(No Model.)

W. S. HANNAFORD.

NON-REFILLABLE BOTTLE.

No. 581,157. Patented Apr. 20, 1897.

Fig 1.

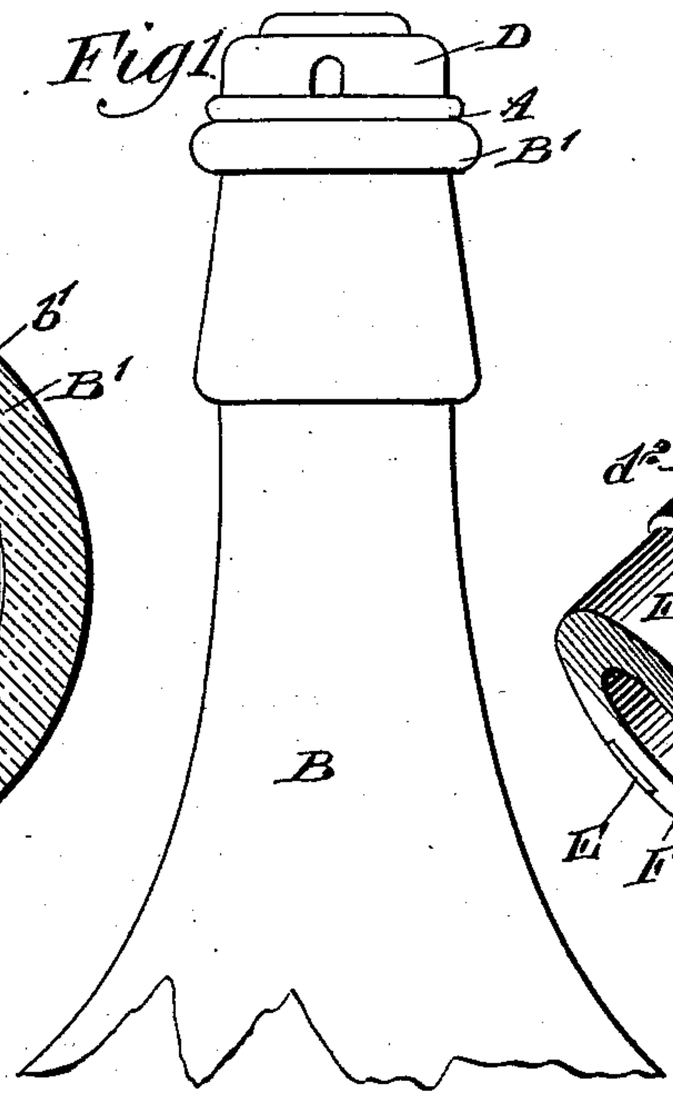


Fig. 3.

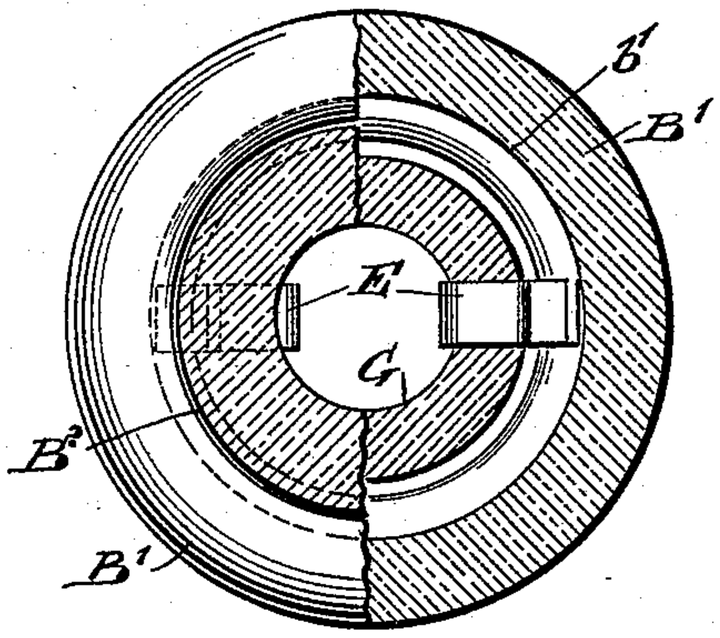


Fig. 4.

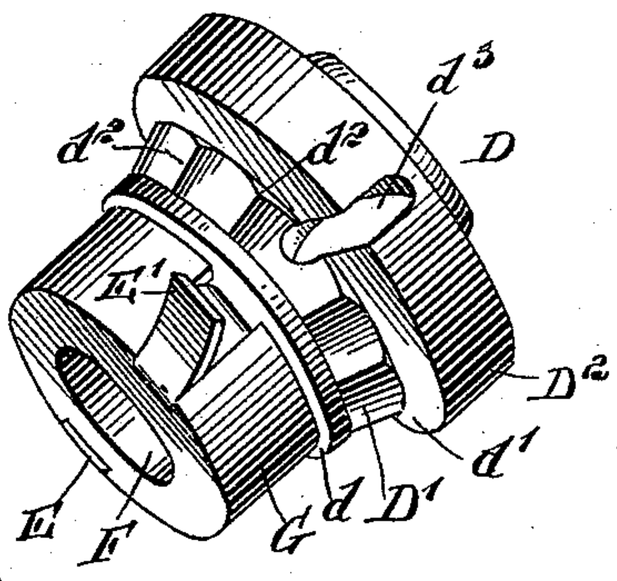


Fig 5.

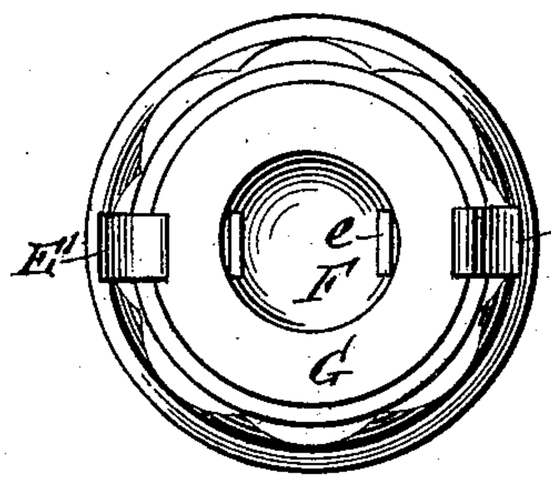


Fig 6.

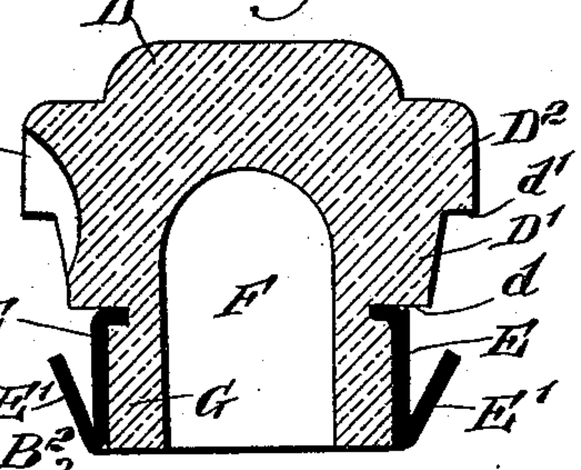
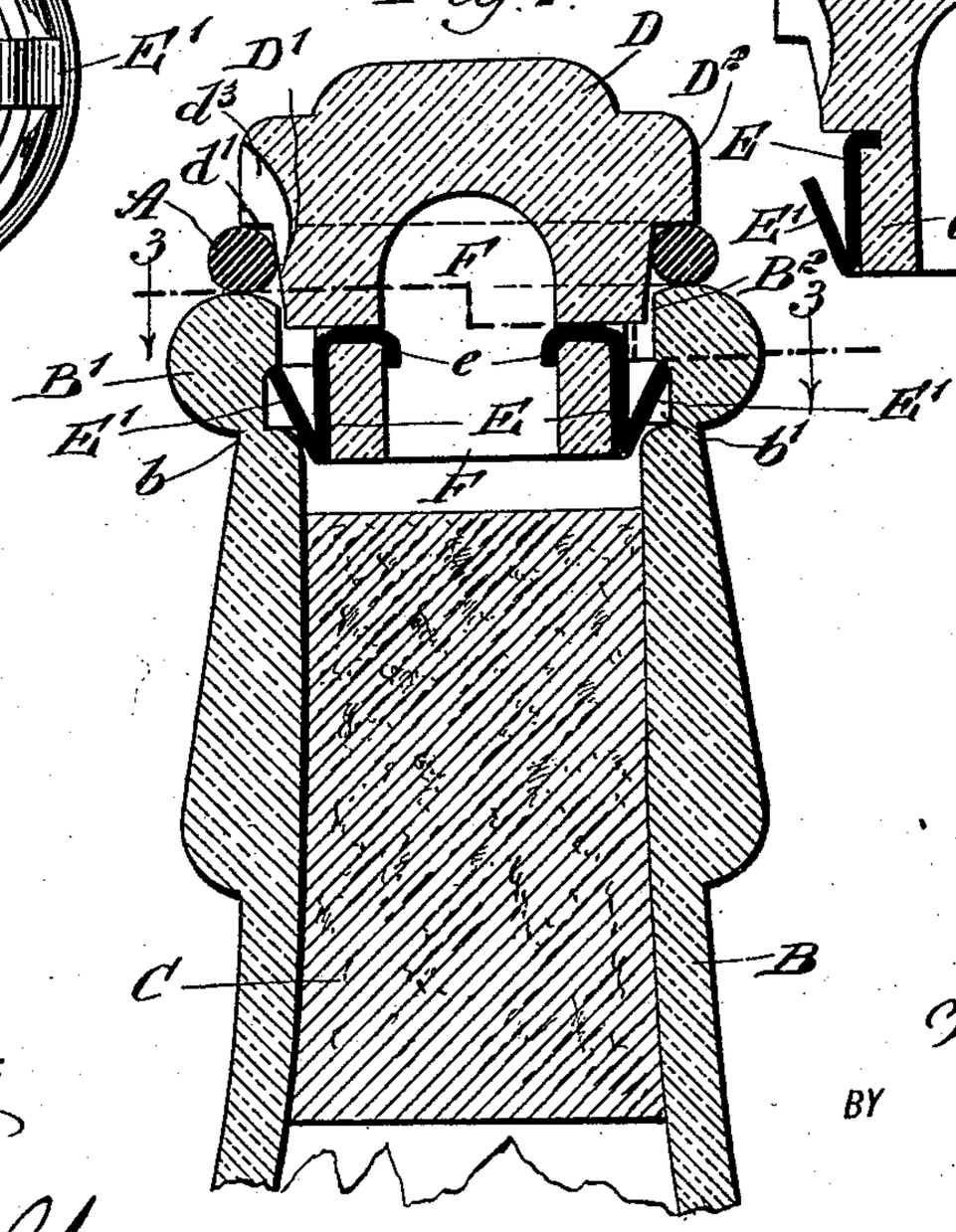


Fig 2.



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NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 581,157, dated April 20, 1897.

Application filed December 30, 1896. Serial No. 617,487. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SALE HANNAFORD, of Pasadena, in the county of Los Angeles and State of California, have invented a Non-Refillable Bottle, of which the following is a full, clear, and exact description.

My invention relates to that class of bottles which are provided with closures which cannot be removed without mutilating the bottle, so that the fact of its previous opening is evident, and it therefore cannot be refilled with fraudulent imitation of the original and genuine contents without the fact being known.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the neck of a bottle with my device applied thereto. Fig. 2 is a vertical central section of the same. Fig. 3 is a section taken on the line 3 3 of Fig. 2. Fig. 4 is a perspective view of the cap or plug for closing the end of the bottle-neck. Fig. 5 is a bottom plan view of the cap, and Fig. 6 is a vertical sectional view thereof.

My invention consists, in addition to the usual closing means, such as a cork, of a flange surrounding the opening in the bottle-neck and connected thereto by a relatively weak section of material, and a cap for insertion in the opening and provided with internal automatic locking means by which its withdrawal is prevented after the first insertion. This cap is formed in part as a cone, which may be driven into the ring formed by the flange and act as a plug or wedge to separate the flange from the neck, and thus render the usual closure accessible.

The neck of the bottle (represented by B in the drawings) is provided at its upper end with a flange B′, which is internally of a slightly-larger diameter than the neck of the bottle. The interior of the surface of this flange is also recessed, as shown at *b*′, the recess being larger in diameter than the upper portion of the flange. The recess *b*′ is located near the bottom of the flange and in consequence leaves the flange attached to the body of the neck by a comparatively thin and weak section *b*.

A cork C is inserted, as common with the ordinary bottle, but is pushed entirely within the neck, so that its upper end is a little below the bottom of the groove *b*′. The cap D is shown in the drawings as having a central hole F in its lower surface. This feature is immaterial, as the cap may as well be made without this hole as with it. The lower portion G of the cap is made of a diameter slightly less than the ordinary neck of the bottle, so that it may enter therein, if necessary.

Two springs E, formed of a small flat bar of metal, are bent in general of a V shape, having a side projection or arm *e* at the end of one arm of the V, by which it is attached to the lower portion of the cap. As shown in Fig. 2, this horizontal arm *e* extends through the side wall of the cap and is bent down upon its inner end, so as to securely hold the same in place. The springs may be placed in position when the cap is cast or be inserted later. In Fig. 6 the horizontal arm which attaches the spring to the cap is shown as extending only a short distance into the body of the cap. Whatever method of fastening is adopted is immaterial. These springs are so formed that they will be pressed inwardly by contact with the ring formed by the upper flange B′ when the cap is inserted in the bottle-neck and will enter sufficiently to allow their outer or free ends to expand and engage the upper corner of the recess. They will thus hold the cap in place in such a manner that the springs cannot be gotten at to release the cap without breaking the flange B′.

Above the cylindrical portion G the cap is formed with an annular flange *d*, and above said flange the cap is enlarged in diameter and has a conical section D′. The smaller or lower end of this cone is of such a size as to nicely enter within the upper end of the flange B′. The upper or larger end of the cone is of greater diameter than the upper end of the flange, so that if the cone is driven down into the flange the flange will be broken and separated from the body of the bottle-neck. The weakest point of attachment being at the point *b*, the flange will be broken

off at this point, and consequently the cap may be removed and the cork C removed by a corkscrew. Above the conical portion D′ the cap is provided with a flange D^2, which is of greater diameter than the cone, thus forming a horizontal shoulder or ledge d'. Between this ledge d' and the upper end of the flange B′ on the bottle is placed a ring A, of rubber, metal, or any suitable material. The object of this ring is twofold: first, to form a packing-ring to more thoroughly seal the bottle, and, second, to prevent accidental forcing of the cap into the bottle and thus breaking off the flange B′.

When the bottle is to be opened, the ring A is first removed from the cap, and then the cap D driven into the bottle. This may be done by striking the cap a smart blow with the hand or any convenient tool or by striking the cap against some fixed object. This latter method may be used by striking the bottle against the bottom of a pail or any other suitable vessel, which will thus receive the fragments of glass broken off and prevent trouble therefrom.

The cap being locked to the bottle in the manner shown and described, will also act as a lock to retain the cork C in place, and thus prevent its being forced out by the excessive force of gas within the bottle.

In Fig. 4 the cone D′ is shown as composed of a number of sides or faces. When constructed in this way, the angles d^2 only are in contact with the inner surface of the flange B′. This reduces the contact of the cone to a number of points and facilitates the breaking of the ring. The outer surface of the cap D, either the top or the edge of the flange D^2, or both, may be used to receive the name of the manufacturer or his trade-mark. The cap is not injured by the opening of the bottle and may be preserved and used on other bottles. The bottle, however, has the flange B′ broken off and will thus betray the fact that it has been opened, and cannot be used for spurious imitations of the genuine article without that fact being apparent. Otherwise than this the bottle is uninjured. The outer broken edge of the bottle-neck may be smoothed over by grinding and the bottle used for any legitimate purpose, its value in this respect meeting the actual cost of the invention. To make the ring A easily accessible and quickly removable, the cap D has one or more slots d^3 formed in its outer rim D^2, which permit the insertion of a knife or hook for cutting or removing the ring A.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A bottle having a neck for the reception of the usual cork, a rim or flange surrounding the upper end thereof and having the neck within the same of an increased diameter, whereby the connection of the flange to the body of the neck is reduced in section, and a locking-cap having covered locking means for securing the same to the bottle, and a conical section adapted by the outer surface of its smaller end to engage the inner surface of the bottle-flange and forming a wedge to break it off by forcing it outward when driven into the same, substantially as described.

2. A bottle having an outer section of the neck connected to the body thereof by a section of reduced thickness, a cap having a conical section, the smaller end of which enters and closely fits the outer section of the bottle-neck, forming a conical wedge to fracture the outer section of the neck, when driven into the same a flange surrounding the cap outside of the conical section, a packing-ring between the lower shoulder of said flange and the end of the bottle-neck, and means for locking the cap to the outer section of the neck so that it cannot be withdrawn therefrom, substantially as described.

3. A bottle having the outer section of the neck connected to the body thereof by a section of reduced thickness, and having a recessed ring or groove upon its inner surface, a cap having a conical section its smaller end entering and closely fitting the outer section of the neck forming a wedge to force the sides of the outer section out, and spring-catches attached to the cap and adapted to engage said groove when the cap is inserted, substantially as described.

4. A bottle having the outer section of the neck connected to the body thereof by a section of reduced thickness, and having a recessed ring or groove upon its inner surface, a cap having a conical section its smaller end entering and closely fitting the outer section of the neck forming a wedge to force the sides of the outer section out, and rearwardly-extending spring-bars attached to the cap and adapted by their rear ends to engage said groove to lock the cap in place, substantially as described.

5. A bottle having the outer section of the neck connected to the body thereof by a section of reduced thickness, and having a recessed ring or groove upon its inner surface, a cap having a conical section its smaller end entering and closely fitting the outer section of the neck forming a wedge to force the sides of the outer section out, and spring-catches consisting of V-shaped bars having each a side bend or hook at the end of one arm, by which it is fixed to the cap and adapted to engage the groove in the neck by the other end, substantially as described.

6. A bottle having the outer section of the neck connected to the body thereof by a section of reduced thickness, and having a recessed ring or groove upon its inner surface, a cap having a conical section its smaller end entering and closely fitting the outer section of the neck forming a wedge to force the sides of the outer section out, and longitudinal

grooves below said conical section, spring-catches within said grooves, consisting of V-shaped bars having a side bend or hook at the end of one arm by which it is fixed to the cap, and adapted to engage the groove in the neck by the other end, substantially as described.

7. A bottle having the outer section of the neck connected with the body thereof by a section of reduced thickness, and provided with an inner circumferential groove or recess, a cap having a conical section, the smaller end of which enters and fits the outer section of the bottle-neck forming a wedge to force the sides of the outer section out, a flange surrounding the cap outside of the conical section, a packing-ring between the lower shoulder of this flange and the end of the bottle, and spring-catches consisting of bars attached to the cap and adapted by their upper or outer ends to engage the groove in the bottle-neck, substantially as described.

8. A bottle having the outer section of the neck connected with the body thereof by a section of reduced thickness, and provided with an inner circumferential groove or recess, a cap having a conical section, the smaller end of which enters and fits the outer section of the bottle-neck forming a wedge to force the sides of the outer section out, a flange surrounding the cap outside of the conical section, a packing-ring between the lower shoulder of this flange and the end of the bottle, and spring-catches consisting of V-shaped bars having each a side bend or hook at the end of one arm by which it is fixed to the cap, and adapted to engage the groove in the neck by the other end, substantially as described.

9. A bottle having a section about its mouth which is connected to the body thereof by a thin breaking-strip, a cap locking to its outer section and provided with a conical section adapted to break the outer bottle-section and release the cap by being forced into the same, and a ring interposed between the end of said outer section and the cap, said cap having a radial slot by which the ring may be engaged to cut or remove the same, substantially as described.

10. A bottle having the outer section of the neck connected to the body thereof by a section of reduced thickness, and provided with an inner circumferential groove or recess, a cap having a conical section the smaller end of which enters and fits the outer section of the bottle-neck, a flange surrounding the cap outside of the conical section, and provided with a vertical slot opening at the bottom surface of the flange, a packing-ring between the lower shoulder of this flange and the end of the bottle, and spring-catches consisting of bars attached to the cap and adapted by their upper or outer ends to engage the groove in the bottle-neck, substantially as described.

11. A bottle having the outer section of the neck connected with the body thereof by a section of reduced thickness, and provided with an inner circumferential groove or recess, a cap having a conical section the smaller end of which enters and fits the outer section of the bottle-neck, a flange surrounding the cap outside of the conical section and provided with a radial slot opening to the bottom surface of the flange, a packing-ring between the lower shoulder of this flange and the end of the bottle, and spring-catches consisting of V-shaped bars, having each a side bend or hook at the end of one arm by which it is fixed to the cap, and adapted to engage the groove in the neck by the other end, substantially as described.

WILLIAM SALE HANNAFORD.

Witnesses:
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A. M. ELSON.