C. SCHICKERLING.

NON-REFILLABLE BOTTLE.

APPLICATION FILED FEB. 16, 1909.

960,416.

Patented June 7, 1910.

Fig. 1.

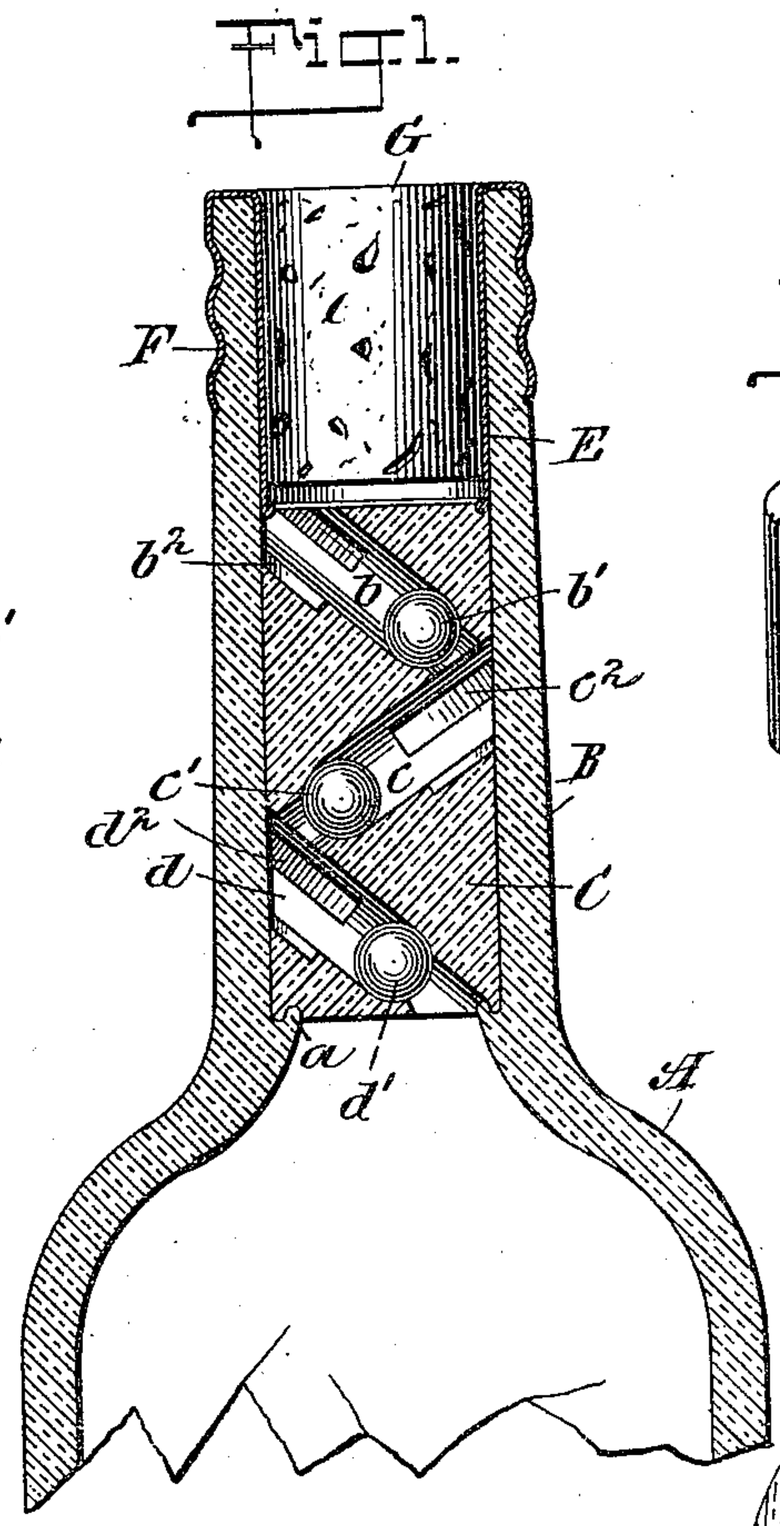


Fig. 3.

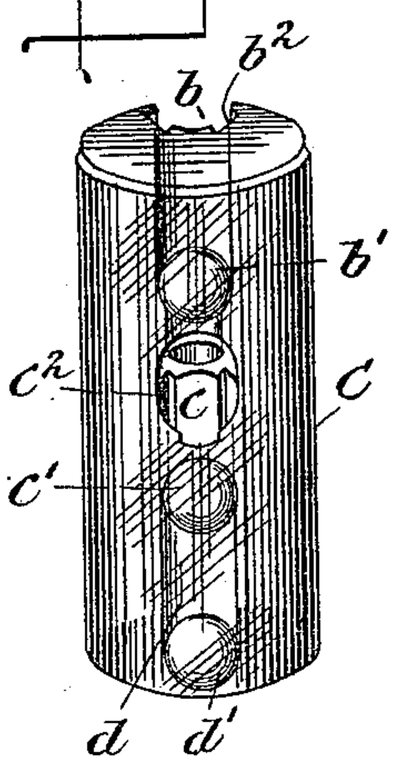


Fig. 4.

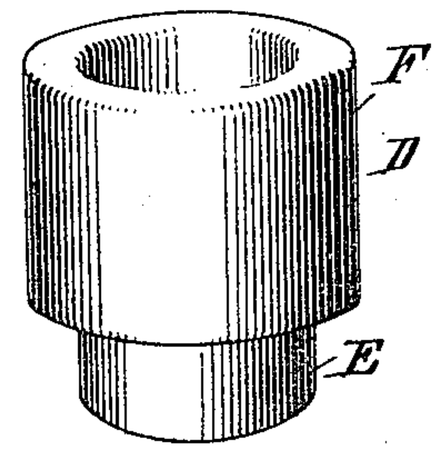
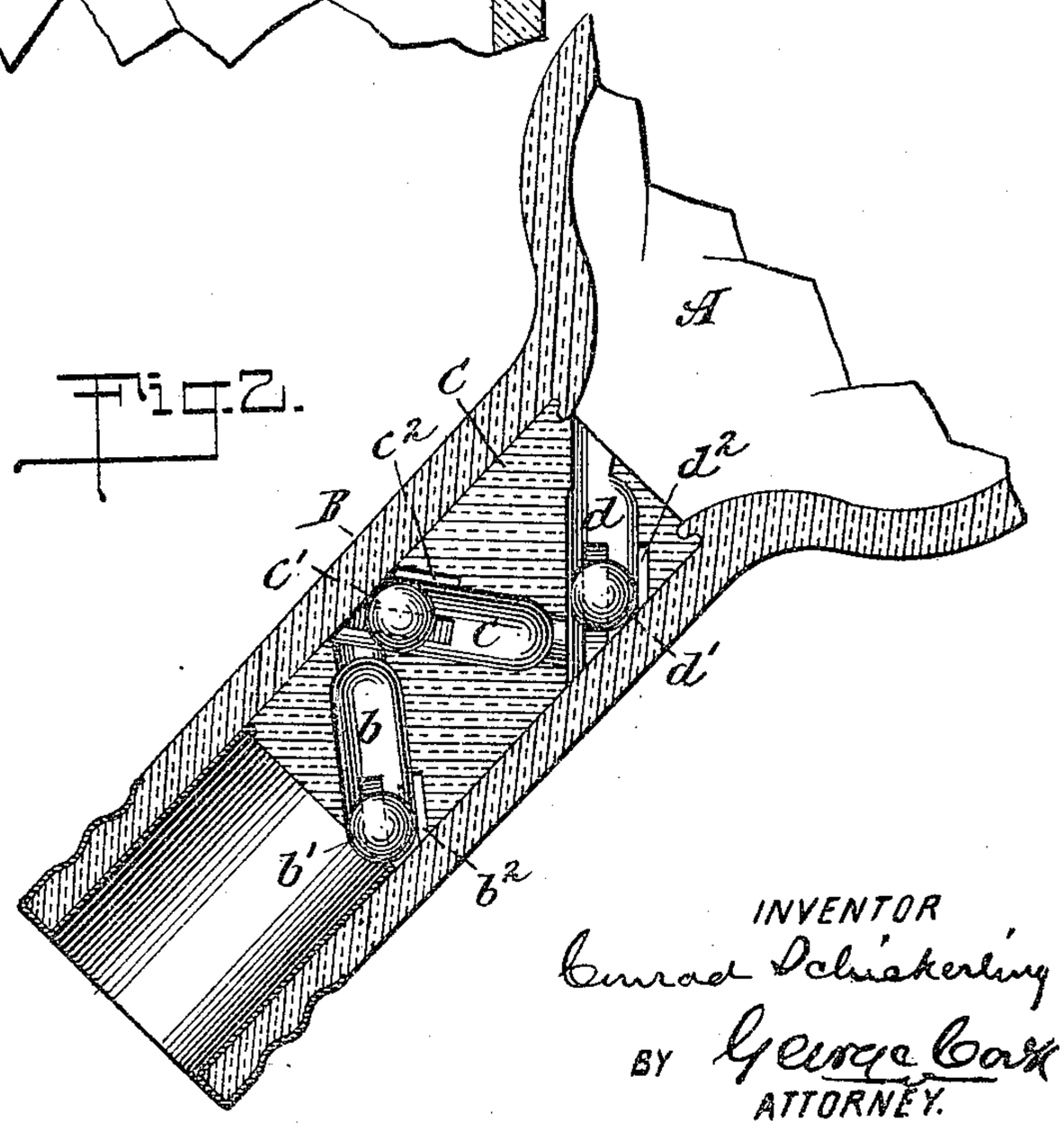


Fig. 2.



WITNESSES:

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NON-REFILLABLE BOTTLE.

960,416. Specification of Letters Patent. **Patented June 7, 1910.**

Application filed February 16, 1909. Serial No. 478,261.

To all whom it may concern:

Be it known that I, CONRAD SCHICKERLING, a subject of the Emperor of Germany, and a resident of East Orange, in the county of Essex and State of New Jersey, have made and invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to a non-refillable bottle, the object of the same being to provide, at a small cost, an article of this kind which while permitting the liquid contents of the bottle to freely flow therefrom after being first filled, will effectively prevent the same from being re-filled.

With these and other ends in view, the invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional view showing the neck and a part of the body of a bottle constructed in accordance with my invention. Fig. 2 is a similar view thereof, the bottle being inverted. Fig. 3 is a detached view in perspective of the plug fitted in the neck of the bottle. Fig. 4 is a detached view in perspective of the locking sleeve.

The bottle with its attached parts, excepting the locking sleeve, is formed from any desired material, but preferably of glass, A representing the body of the bottle and B the neck thereof, the lower end of the latter, where it joins the body, being formed with a ledge or shelf *a* upon which rests the lower end of the plug C. This plug, cylindrical in shape, is formed of such dimensions as to nicely and tightly fit within the neck of the bottle, a cement or adhesive being applied to the lower end thereof, if desired, to securely lock it where it rests upon the ledge *a*. In this plug or cylinder C is formed a passageway comprising three inclined sections, the upper one *b* leading from the upper end of the plug and communicating with the upper end of the intermediate section *c*, the latter at its lower end communicating with the upper end of the lower section *d*, the lower end of the latter opening into the body of the bottle A, these three sections forming one continuous passageway in order to permit of the contents of the bottle, when the latter is inverted, as illustrated in Fig. 2, to freely flow through and out of the same, as hereinafter described. In each of these sections of the passageway is contained respectively, a ball valve b', c' and d', a valve seat being ground or otherwise formed for each in the lower end of its respective section, in order that when the bottle is in its upright position, as illustrated in Fig. 1, the ball valves will rest therein or thereon and effectually close the passageway against the entrance of any liquid through the same and into the bottle.

At the upper end of each of the respective sections of the passageway are formed the channels b^2, c^2, d^2, these channels, preferably three in number, extending from the upper end of each section about half way the length of the respective section, the object and effect of these channels being to permit the liquid contents of the bottle to flow into and through the same, and into the respective section of the passageway when the bottle is inverted, as illustrated in Fig. 2. When the bottle is in this position, that is, in the inverted position illustrated in Fig. 2, the ball valve d' will rest in the upper channel end of the section *d*, and against the inner surface of the neck of the bottle, the ball valve c' will rest in the channel end of the section *c* and against the inner surface of the neck of the bottle, and the ball valve b' will rest in the channel end of the section *b*. When the parts are in these positions, the liquid contents of the bottle will flow into the passage *d*, into the channels d^2, out through and into the section *c*, into and through the channels c^2, into the section *b*, into and out of the channel b^2 and out of the neck of the bottle. When, however, the bottle is righted, as illustrated in Fig. 1, the ball valves will roll down onto their respective seats, and thereby prevent the entrance of any liquid through the neck and cylindrical plug C into the body of the bottle. It will also be observed that the channel end of the section *b* opens partially on the side of the cylindrical plug C and partly on the top, in order that the ball valve b' may be entered or placed in the section *b*, that portion of the opening on the side of the cylindrical plug C, however, being closed when said plug is inserted in the neck of the bottle, as illustrated in Fig. 1, that portion of the opening on the top of the plug being too small to permit of the ball rolling out of the same when the bottle is inverted as in Fig. 2.

The channel ends of the sections *c* and *d*

are closed against the escape of their respective ball valves when the parts are assembled, as clearly illustrated in Fig. 2, the openings being sufficiently large, however, to permit of the entrance of the balls when the cylindrical plug is detached from the neck of the bottle, as illustrated in Fig. 3.

It will also be observed that it is impossible to insert a wire or other instrument into the passageway through the cylindrical plug C, in order to lift the balls from their valve seats, and in such manner re-fill the bottle. Furthermore, the greater the pressure placed upon the liquid to force it into the bottle when the latter is in its upright position and the parts assembled, the tighter the ball valves will rest upon the valve seats, and thereby more tightly and securely close the passageway against the entrance of any liquid therethrough.

If desired, in order to more securely lock the cylindrical plug C in its place in the neck of the bottle, I may use the sleeve D illustrated in perspective in Fig. 4, the central portion E of which fits down into the neck of the bottle and against the upper edge of the cylindrical plug C, and adapted to receive the cork G. The outer or overturned portion F fits around the outer upper end of the neck of the bottle, which being fluted or corrugated, as illustrated in Figs. 1 and 2, receive similar corrugations formed in the outer sleeve F, thereby effectually locking said sleeve and said cylindrical plug in their respective positions.

From the foregoing it will be understood that my invention is exceedingly simple in construction, cheap and economical to manufacture, and effective for the purposes for which it is intended.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination with a bottle provided with a neck, of a cylindrical plug fitted in said neck, said plug having three inclined openings each of which extends through the opposite sides of the plug, said bottle neck forming a closure for the inlet ends of said openings and the first of said openings having a portion of its inlet end closed by the side wall of the neck, and having another portion of its inlet end opening through the top of the plug, and each of said openings having channels cut through said sides to form outlets which communicate with succeeding openings when the bottle is tilted, and ball valves loosely mounted in said openings, said channels extending in rear of the balls when the bottle is in its tilted position.

2. An improved non-refillable bottle, having a neck portion, a cylindrical plug fitted in said neck and formed with a passageway therethrough, said passageway consisting of a plurality of oppositely inclined openings both ends of which are exposed through sides of the plug, one end of each opening being of larger diameter than the opposite end of the same opening and adapted to admit a ball valve, the sides of the bottle neck forming closures for the ends of said openings, and the first of said openings having its upper end piercing the plug at the junction of the top and side of the plug whereby a portion of the opening is exposed through the top of the plug and another portion of the opening is closed by the side of the bottle neck, said plug having channels opening through sides of the receiving ends of the openings, and ball valves loosely mounted in the openings, said channels having such length that they extend back of the balls and permit the passage of the liquid from one opening to the other when the bottle is tilted.

Signed at New York, borough of Manhattan, in the county of New York, and State of New York, this 15th day of February, A. D. 1909.

CONRAD SCHICKERLING.

Witnesses:
PARKER COOK,
M. VAN NORTWICK.