the introduction of the latter to provide for the necessary frictional engagement with the seat.

When it is desired to pour from the bottle, the valve-plug is by the use of any suitable
50 instrument forced longitudinally of the neck until seated within the recess 9, with the valve 14 resting in the valve-recess 8. As the recess 9 extends above the upper end of the valve-plug when the latter is in sealing
55 position relative to the valve-opening 3 said plug is permitted a certain degree of longitudinal movement relative to the neck to permit unseating the valve-disk.

In use when the bottle is inverted to pour
60 therefrom the valve-disk will leave the seat or wall of the opening 3 and the liquid from the body of the bottle will find its way into

the recess 8 and around the valve-plug through the grooves or channels 10 and out the bottle-neck beyond the plug. In the
65 normal position of the bottle the valve-disk is seated on the valve-seat, and with the effect to prevent the passage of liquid into the bottle by the usual compression methods will at once force the valve to its seat, as the direct
70 pressure of the incoming fluid bears upon the unobstructed end of the valve-plug. Furthermore, as the plug is practically equal in diameter to the diameter of the portion 6 of the bottle-neck the withdrawal of said plug
75 is a practical impossibility.

The specific structure of the bottle-neck is formed during the process of molding said neck, so that the bottle of the present invention is of inexpensive construction. 80

Having thus fully described the invention, what is claimed as new is—

1. A bottle having a neck forming a plug-seat of equal diameter throughout its length and a valve-opening leading to the body of
85 the bottle, and a valve-plug carrying a valve for the valve-opening, said plug being adapted for initial support in the plug-seat and subsequent arrangement to provide for the valve
90 coöperating with the valve-opening.

2. A bottle having a neck formed with a valve-chamber, a valve therein equal in diameter to the diameter of the neck above
95 said chamber, and a valve-disk carried by the valve and adapted to seal the opening between the body of the bottle and the neck.

3. A bottle having a neck formed with a valve-chamber, the wall of said chamber being formed with a valve-plug recess a valve-plug within said recess said plug being ap-
100 proximately equal in diameter to the diameter of the bottle-neck above the chamber, and a valve-disk carried by the valve-plug and arranged to seal the opening between the
105 body of the bottle and the neck.

4. A bottle having a body, a neck projecting therefrom and in communication therewith, the communicating opening being of less diameter than the interior diameter of
110 the bottle-neck, the neck being formed with a valve-recess immediately above said opening, a valve-chamber of less diameter than the recess and located above the same, the wall of said chamber being formed with longitudinally-extending channels communicat-
115 ing with the recess and with the neck above the chamber, the wall of the chamber being formed with a valve-plug recess, a valve-plug longitudinally movable within said recess, and a sealing-disk carried by the lower end of
120 the plug and arranged to coöperate with the opening between the body and the neck.

5. A bottle having a neck formed with a valve-chamber, the wall of said chamber

formed with a valve-plug recess, a valve-plug
within said recess, said plug being approxi-
mately equal in diameter to the diameter of
the bottle-neck above the chamber and formed
5 with a series of circumferentially-arranged
grooves to provide annular projections hav-
ing relatively thin free edges, and a valve-
disk carried by the valve-plug and arranged

to seal the opening between the body of the
bottle and the neck.

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

EMILE WEBER.

Witnesses:

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