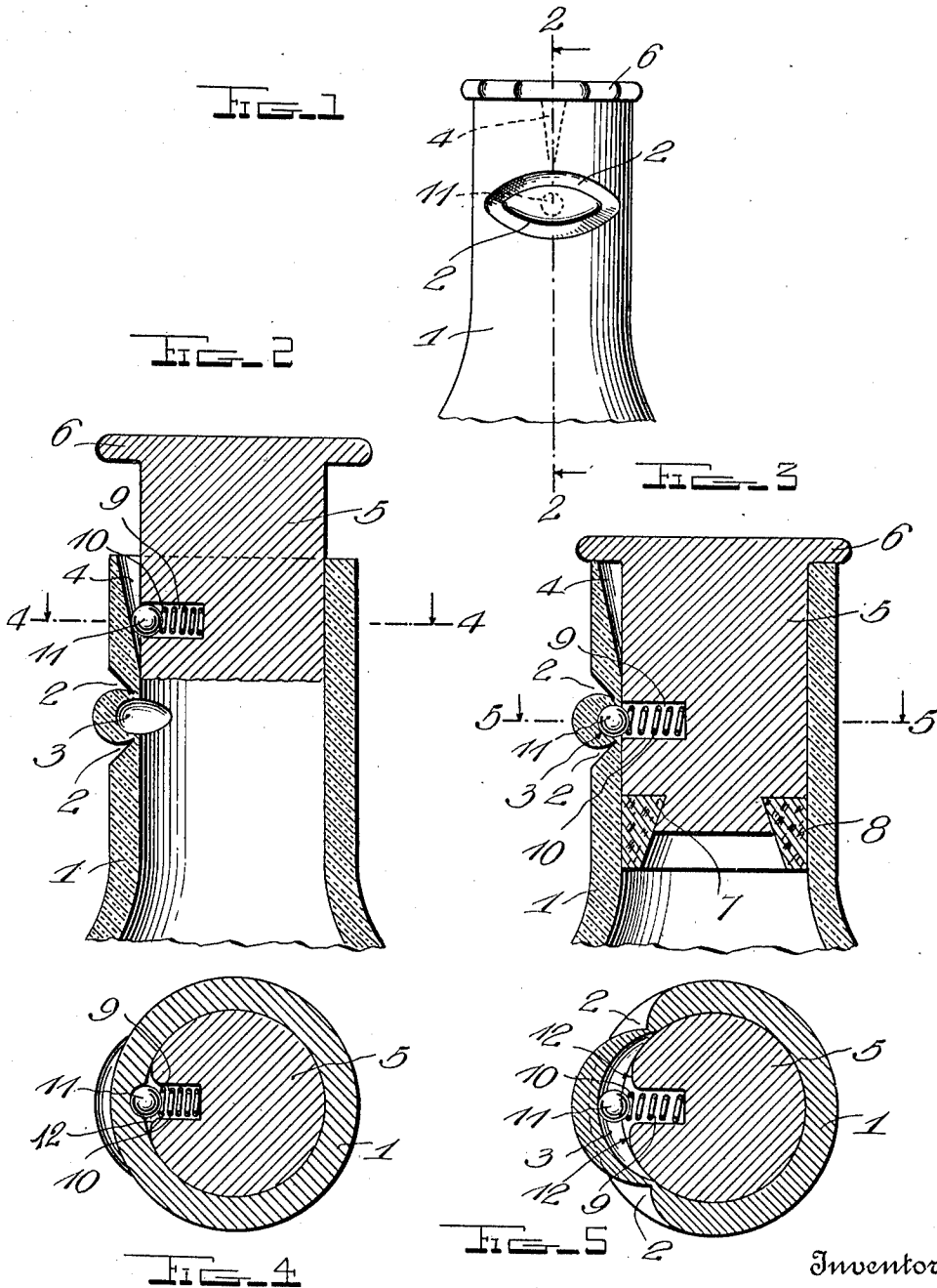


E. C. FURMAN.
NON-REFILLABLE BOTTLE.
APPLICATION FILED MAY 9, 1912.

1,066,597.

Patented July 8, 1913.



Witnesses

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UNITED STATES PATENT OFFICE.

EUGENE CLAY FURMAN, OF NEWPORT NEWS, VIRGINIA.

NON-REFILLABLE BOTTLE.

1,066,597.

Specification of Letters Patent.

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Application filed May 9, 1912. Serial No. 696,168.

To all whom it may concern:

Be it known that I, EUGENE CLAY FURMAN, a citizen of the United States, residing at Newport News, in the county of Warwick and State of Virginia, have invented certain new and useful Improvements in Non-Refillable Bottles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in non-refillable bottles.

The object of the invention is to provide a simply constructed and efficient bottle of this class in which a portion only of the bottle neck is broken to remove the stopper, thereby avoiding all danger of the hands of the user becoming cut by the jagged neck, and at the same time so changing the appearance of the bottle as to reveal the fact that the original seal of the bottle has been broken, thereby preventing refilling of the bottle with spurious goods.

With this and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings: Figure 1 represents a side elevation of a bottle neck equipped with this invention; Fig. 2 is a longitudinal vertical section thereof taken on the line 2—2 of Fig. 1, with the stopper in position ready for insertion; Fig. 3 is a similar view with the stopper in operative closed position; Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 2; Fig. 5 is a similar view on the line 5—5 of Fig. 3.

In the embodiment illustrated a bottle neck 1 is shown, which is exteriorly grooved or weakened, as shown at 2, at a point about midway the length thereof or at any other suitable point, this weakened portion extending around about one-third of the neck of the bottle, more or less. Two grooves are here shown inclined toward each other and with a seat 3 formed between them to receive a locking element to be described. This seat 3 tapers toward its opposite ends, as shown in Fig. 5, forming a cam-like inner face on this portion of the bottle neck. The neck of the bottle 1 is provided on its inner face above the seat 3 with a vertically extending groove 4 which starts at a point above the seat 3 and flares outwardly to

permit the ready insertion of the locking element.

A stopper 5 of glass or other suitable non-penetrable material is provided with a flange 6 for overlapping the upper edge of the mouth of the bottle neck when applied, as is shown clearly in Fig. 3. This stopper is designed to fit tightly on the outer portion of the neck and to extend below the weakened portion thereof, and is provided at its lower end with an undercut annular groove 7 to receive an inner stopper 8 of cork or other suitable material, which is shaped to fit within the groove 7 and to extend below the lower face of the stopper 5 for tightly sealing the bottle. If desired this stopper 8 may be cemented or otherwise secured to the glass stopper 5. The flange 6 of the stopper 5 is preferably scalloped or provided with other suitable projections to facilitate the turning or twisting of the stopper when it is desired to break the seal. This stopper 5 has a socket 9 extending laterally inward from one side thereof at a point intermediately of its ends, and which is of any suitable or desired depth, being designed to receive a resilient member 10 which may be of any suitable form, being here shown in the form of a coiled spring. A locking element 11 is adapted to be mounted in this socket 9 on the resilient element 10, and is here shown in the form of a ball 11, constructed of glass, metal or other suitable non-compressible material. This ball 11 is designed as a seal breaker as well as a locking element, and when the stopper 5 is inserted it fits within the seat 3 and rests on the resilient member 10, about two-thirds more or less thereof extending into said seat at its widest portion, the remaining third being within the socket 9 and thereby preventing the stopper from being withdrawn. The mouth of the socket 9 has its opposite side faces rounded, as shown at 12, to facilitate the passage of the ball 11 into the seat 3 when the bottle stopper is twisted, to position it for crushing engagement by the periphery of the stopper 5 when so twisted, and by means of which the seal is broken.

From the above description the operation of the device will be obvious, it being evident that when the stopper is inserted the groove 4 will guide the ball 11 forwardly into its seat 3 in the bottle neck, and when the stopper has been forced inwardly to its extreme limit this ball will spring into said

seat 3 and lock the stopper against withdrawal, a portion of the ball projecting into the socket 9. When it is desired to remove the contents of the bottle the stopper 5 is
5 turned or twisted, thereby forcing the ball into the tapered portion of the seat 3 between the inner face thereof and the outer face of the stopper 5 with sufficient force to break the seal, which permits the ball to
10 drop out and the stopper 5 to be readily removed. The broken seal will be evidence that the bottle has been opened, and consequently it cannot again be refilled without
15 seal on a portion only of the bottle neck prevents the neck from being broken entirely around and cutting of the hands of the user is avoided.

I claim as my invention:

20 1. A bottle neck having a destructible member in one side wall thereof with a recess on the inner face of said wall tapering in opposite directions, a stopper having a spring pressed locking element adapted to
25 project into said recess on the insertion of said stopper, and means on said stopper adjacent said locking element for facilitating the entrance of said element into said tapered portion of said recess on the turning
30 of the stopper.

2. A bottle neck having a substantially oval-shaped seat on its inner face tapering gradually in width and depth toward its
35 opposite ends and with weakened portions on its opposite sides, a stopper of hard material having a socket in one side wall thereof with rounded edges at opposite sides, a resilient member mounted in said socket, and a combined locking ball and neck breaker seated
40 on said resilient member and adapted to ex-

tend into said bottle neck seat for a portion of its width when said stopper is inserted.

3. A bottle neck having vertically spaced peripherally extending weakening grooves in its outer face, said grooves converging
45 toward each other at their opposite ends, a seat formed between said grooves on the inner face and extending peripherally around a portion of the neck of the bottle and tapering toward its opposite ends, a stopper
50 of hard material adapted to be inserted in said neck and having a socket extending laterally from one side thereof, a resilient member mounted in said socket, and a ball of hard material adapted to be seated on
55 said resilient member and to project into the seat of the bottle neck when the stopper is inserted, whereby on the turning of the stopper the ball will be forced into the reduced portion or tapered ends of the seat and that
60 portion of the neck broken.

4. A bottle neck having a destructible member in one side wall thereof with a seat on its inner face tapering in opposite directions, a stopper having a spring pressed
65 locking element carried thereby and adapted to project into said seat on the insertion of said stopper, the inner face of said bottle neck being provided with a groove extending longitudinally from said seat toward the
70 mouth of the bottle and flaring at its outer end.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EUGENE CLAY FURMAN.

Witnesses:

W. E. COTTRELL,
M. C. WYNNE.