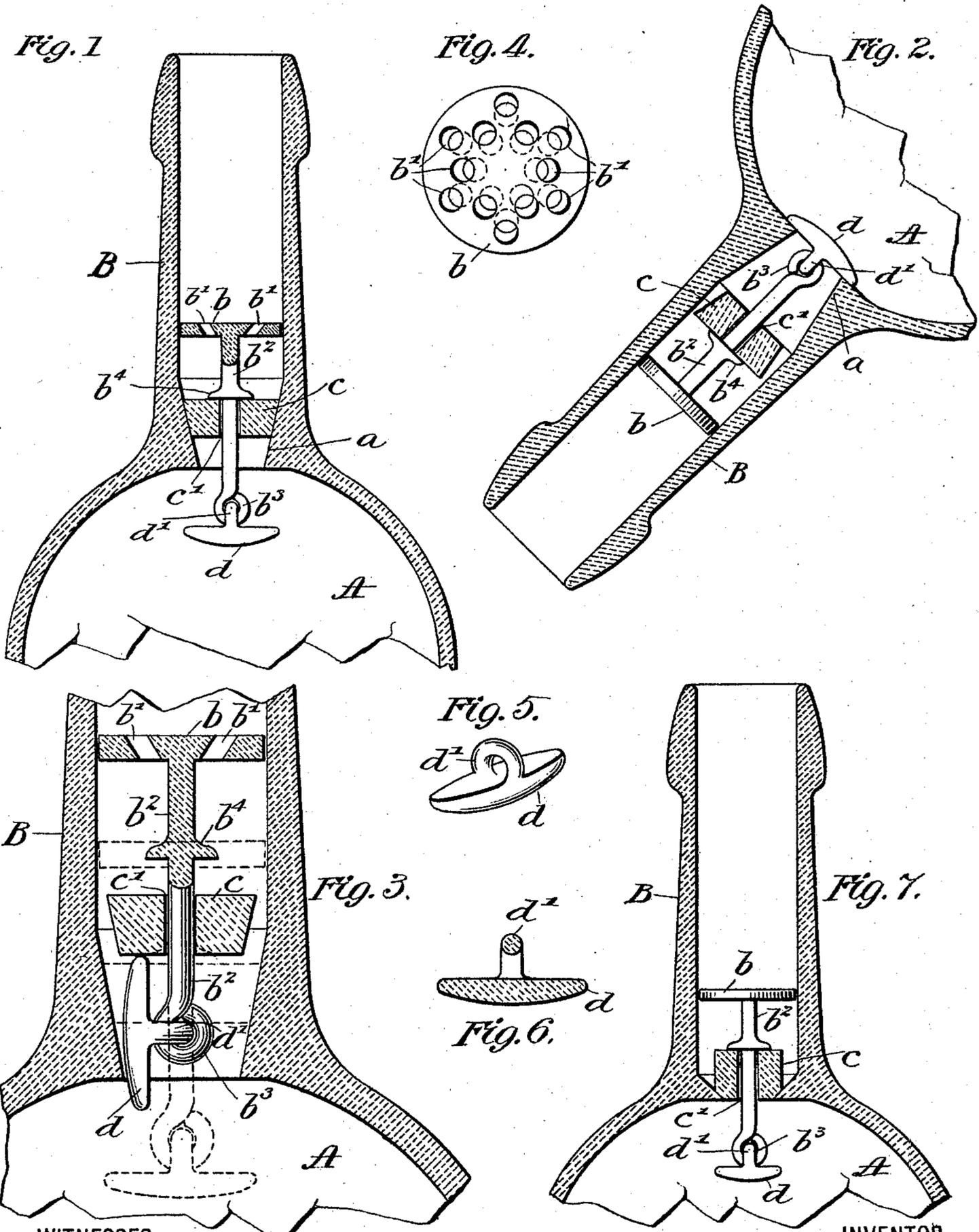


(No Model.)

C. G. NORMAN.
NON-REFILLABLE BOTTLE.

No. 585,888.

Patented July 6, 1897.



WITNESSES:

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NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 585,888, dated July 6, 1897.

Application filed October 10, 1896. Serial No. 608,446. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN G. NORMAN, a citizen of the United States, residing in the city of New York, in the State of New York, have invented a certain new and useful Improvement in Non-Refillable Bottles, of which the following is a specification.

The present invention relates to that class of bottles often referred to as "non-refillable," and has for its principal objects simplicity of construction and operation and absolute efficiency against the introduction within the bottle of spurious goods.

Prior to my invention, in so far as I am advised, many attempts have been made to devise a practicable non-refillable bottle. These in many instances proved objectionable either on account of requiring a bottle of complex form, metallic parts to cooperate with the neck interior, or quite a number of specially-constructed devices introduced and secured in the neck. Such arrangements not only defeated the main object for which they were designed, but generally proved highly expensive.

My improvements obviate the objections above noted in that the bottle differs very slightly from the bottle of commerce, and but three small glass parts of comparatively simple character and cost are all that is required to complete the invention, the three small parts being mutually engaged and capable of being positively retained within the bottle-neck by the mere act of insertion.

In the drawings accompanying this specification, Figure 1 is a vertical sectional elevation of the upper portion of a bottle and illustrating my invention, the figure showing more particularly the position the movable parts assume when the bottle is in an upright position. Fig. 2 is a similar view showing the position the parts assume when the bottle is inverted. Fig. 3 is an enlarged sectional view of the base portion of the neck and illustrating by full and dotted lines the position the keeper assumes during and after the operation of inserting the smaller parts within the neck. Fig. 4 is a plan view of the top disk constituting one of the smaller parts; and Figs. 5 and 6 are a perspective and transverse sectional view, respectively, of the keeper and showing its extended length

but narrow width. Fig. 7 is a vertical section similar to Fig. 1, showing a slightly-modified form of the invention.

Similar letters of reference indicate similar parts throughout the specification.

The bottle A is the same as that common to the form generally used for any particular line of goods, with the slight exception that during its manufacture an inwardly and downwardly contracting annular shoulder *a* is interiorly formed at the base of the neck B.

The small parts to be located within the bottle, as generally before mentioned, are all of glass and are three in number. One consists of an upper horizontal disk *b*, approximately of the diameter of the neck-opening and having a series of openings *b'* of liberal dimensions, a spindle *b²*, depending integrally and centrally from the disk and terminating in an eye or loop *b³*, a small offset *b⁴* being located intermediately on said spindle.

c refers to a weighted valve, the edge of which is beveled, said weight being of such size as to adapt it for seating on the annular shoulder *a* to snugly close the neck-opening, as indicated in Fig. 1. This valve has a central opening *c'*, through which the spindle *b'* freely plays, the shoulder *b⁴* being in operative contact with the top surface of the valve.

Pivotaly suspended from the loop *b³* at the lower end of the spindle *b'* is a cross-bar or keeper *d*, the eye *d'* of which engages the loop of the spindle. This cross-bar or keeper *d* is of the shape shown most clearly in Figs. 5 and 6—that is to say, of a length greater than the inner contracted end of the neck-opening, but of comparatively narrow width—and its shape in cross-section is somewhat like that represented in Fig. 6, so that when within the bottle-body contiguous to the neck-opening it will impede the outward flow of liquor only to a very slight extent.

In practice after the bottle has been filled to the required extent the three connected small glass parts represented by the weighted valve, cross-bar, and attached top disk are introduced into the bottle-neck, the cross-bar *d*, although of greater length than the diameter, nevertheless, on account of its hinged connection, assuming the position somewhat like that represented in Fig. 3. The several parts will continue to descend until the cross-bar

clears the shoulder *a* and enters the upper portion of the bottle-body, whereupon it will assume a horizontal position, as shown in Fig. 1 and dotted lines, Fig. 3, and thus more than span the inner contracted opening to constitute a keeper against any withdrawal of the three parts without breaking the connection between the spindle and the keeper.

Subsequent to the clearance of the shoulder *a* by the keeper the valve *c* will have seated itself on the contracted shoulder *a* and the disk *b* will be maintained in an elevated position by its offset *b⁴* bearing on the valve. With the parts in the position thus described (see Fig. 1) the valve will be firmly seated against the introduction of liquid and cannot be manipulated by the insertion of a wire, as the only effect would be to lift the disk *b*, its spindle, and the cross-bar or keeper, the latter of course limiting such lifting. To further guard against such tampering, it will be seen in Figs. 1 and 2 that the openings *b'* in the disk incline downward and inward, so that a wire passing through any of the openings *b'* will by reason of its inclination be directed against the offset *b⁴* in the spindle and consequently can never come in direct contact with the valve.

When the bottle is inverted or inclined, the valve *c* leaves its seat, its weight raising the disk *b* through contact with the offset, and the parts have an outward movement, limited by the contact of the keeper *d* with the under side of the shoulder *a*, which is sufficiently horizontal to provide a proper stop. In such position of the parts the liquid can flow freely past the keeper *d*, around the periphery of the unseated valve, through the openings *b'*, and from the neck. The parts will assume their first position immediately the bottle is restored to an upright position.

From the foregoing it will be understood that in addition to the simplicity and inexpensiveness before referred to the inner movable parts are both positive and quick acting.

It will be obvious that the connection be-

tween the spindle and the keeper may be effected by forming a glass hook on the end of the spindle, engaging it with the keeper-eye, and thereafter subjecting it to the blow-pipe to soften the glass, so as to permit the hook to be closed to an extent sufficient to maintain the connection.

The disk *b* and valve *c* may be of any desired thickness. The valve *c* may be in some instances of the form shown in Fig. 7.

I claim as my invention—

1. The combination with a bottle having a shoulder within the neck, of a valve adapted for seating on said shoulder, and centrally perforated, a spindle playing through said opening and integrally carrying an upper disk having discharge-ports and pivotally suspending at its lower end, a cross-bar or keeper, the valve, spindle, and keeper, all being of glass, substantially as specified.

2. The combination with a bottle having a downwardly-contracting shoulder within the neck, of a valve adapted for seating on said shoulder and having a perforation, a spindle playing through said perforation, having an offset *b⁴*, and upper perforated disk *b*, together with a cross-bar or keeper *d*, pivotally suspended from the lower end of the spindle, substantially as herein specified.

3. The combination with a bottle having a shoulder *a* within the neck, of a valve *c*, for seating on said shoulder, a spindle playing through the valve and carrying an upper disk having inwardly-inclined discharge-openings, and a cross-bar or keeper *d*, pivotally suspended from the lower end of the spindle and arranged to be stopped by the shoulder, substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

CHRISTIAN G. NORMAN.

Witnesses:

J. B. CLANTICE,
M. F. BOYLE.