A. A. THORBAHN.

NON-REFILLABLE BOTTLE.

APPLICATION FILED MAR. 26, 1913.

1,067,849.

Patented July 22, 1913.

Fig. 1

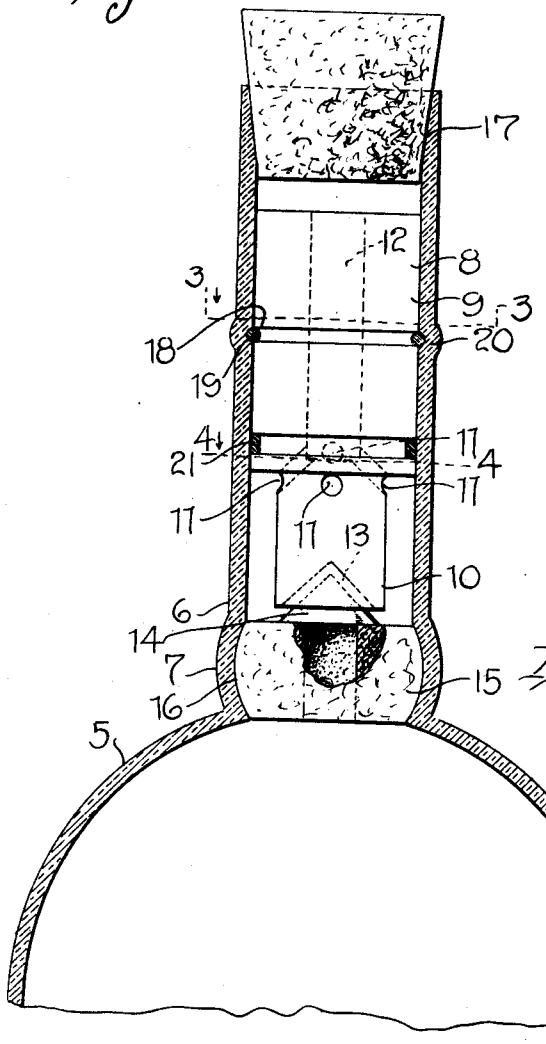


Fig. 2

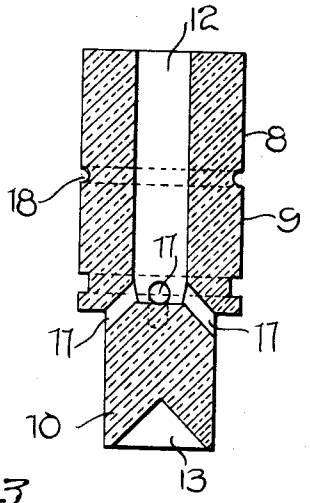


Fig. 3

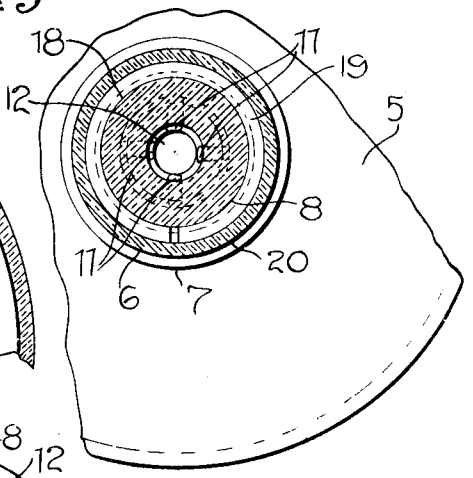
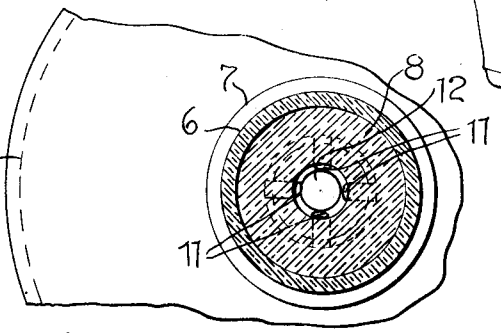


Fig. 4



Witnesses

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NON-REFILLABLE BOTTLE.

1,067,849. Specification of Letters Patent. Patented July 22, 1913.

Application filed March 26, 1913. Serial No. 757,006.

To all whom it may concern:

Be it known that I, ALBERT A. THORBAHN, citizen of the United States, residing at Niagara Falls, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in non-refillable bottles and has for its primary object to provide a simple and efficient device whereby the fraudulent refilling of the bottle is prevented.

Another object of the invention is to produce simple and effective means for sealing the liquid within the bottle, said means including a stopper and means for securely retaining the same in place within the bottle neck, said stopper having a reduced portion forming a liquid receiving chamber within the neck of the bottle, a valve member limited in its movement by the stopper when the bottle is inverted whereby the liquid may pass from the bottle into said chamber, said stopper being provided with exit passages for the liquid.

A still further object of the invention resides in the provision of a plug or stopper having a solid portion and a tubular portion, said solid portion being provided with orifices opening into the bore of the tubular portion of the stopper, and means for locking said stopper within the neck of the bottle including a split resilient ring, the bottle neck being flared at its upper end to compress the ring in the insertion of the stopper to its proper position within the bottle neck.

With the above and other objects in view as will become apparent as the description proceeds, the invention consists in certain constructions, combinations and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which—

Figure 1 is a vertical section of a portion of a bottle showing my improved non-refilling means located in the neck thereof; Fig. 2 is an enlarged section of the stopper or plug removed; Fig. 3 is a section taken on the line 3—3 of Fig. 1; and Fig. 4 is a section taken on the line 4—4 of Fig. 1.

Referring in detail to the drawings, 5 designates the body of the bottle which is preferably formed of glass, and 6 indicates the neck thereof. This bottle neck adjacent to the body 5 is slightly bulged or diametrically enlarged as indicated at 7 for a purpose which will be later set forth in detail. Within the neck of the bottle, the stopper or plug 8 is adapted to be inserted. This plug may be constructed of glass, porcelain, or other suitable material and is provided with a tubular body portion 9 and a reduced longitudinal extension 10 on one end of said body portion. This extension is of solid formation in cross section and at its juncture with the body 9 is provided with a plurality of inclined orifices 11 which communicate at their inner ends with the bore 12 of the tubular body. The other end of the solid reduced portion 10 of the stopper has a conical recess 13 formed therein to receive the cone shaped valve member 14.

An annular seat member 15 is arranged in the inner end of the bottle neck. This seat member may be formed of cork, wood or other fibrous material and is provided with a convex outer face indicated at 16. The outer end of the bottle neck has its inner wall upwardly flared as shown at 17 so that, when the seat member 15 is inserted therein, the same will be slightly compressed. When this member is forced into the inner end of the bottle neck, the same will expand and the convex face 16 thereof will frictionally engage the inner wall of the bulged or enlarged portion 7 of the neck, thereby tightly securing said seat member in position. It will be observed that in the normal position of the parts, the valve member 14 is spaced from the walls of the recess 13 in the inner end of the plug or stopper 8. This valve member engages upon the seat 15 around the central opening therein and closes communication between the interior of the bottle and the annular chamber surrounding the reduced end portion 10 of the stopper or plug.

The tubular body portion 9 of the stopper 8 is provided intermediate of its ends with an annular peripheral groove 18 to receive a split wire ring 19. The wall of the bottle neck intermediate of its ends is thickened and provided upon its inner surface with an annular groove 20 to receive the split ring when the stopper is forced into position within the bottle neck. This ring as

clearly shown in Fig. 1, projects partly into the groove 18 and partly into the groove 20. When the stopper is inserted, this split ring is compressed by engagement with the inclined or flared wall 17 of the bottle neck and expands into the groove 20. The body portion 9 of the stopper is further provided adjacent to the solid extension 10 thereon with an annular groove in its periphery to receive a friction band 21 of rubber or other material which further serves to retain the stopper in place and prevent the fluid from passing out of the bottle neck between the same and the body of the stopper. The outer end of the bottle neck is adapted to be closed by means of a suitable cork, plug or stopper indicated at 22.

From the foregoing, it is believed that the construction and manner of operation of the invention will be obvious. When the bottle is completely inverted, the liquid will force the valve member 14 from its seat and into the recess 13 in the end of the stopper or plug 8, thus permitting the liquid to pass from the body of the bottle into the chamber surrounding the extension 10 of the plug. From this chamber, the liquid passes through the orifices 11 and the bore 12 of the stopper out of the bottle neck. When the bottle is turned on its side, the outflow of the liquid will be prevented by the valve member 14. This valve member is of sufficient diameter at its base to permit the same to move into engagement with one side of the recess 13 in the stopper 8, and still cover the outer end of the opening in the seat member 15. By interposing the solid portion 10 of the stopper 8 between the valve and the outer end of the bottle neck, a wire or other instrument cannot be inserted through the neck to remove the valve from its seat and thereby permit the bottle to be refilled. It will thus be seen that the device prevents fraudulent refilling of the bottle after it has once been emptied. Owing to the fact that but few parts are employed in the construction of my invention, it will further be seen that the same can be produced at comparatively small manufacturing cost.

While I have shown and described the preferred construction and arrangement of the several elements employed, it will be obvious that the invention is susceptible of considerable modification without departing from the essential features or sacrificing any of the advantages thereof, as claimed.

Having thus described the invention, what is claimed is:

The combination with a bottle, of a plug arranged in the neck thereof and having a reduced extension whereby an annular chamber is formed in the bottle neck, a valve seat member frictionally engaged with the walls of the bottle neck and disposed in spaced relation to the plug extension, said extension being provided with a conical recess in its end face, said seat member being provided with a central opening, a conical valve member movable upon the upper face of said seat member and normally closing the opening therein, said valve member at all times extending into the recess in the end of the plug extension but normally disposed in spaced relation to the walls thereof, the greatest diameter of said seat member being substantially equal to the greatest diameter of the recess in said plug whereby said valve member will close the outer end of the opening in the seat member when the bottle is disposed in a horizontal position, the walls of said recess limiting the sliding movement of the valve member upon the face of the seat member, said plug having a longitudinal bore extending through the body thereof, the extension of said plug being provided with a plurality of orifices communicating at their inner ends with said bore and opening at their other ends into said annular chamber.

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

ALBERT A. THORBAHN.

Witnesses:
JOHN J. DOOHRE,
JOHN J. DALEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."