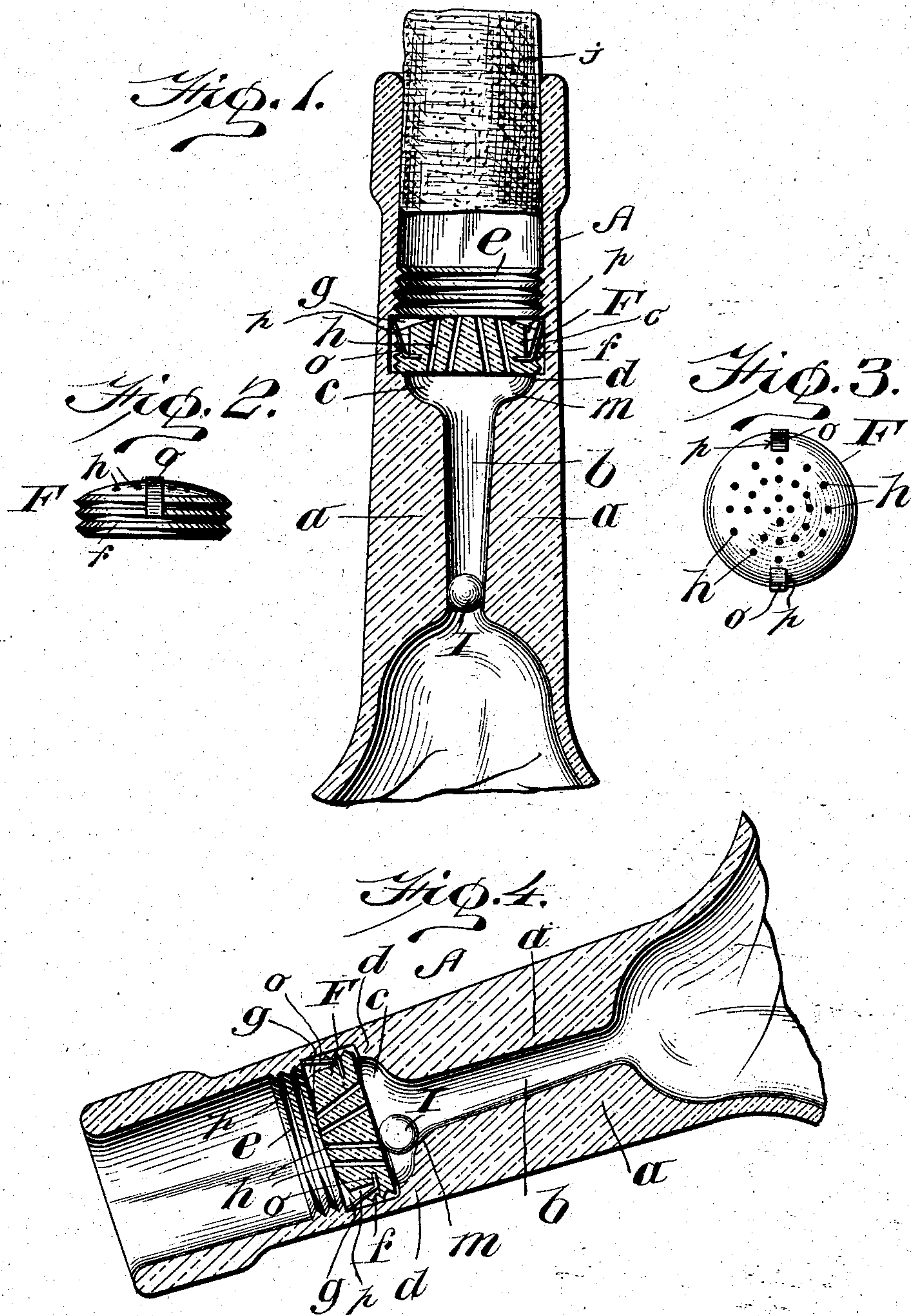


No. 791,850.

PATENTED JUNE 6, 1905.

W. I. WOLFF.
NON-REFILLABLE BOTTLE.
APPLICATION FILED JAN. 12, 1905.



WITNESSES:

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WILLIAM I. WOLFF OF UPPER MARLBORO, MARYLAND.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 791,850, dated June 6, 1905.

Application filed January 12, 1905. Serial No. 240,681.

To all whom it may concern:

Be it known that I, WILLIAM I. WOLFF, a citizen of the United States, residing at Upper Marlboro, in the county of Prince George and State of Maryland, have invented new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to non-refillable bottles; and its object is to provide an inexpensive and efficient device of this character containing few parts, which can be easily assembled.

The invention will be fully described hereinafter, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view of the neck portion of a bottle embodying my invention. Fig. 2 is a side elevation of the disk which is inserted in the neck of the bottle. Fig. 3 is a plan view of the disk; and Fig. 4 is a view similar to Fig. 1, showing the bottle tilted with its neck below the horizontal.

A represents the neck of a bottle the wall of which is thickened inwardly for a portion of its length, as indicated at *a*, and this internal thickness is so shaped that a contracted tapering cylindrical opening *b* is formed centrally thereof, which forms a passage for the flow of liquid to or from the bottle. The passage *b* tapers downwardly, and its upper end is expanded or bell-shaped, as indicated at *c*, and terminates in an annular shoulder *d*. At a suitable distance above the shoulder *d* the neck is also thickened to form an interior ring-like projection *e*, which is threaded interiorly.

F is a disk or plug having exterior threads *f*, adapted to engage the threads *g* in the ring *e*, and the parts are so located and formed that the disk F may be inserted into the neck of the bottle, engaged with the threaded ring *e*, and screwed entirely through the latter until it rests loosely upon the shoulder *d*, and preferably the space between the shoulder *d* and the ring *e* will be sufficient to permit a limited free movement of the disk between them after it has been screwed past the ring *e*. This disk F is provided with a series of passages *h*, through which liquid may flow from the bottle.

I is a ball adapted to move freely in the upper portion of the passage *b* and to form a valve to seal the lower end of such passage against the entrance of liquid through the mouth of the bottle into the body thereof.

When glass bottles are employed, the disk and ball will also, preferably, be made of glass; but this is of course not essential. It is also obvious that the invention may be embodied in bottles or vessels made of materials other than glass.

Such being the preferred construction, the operation will be as follows: The bottle having been filled with the liquid, the ball I will be dropped through the mouth of the bottle and will at once drop to the lower end portion of the passage *b*, and as long as it is in this position no liquid can pass it into the bottle. The disk F will then be inserted into the neck of the bottle and by means of a suitable instrument screwed through the ring *e*, when it will drop upon the shoulder *d* and can subsequently have a limited play between such shoulder and the lower edge of the ring *e*. A cork or other stopper *j* may then be inserted in the mouth of the bottle. To pour the liquid out of the bottle, the stopper must be removed and the bottle tilted to bring the neck end below the horizontal, when the ball I will roll down the passage *b* until it rests against the disk F, as shown in Fig. 4. The disk at the same time will slide outwardly until arrested by the under surface of the ring *e*, and the ball will rest upon the rounded shoulder *m* at the junction of the passage *b* and bell-shaped portion *c*, and the movement of the disk away from the shoulder *d* must be so limited that the ball cannot pass beyond the median point of the curvature of the shoulder *m*, so that immediately the neck end of the bottle is moved the least above the horizontal the ball I will at once roll back to the lower end of the passage *b*. When the ball is in the position shown in Fig. 4, the liquid can flow through the openings *h* and out of the bottle.

It is of course necessary to provide some means for positively preventing the withdrawal of the disk F after it has once been screwed past the ring *e*, and while many devices may be employed for this purpose I

have illustrated a spring *o*, secured in a recess *p* in the periphery of the disk, with its upper end projecting normally beyond the threads of the disk, so that it may engage the shoulder formed by the lower surface of the ring *e* and the wall of the neck. When the disk is being screwed through the ring, the spring will be forced back into the recess; but as soon as it passes through the ring the spring will resume its normal position. More than one spring may be employed, if desired.

Without limiting myself to the precise details of construction illustrated and described, I claim—

1. The combination with a bottle-neck having the lower portion of its walls thickened inwardly to form a contracted, downwardly-tapering, central passage, the upper end of which terminates in an annular shoulder, said neck having also internally-projecting screw-threads at a distance above the shoulder, of a ball movable within said passage and adapted to form a valve in the lower end thereof to prevent inward flow of liquid, and a disk provided with through-passages and with threads on its periphery, whereby it may be screwed past the said threads on the interior of the neck and rest loosely upon said shoulder, to form a stop for the outward movement of the ball, substantially as described.

2. The combination with a bottle-neck having a contracted, downwardly-tapering, central passage in the lower portion thereof, said passage having a curved shoulder at its upper end and expanding therefrom to an annular

shoulder within the neck, said neck having also internally-projecting screw-threads at a distance above said annular shoulder, of a ball-valve adapted to roll in said passage, and a disk provided with through-passages and supported loosely within the neck between the annular shoulder and the said internally-projecting threads, said disk having peripheral threads to permit it to be screwed past the said threads on the neck, and serving to hold the ball-valve from passing off said curved shoulder when the neck end of the bottle is below the horizontal, substantially as described.

3. The combination with a bottle-neck having two internal, annular projections or shoulders separated from each other, the upper one being internally threaded, said neck having also a contracted, downwardly-tapering passage below the lowest of said projections, a ball loosely fitted in said passage and forming a valve to close the lower end thereof, a perforated disk having peripheral threads to permit it to be screwed through and past the upper annular projection to fit loosely between said projections, and means for positively preventing said disk from being screwed back through said upper projection, substantially as described.

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

WILLIAM I. WOLFF.

Witnesses:

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