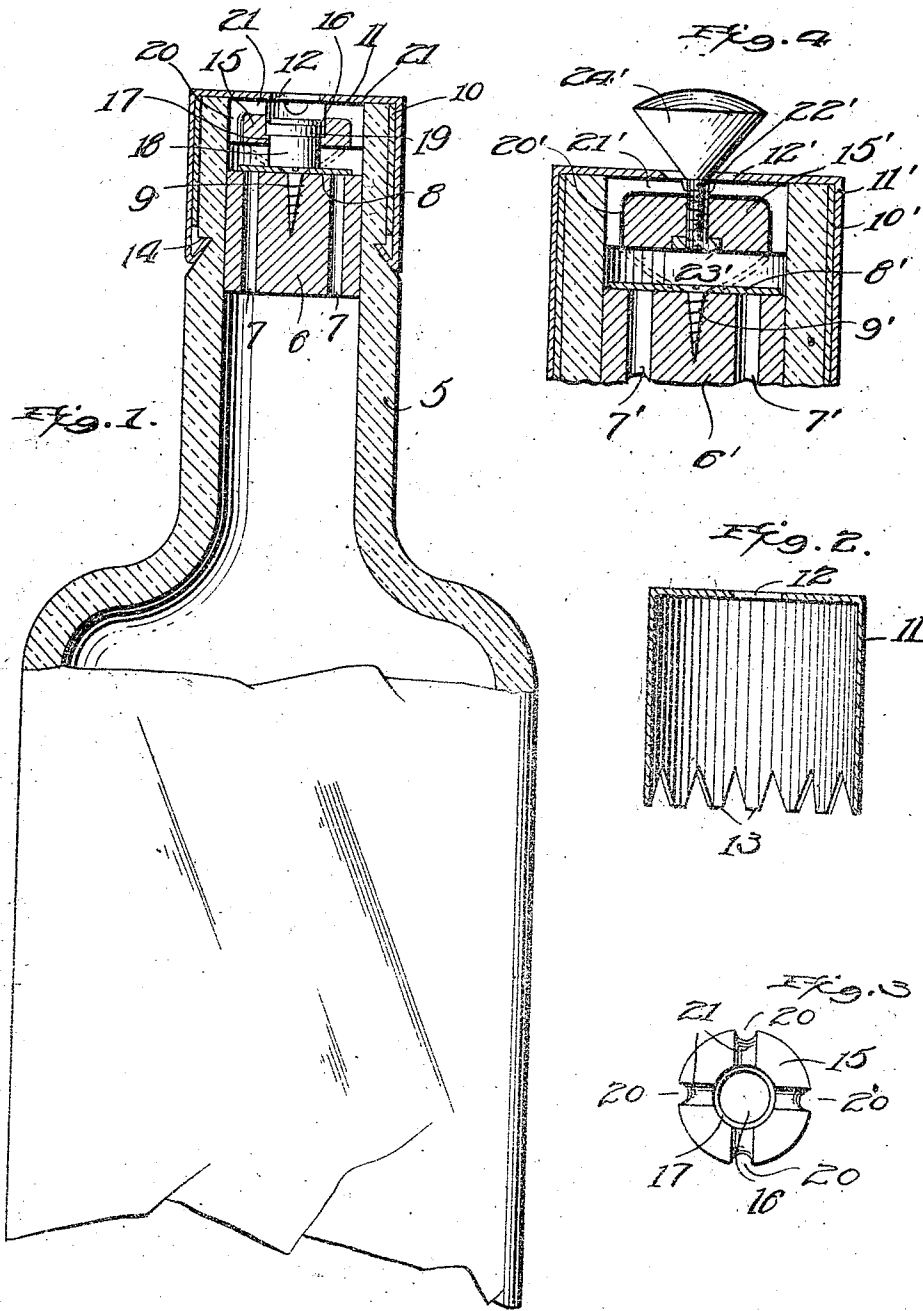


J. STEPHEN.
NON-REFILLABLE BOTTLE.
APPLICATION FILED SEPT. 25, 1911.

1,034,742.

Patented Aug. 6, 1912.



WITNESSES

J. M. Mues
E. L. Mueller

INVENTOR

John Stephen
By E. C. Dorman, Attorney.

UNITED STATES PATENT OFFICE.

JOHN STEPHEN, OF ALAMEDA, CALIFORNIA.

NON-REFILLABLE BOTTLE.

1,034,742.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed September 25, 1911. Serial No. 851,021.

To all whom it may concern:

Be it known that I, JOHN STEPHEN, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to non-refillable bottles and the principal object of the same is to produce a device of this character which consists of a comparatively small number of parts and which is efficient in operation.

Another object of the invention is to provide novel means for facilitating the opening of the bottle in order that the contents may be discharged therefrom.

In carrying out the objects of the invention generally stated above it will be understood of course that the essential features thereof are susceptible of changes in details and structural arrangements, preferred and practical embodiments of the invention being shown in the accompanying drawings, wherein:—

Figure 1 is a fragmentary vertical sectional view of a bottle showing the improvement applied to the neck thereof. Fig. 2 is a vertical sectional view of the cap used in connection with this invention. Fig. 3 is a plan view of an auxiliary stopper which is placed within the neck of the bottle. Fig. 4 is a fragmentary vertical sectional view of a modification of this invention.

Referring to the accompanying drawings by numerals it will be seen that the improved bottle comprises the neck 5 in which is placed a stopper 6, which is provided with longitudinally extending passage ways 7. A disk valve 8 is secured upon the top of the stopper 6 by means of a screw 9 and is adapted to normally close the upper ends of apertures 7 for preventing the flow of liquid therethrough.

When the stopper is in the position shown in Fig. 1 and the bottle is inverted the sides of the disk valve 8 will assume the position indicated by dotted lines, thus allowing liquid to flow out of the bottle. Positioned upon the outer portion of the neck is a cylindrical filling member 10 and positioned upon the member 10 is a cap 11 which is spaced from the neck by means of said filling member, said cap being provided with

a centrally located aperture 12 in the top thereof. The lower end of the cap 11 is provided with a series of tapering toothed portions 13 which engage a groove 14 which extends around the outer surface of the neck of the bottle. It will be thus seen that when the portions 13 are bent upwardly, as shown in Fig. 1, to engage the groove 14 that cap 11 will be firmly held upon the upper neck of the bottle and will be prevented from being removed therefrom.

Directly above the stopper 6 is an auxiliary stopper 15 which is provided with a central aperture 16, said aperture being reduced at its lower end thereby constituting a ledge 17. A plunger 18 is adapted to work in the aperture 16 and is provided intermediate its ends with an enlarged collar 19, which is adapted to engage the ledge 17 when the stopper 6 is in an inoperative position. The lower end of the plunger 18 engages the upper surface of the disk 8 to allow the free operation of the stopper 6 by means of said plunger 18.

The auxiliary stopper 15 is provided with side grooves 20 which merge at their upper ends into transversely extending grooves 21 which communicate with the central aperture 16. This construction will permit the liquid to readily flow out through said grooves 20 and 21 and out through the aperture 12.

In Fig. 4 there is shown a modification of the invention, which is provided with the stopper 6' such as the one used in Fig. 1, said stopper being provided with the longitudinally extending apertures 7' for allowing liquid to pass therethrough. Secured to the upper end of the stopper 6' is a disk valve 8' by means of a screw 9'. A cylindrical filling member 10' surrounds the neck of the bottle and over this is placed the cap 11', which is constructed the same as in Fig. 1 with the exception that the centrally located aperture 12' in the top thereof has its sides beveled.

An auxiliary stopper 15' is placed in the neck of the bottle directly above the stopper 6' and like the auxiliary stopper 15, shown in Fig. 1, is provided with the side grooves 20' which terminate in the transverse grooves 21' which are formed in the top of said auxiliary stopper for allowing liquid to pass therethrough and out through the opening 12'.

An operating member 22' is fixedly secured to the auxiliary stopper 15' by means

of a nut 23' which is threaded upon the lower end of said operating member, said nut being countersunk within said auxiliary stopper for allowing the same to be flush with the inner surface thereof, thus preventing the same from coming in contact with the disk valve 8'. The operating member is provided with an upper conical shape top 24' which has its sides diverging from the top of said operating member.

It will be seen that when the bottle is in a closed position the auxiliary stopper will be in engagement with the disk of the main stopper thereby firmly holding said disk upon the upper surface of said main stopper. When it is desired to empty the bottle of the contents, the auxiliary stopper is pushed downwardly by means of the operating member and the downward movement of said stopper will be limited by means of the diverging sides of the conical shaped upper end of the operating member which will engage with the beveled sides of the opening 12'. As soon as the stopper 6' is pushed to a position as shown in Fig. 4, the auxiliary stopper is drawn upwardly into engagement with the under surface of the casing 11' thereby allowing free movement of the disk valve 8' for allowing the discharge of liquid from the neck of the bottle.

In Fig. 1 the two stoppers are in engagement with each other when the bottle is closed and in order to allow of the free passage of liquid through the openings 7; 20, 21 and 12 the plunger is forced downwardly and the downward movement is limited by the collar 19 abutting against the projection 17 in the apertures 16 of the auxiliary stopper. It will thus be seen that the disk valve 8 will have a free movement and that the liquid will be allowed to freely pass through said openings.

What I claim is:—

1. In a device of the character described the combination with a bottle provided with a neck, of a stopper positioned therein and provided with a plurality of longitudinally extending apertures, a disk valve secured to said stopper and normally closing said apertures, an auxiliary stopper positioned above the first mentioned stopper and provided with side and transversely extending grooves, means engaging said auxiliary stopper for forcing said first mentioned stopper downwardly, and means carried by said auxiliary stopper for limiting the movement of the last-mentioned means.

2. In a device of the class described the combination with a bottle provided with a neck, of a stopper positioned therein and provided with a plurality of longitudinally-extending apertures, a disk valve means se-

cured to the top of said stopper and adapted to normally close said apertures, an auxiliary stopper positioned within the neck of the bottle directly above said first mentioned stopper and provided with grooved portions, a casing positioned upon the upper end of said neck and provided with an aperture near the center thereof communicating with said grooved portions in said auxiliary stopper, a plunger member adapted to normally close said aperture in said casing and adapted to engage the first-mentioned stopper for pushing the same to an operative position.

3. In a device of the class described the combination with a bottle provided with a neck, a casing positioned upon the upper end thereof, of a primary stopper positioned within the neck of the bottle and provided with a plurality of longitudinally-extending grooves, valve means adapted to normally close the upper end of said apertures, an auxiliary stopper positioned in the upper end of said neck and provided with a plurality of grooves or channel portions for allowing the flow of liquid therethrough and out through the neck of the bottle, and a plunger member carried by said auxiliary stopper and engaging said primary stopper for moving said primary stopper to an operative position.

4. In a device of the class described the combination with a bottle provided with a neck, of a casing positioned thereon and provided with a central aperture, a primary stopper provided with channel portions, valve means adapted to normally close said channel portions for preventing the flow of liquid therethrough, an auxiliary stopper provided with a plurality of channels, said auxiliary stopper provided with a central aperture in alignment with the aperture in said casing, the lower end of said aperture in said auxiliary stopper provided with a ledge portion, a plunger member working in said aperture in said stopper and adapted to normally close the aperture in said casing, said plunger member provided with a plunger or collar portion formed intermediate its ends and adapted to prevent the displacement of said plunger member from said aperture in said auxiliary stopper, and said plunger adapted to engage said primary stopper for moving the same to an operative position.

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

JOHN STEPHEN.

Witnesses:

JOHN UHLMAN,
CHARLES O. JOHNSON.