A. HAMMERSTEIN.

NON-REFILLABLE BOTTLE.

APPLICATION FILED FEB. 20, 1908.

909,890. Patented Jan. 19, 1909.

Fig. 1.

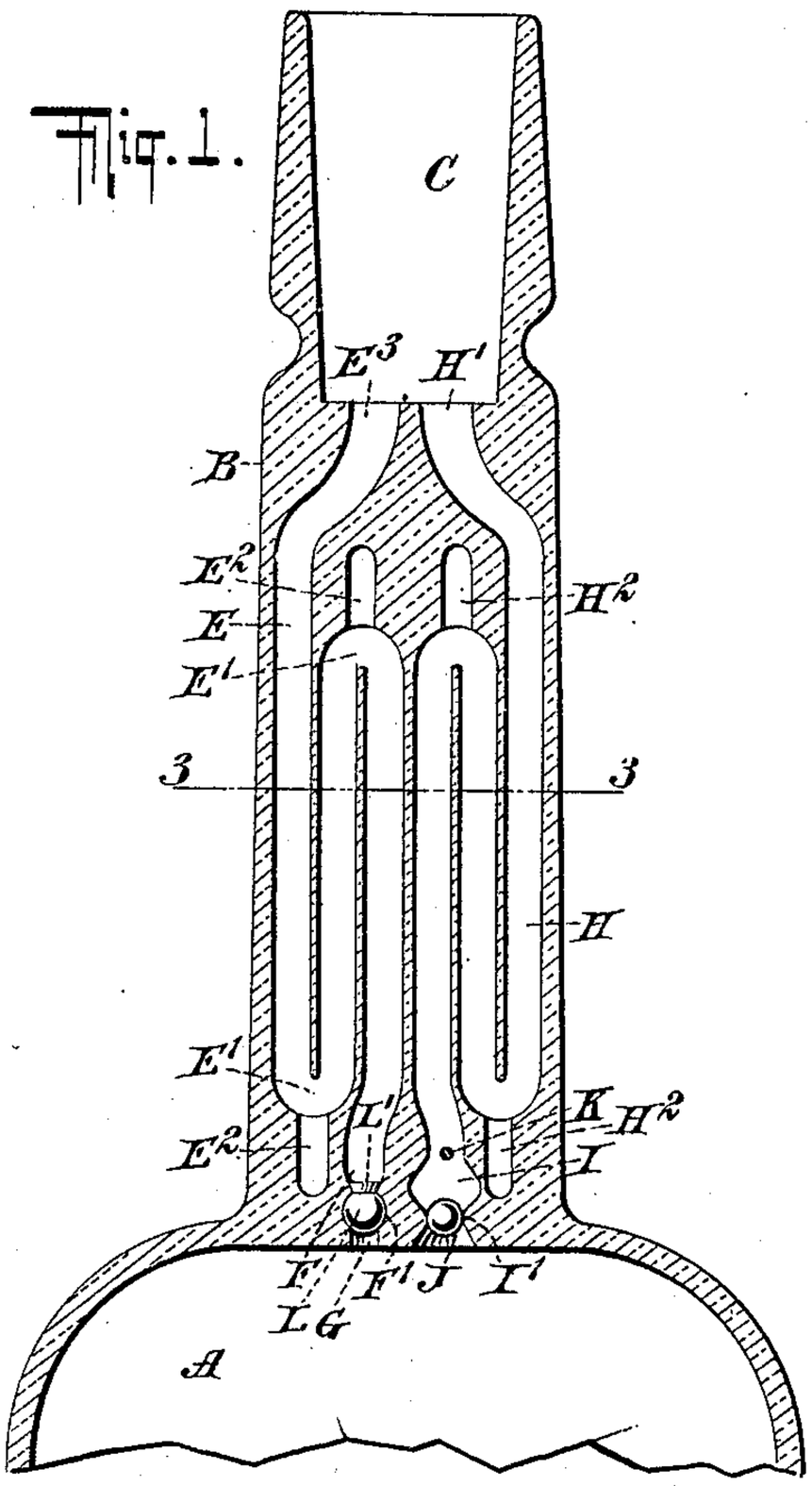


Fig. 4.

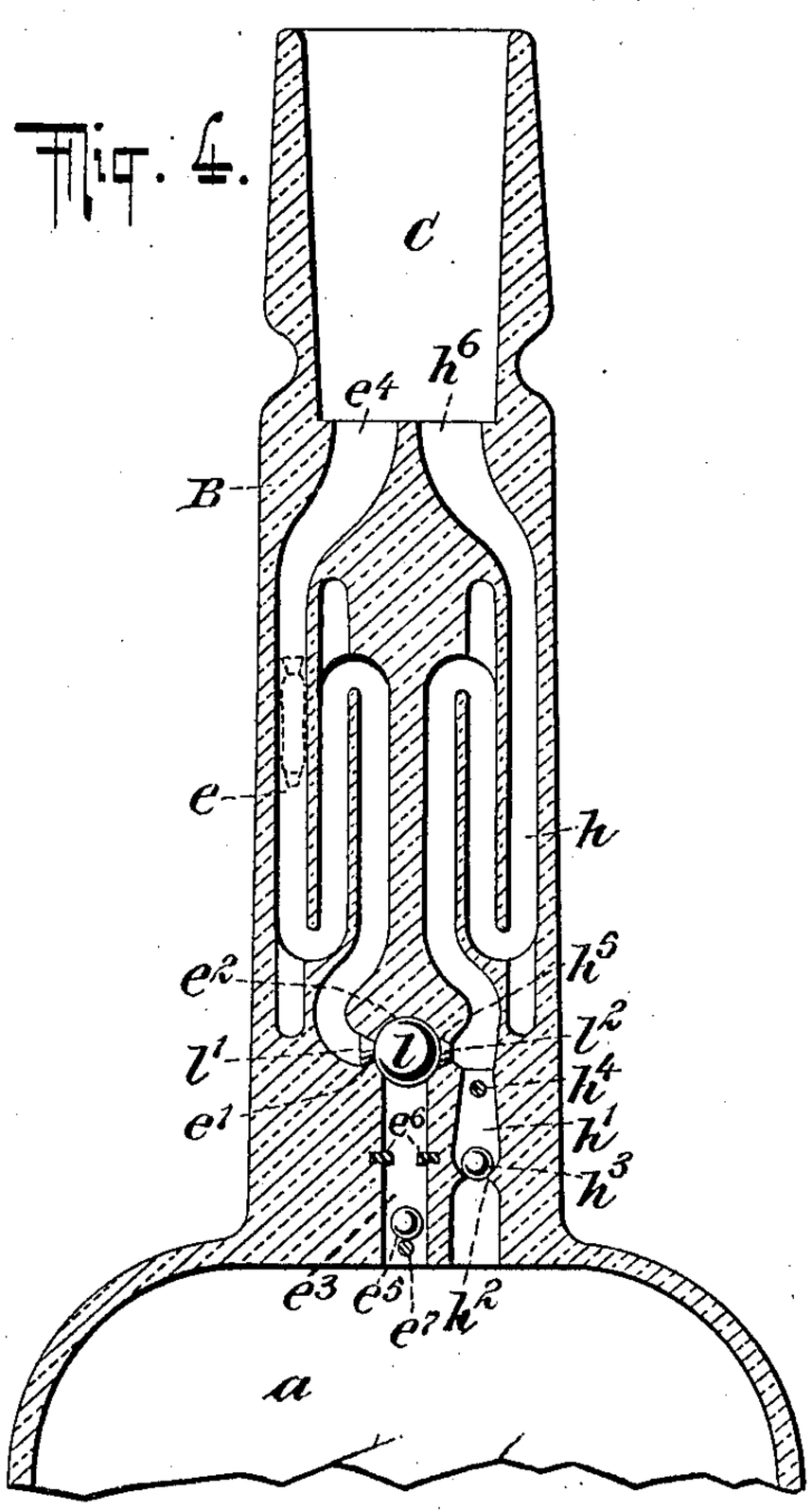


Fig. 3.

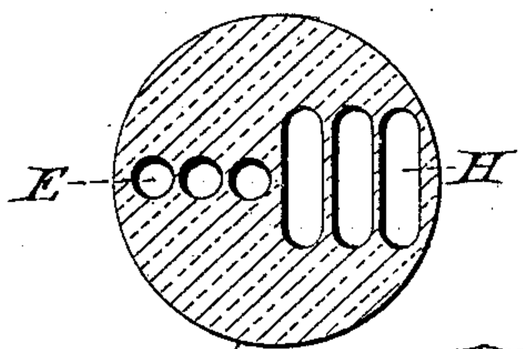


Fig. 2.

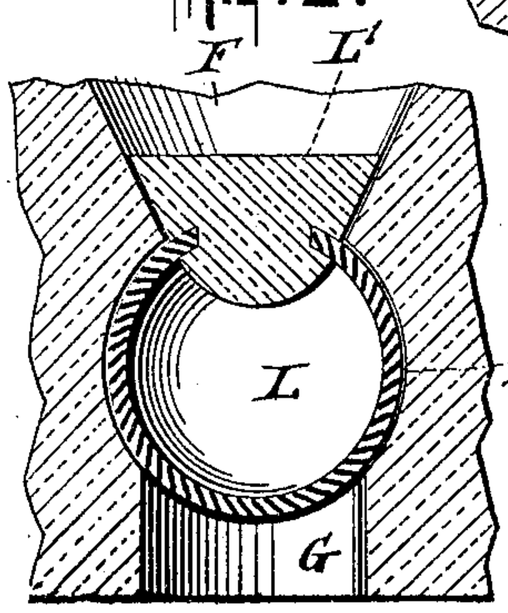
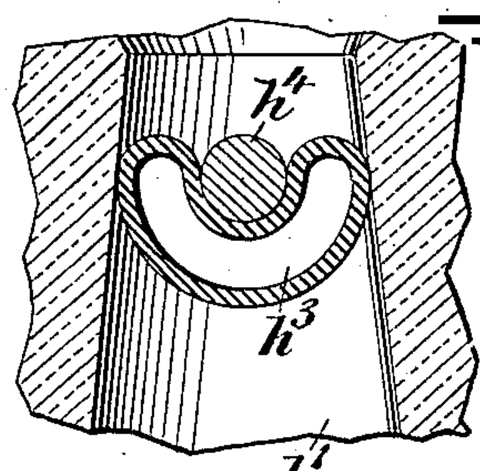


Fig. 5.



WITNESSES

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NON-REFILLABLE BOTTLE.

No. 909,890. Specification of Letters Patent. Patented Jan. 19, 1909.

Application filed February 20, 1908. Serial No. 416,858.

To all whom it may concern:

Be it known that I, ARTHUR HAMMERSTEIN, a citizen of the United States, resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to non-refillable bottles and has for its object to provide a bottle of this description which is simple in construction and easy and cheap to manufacture and which is effective in operation.

To this end my invention consists in certain constructions and combinations of parts as will be fully described hereinafter, the feature of novelty being pointed out in the appended claims.

Reference is to be had to the accompanying drawings which illustrate two forms of my invention and in which—

Figure 1 is a central section of a bottle constructed according to my invention; Fig. 2 is an enlarged detail section thereof showing the seal; Fig. 3 is a cross section thereof on the line 3—3 of Fig. 1; Fig. 4 is a central longitudinal section of another form of my device, and Fig. 5 is an enlarged detail section showing the ball valve used in this form of my bottle.

A represents the body of the bottle and B is the neck thereof having the open end C for the reception of the customary cork. A filling channel E preferably having a number of bends E′ and short chambers E^2 projecting therefrom is located in the neck and extends from the cork receiving chamber to the body of the bottle. This channel E is tapered as indicated at F and communicates with a circular chamber F′ which in turn is connected with the body of the bottle by a short passage G. The object of this construction will appear from the description below.

H is an emptying channel similar in general construction to the channel E, excepting that said channel H is elongated in cross section instead of circular as indicated in Fig. 3. This channel is provided near its one end with a valve chamber I having a seat I′ and in which is located a ball valve J preferably hollow and made of some resilient material such as rubber.

K is a bar which extends across the channel H and serves to prevent ball valve from leaving the chamber I. Both channels may, if desired, be provided with flaring ends E^3 and H′.

A seal for closing the channel E is provided which comprises a compressible member L of rubber or similar material secured to a plug which is preferably made of porcelain or some similar material not affected by acids. The plug is preferably conical in shape with the point of the cone extending toward the center of the compressible or resilient member L, and is arranged to snugly fit the tapered portion F of the channel E.

In use the bottle is first filled through the channel E and after it has been filled the seal is introduced into said passage with the member L projected toward the body of the bottle. Air pressure is now applied to the mouth of the channel E and the seal blown through the said channel E until the flexible member has been forced through the tapered portion F, after which it expands into the chamber F′ as shown in Fig. 1. In this position plug L′ snugly fits the channel E, the shape of this portion of the channel and the plug being substantially the same and the member L fills the chamber F′. The passage or channel E is now sealed and plug L′ prevents any acid or other fluid which may be introduced into the channel E from reaching the member L and dissolving it. By making the plug L′ tapering or conical in shape to fit the tapering portion F of the channel E the seal is prevented from being forced completely through the filling channel into the body of the bottle. After the seal has once been forced into position, it cannot be withdrawn from the channel E, thus making it absolutely impossible to pour any more liquid into the bottle through the channel E. The contents of the bottle may be readily poured through the channel H, the movement of the ball valve J being limited by the cross bar K. If it should be tried to fill the bottle through the emptying channel H, it will be found that any liquid introduced into this channel while the bottle is upright will force the ball valve against its seat and if the bottle should be tilted the valve will be floated and will thus seat itself and prevent any but a small quantity of liquid from reaching the body of the bottle. The shape of the channels E and H prevents a wire or other instrument from being forced therethrough. The chambers E^2 and H^2 located at each bend also do away with the

possibility of forcing an instrument around said bends as the end of said instrument will not follow the bend but will enter said chambers.

In the construction shown in Figs. 4 and 5, suction is used instead of pressure to force the seal into its final position. In this form of my device the filling channel e has a tapered portion e' which communicates with an enlarged circular chamber e^2. This chamber in turn is connected by means of a channel e^3 with the body a of the bottle. e^5 is a ball located in the channel e^3 movable between the projection e^6 and the crossbar e^7. The emptying channel h also communicates with the body of the bottle and is provided with the valve chamber h' having a seat h^2 and a ball valve h^3. The movement of the ball valve is limited in one direction by the cross bar h^4. The emptying channel h is connected by a conical passage h^5 with the circular chamber e^2. The seal in this instance consists of the hollow compressible or resilient member l secured to the porcelain or other plug l' in the same manner as described with regard to the structures shown in Figs. 1 and 2. A conical projection l^2 of a size and shape to fill the passage h^5 is also secured to the member l diametrically opposite to the plug l'. Both the channels e and h are provided with flaring ends e^4 and h^6, the end e^4 being preferably of slightly larger diameter than the member l. Otherwise this form of my invention is the same as that shown in Figs. 1, 2 and 3. In using this second form of bottle, the fluid is introduced through the channel e into the body of the bottle until the bottle is full. The seal is then introduced into the flaring end e^4 of the channel e with the conical projections l^2 extending inward. Suction is now applied to the end h^6 of the emptying channel, which suction draws the ball valve h^3 upward against the cross bar h^4 in the manner illustrated in Fig. 5. This seals the channel h below the conical passage h^5 and prevents the fluid in the bottle from being drawn out by said suction. Continued suction will now draw the compressible member l through the channel e and into the circular chamber e^2. During the passage through the channel e the member l is compressed or elongated as shown in dotted lines in Fig. 4 and is drawn through the reduced portion e' and into the circular chamber e^2 where said member l expands and which chamber it completely fills. In this position the plug i' completely closes the channel e and the projection l^2 fills the conical passage h^5. The filling channel is thus completely sealed and the member l is protected against the action of any acid which may be introduced into either the channel e or the channel H, it being understood that both the plug l' and the projection l^2 are made of material which is acid proof.

In both forms of my invention the bottle is effectually sealed against refilling and is easy and cheap to manufacture.

Various modifications may be made without departing from the nature of my invention as defined in the claims.

I claim:

1. The combination of a bottle provided with a neck having a chamber, a filling channel communicating with said chamber, and a shoulder in said channel above the chamber, a resilient seal arranged to be forced through said channel into said chamber and a non-resilient plug secured to said resilient seal and adapted to engage said shoulder to limit the movement of said seal.

2. The combination of a bottle provided with a neck having a filling channel and a shoulder in said channel, a resilient seal arranged to be forced into said channel to close it and a non-resilient plug secured to said resilient seal and adapted to engage said shoulder to limit the movement of the said seal.

3. The combination of a bottle provided with a neck having a chamber and contracted channels on opposite sides of said chamber and in communication therewith and a resilient seal arranged to be forced through one of said channels into said chamber to close said second channel.

4. The combination of a bottle having a neck provided with a chamber and a filling channel communicating with said chamber and having a reduced portion adjacent to said chamber, a resilient member arranged to be forced through said channel into said chamber and a plug secured to said resilient member and adapted to fill the reduced portion of the channel when the resilient member is in the said chamber.

5. The combination of a bottle having a neck provided with a chamber and an undulating channel having a contracted end in communication with said chamber, a resilient seal arranged to be forced beyond the contracted end of said channel into said chamber and means for preventing said seal from being forced on out of said chamber.

6. The combination of a bottle having a neck provided with a filling channel and an emptying channel adjacent thereto, a resilient seal arranged to be forced into said filling channel to close it, and means for preventing the introduction of liquid through said emptying channel.

7. The combination of a bottle having a neck provided with a filling channel and an emptying channel adjacent thereto, a resilient seal arranged to be forced into said filling channel to close it, and a valve controlling said emptying channel.

8. The combination of a bottle having a neck provided with a chamber and a filling channel communicating with said chamber

and tapered toward it, a resilient seal arranged to be forced through said channel and into said chamber and a tapering non-resilient plug to which said resilient seal is attached, adapted to fit the tapered portion of the filling channel adjacent to said chamber when the seal is in position in the chamber.

9. The combination of a bottle having a neck provided with a filling channel having a tapered portion, a resilient seal arranged to be forced into said channel to close it and a tapering non-resilient plug, to which said seal is attached, which plug fits the tapered portion of the channel adjacent to the resilient seal.

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

ARTHUR HAMMERSTEIN.

Witnesses:
EDMUND F. WEBBER,
JOHN A. KEHLENBECK.