J. M. MILLERS.

NON-REFILLABLE BOTTLE.

APPLICATION FILED AUG. 30, 1916.

1,273,083. Patented July 16, 1918.

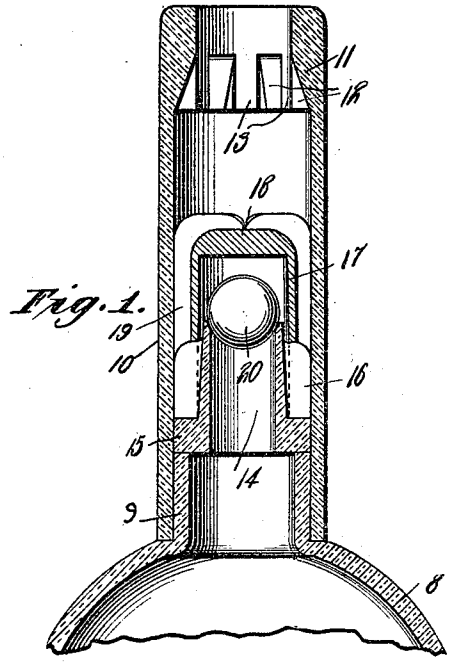


Fig. 1.

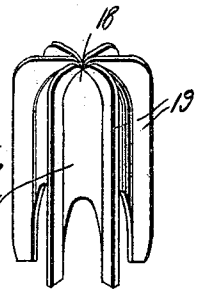


Fig. 3.

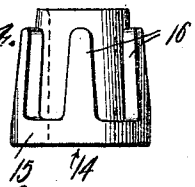


Fig. 4.

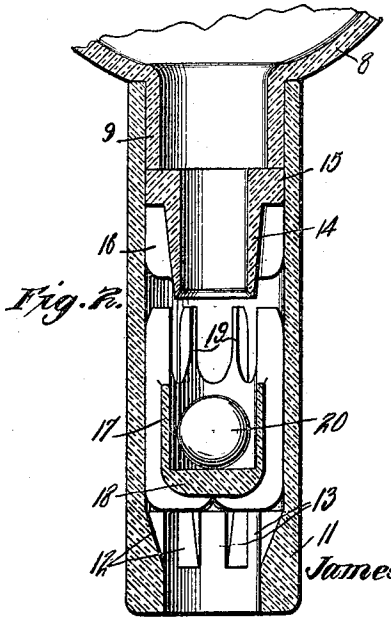


Fig. 2.

WITNESSES

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NON-REFILLABLE BOTTLE.

1,273,083. Specification of Letters Patent. **Patented July 16, 1918.**

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To all whom it may concern:

Be it known that I, JAMES M. MILLERS, a citizen of the United States, residing at Vancouver, in the Province of British Columbia and Dominion of Canada, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to non-refillable bottles, and has for its primary object to provide improved means for use in connection with an ordinary bottle for preventing the bottle from being further used as such after being emptied of its original contents.

A further object of the invention is to provide an improved valve arrangement in the neck portion of a bottle, which is assembled and arranged in such manner as to permit of the ready and rapid flow of liquid from the bottle, and which is proof against being unseated with the aid of wires or other such implements for refilling the bottle.

A still further and particular object of the invention is to provide a non-refillable bottle of the character set forth which is of simple and inexpensive construction, which is composed of but few readily assembled parts, all so constructed and arranged as to prevent wear, breakage or derangement of the same, which is positive in operation, and which will prove thoroughly efficient in the attainment of the ends for which it is designed.

With these objects in view, together with others which will appear as the description proceeds, the invention resides in the novel formation, combination and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawings, and particularly pointed out in the claim.

The invention will be best understood by reference to the accompanying drawings, wherein:

Figure 1 is a longitudinal sectional view taken through a bottle neck and illustrating the application of a device constructed in accordance with my invention,

Fig. 2 is a view similar to Fig. 1, and illustrating the positions the movable parts will assume when the bottle is inverted or inclined to pouring position,

Fig. 3, is a detail perspective view of the traveling cage employed in carrying out the invention, and

Fig. 4 is a detail side elevation of the improved valve seat.

Referring now to the drawings, 8 indicates the body portion of a conventional form of bottle, and 9 the neck thereof. The neck in the present instance is shown as extending but a short distance beyond the body portion of the bottle, and forms a retaining portion for a supplementary neck 10. This supplementary neck may be cemented or in any other preferred manner secured to the body portion, and is thickened adjacent its outer end or mouth portion as illustrated at 11. The inner portions of the thickened section 11 are provided with spaced notches or cut away portions 12, the bases of which incline inwardly toward the outer end of the bottle neck. This construction provides an annular series of spaced shoulders 13 within the supplementary neck, the spaces between the said shoulders constituting ducts or channels through which liquid passing from the bottle is adapted to travel.

Arranged within the supplementary neck and adjacent the base portion thereof is a valve seat 14. This valve seat comprises a tubular body portion, having a base flange 15, the latter being adapted to rest upon and to be fastened with the neck portion 9 of the bottle by means of cement or other suitable adhesive. The seat portion proper of the member 14 is at the outer extremity of the valve member and is of less diameter than that of the supplementary neck portion 10.

Projecting upwardly from the outwardly extending flange 15 and formed integral therewith are spaced ribs 16. In the present instance I have illustrated a plurality of these ribs, but it will be understood that but a single rib may be used as effectually in the accomplishment of the desired results as a plurality of ribs. These ribs terminate at their outer ends a trifle short of the outermost extremity of the valve seat 14.

Arranged within the supplementary neck and for sliding movement therein is a cage member 17. This cage member is open at one end and is closed or headed as at 18 at its opposite end as shown. A plurality of radially disposed webs 19 are arranged upon the outer sides and the head of said cage member, the said webs being spaced around the cage, and projecting from the body portion thereof a distance sufficient to engage the inner walls of the supplemental neck to prevent lateral movement of the cage within the said neck. The lower extremities of the webs 19 project from the body thereof an

appreciable distance, and are adapted to engage between the spaced ribs 16 on the valve seat 14. This construction prevents the cage from rotating within the neck, and yet the said cage is free to slide longitudinally thereof. The lower end of the cage 17 is of a size to enable the same to snugly fit around the outer edges of the valve seat 14 when moved to its lowermost position.

A ball 20 is loosely arranged within the sliding cage, and is of a diameter to seat snugly within the open outer end of the body portion of the valve seat.

When the device is properly assembled and the bottle is in upright position, as shown in Fig. 1, the cage will be firmly engaged over the outer end of the valve seat, while the ball or valve member 20 will be seated in the mouth or seat portion of the member 14. With the parts in this position, it is obvious that liquid introduced through the bottle neck will be prevented entrance to the body portion of the bottle. When it is desired to pour the liquid from the bottle, the latter is inverted, whereupon the cage and ball will move outwardly, the former being limited in its outward movement by the engagement of its head webs 19 with the shoulders 13, while the ball 20 will be retained within the cage. When in this position, the liquid will pass through the spaces between the webs 19 and through the channels or ducts 12 in the thickened portion 11 of the supplementary neck. It will be observed that when moved to outward position the innermost ends of the webs 19 will not have passed entirely beyond the outermost extremities of the ribs 16, whereupon jamming of the cage is obviated. Immediately upon moving the bottle to upright position, the parts will assume the positions shown in Fig. 1.

From the above description it is apparent that a simple and throughly efficient non-refillable bottle has been provided. After the bottle has been emptied of its contents, refilling of the same will be positively prevented by the unique structure set forth. I prefer to construct the cages, supplemental necks, valves and valve seats of glass, so as to obviate contamination of the bottle contents, but it is, of course, obvious that other materials may be employed for the purposes.

While the above is a description of the preferred embodiment of the invention, it is obvious that various changes in the minor details of construction and arrangement of parts may be resorted to without departing from the spirit of the invention or exceeding the scope of the claim.

What is claimed is:

In a device of the class described, the combination with a bottle neck, of a supplemental neck inclosing the neck of the bottle and projecting beyond the latter, a valve seat comprising a tubular member arranged in said supplemental neck, a flange projecting outwardly from the lower end of said tubular member and resting on the neck of the bottle, ribs arranged in spaced relation around the outer surface of said tubular member and extending longitudinally thereon, a cage comprising a cup shaped member slidably arranged in said supplemental neck and being adapted to inclose the upper end of said tubular member, a ball confined between said cup member and said valve seat, webs extending longitudinally of said cup shaped member and projecting from the outer wall thereof, the said webs extending beyond the open end of said cup member and being adapted to engage between the ribs on said valve seat, and a notched annular shoulder on the supplemental neck at the outer end thereof to limit the outward sliding movement of said cage.

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

JAMES M. MILLERS.

Witnesses:
DWIGHT B. GALT,
M. E. JONES.

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