



# UNITED STATES PATENT OFFICE.

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## NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 640,275, dated January 2, 1900.

Application filed March 29, 1899. Serial No. 710,930. (No model.)

*To all whom it may concern:*

Be it known that I, VAN DYKE CRUSER, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings, State of New York, 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 drawings.

10 This invention relates to non-refillable bottles, and particularly to a stopper adapted for application to any tapering form of bottle-neck which will prevent the introduction of liquids into the bottle after the same has once  
15 been emptied and while the stopper remains in position.

The invention has for its object to provide an improved construction of stopper embodying a valve and apertured disk above the same, whereby the contents of the bottle may be freely poured therefrom; but any attempt  
20 to introduce liquid into the bottle causes the same to contact with the valve and close the latter.

25 A further object of the invention is to provide an improved guard-cap which effectually prevents tampering with the valve or the removal of the stopper.

30 Other objects and advantages of the invention will hereinafter appear in the following description and the novel features thereof will be particularly pointed out in the appended claims.

35 In the drawings, Figure 1 is a vertical section through the stopper applied to a bottle. Fig. 2 is a detail perspective of the parts of the stopper separated from each other. Fig. 3 is a horizontal section on the line 3 3 of Fig. 1, and Fig. 4 is a similar section on the line 4 4  
40 of Fig. 1.

Like letters of reference indicate like parts throughout the several figures of the drawings.

45 The letter A designates the neck of a bottle, which may be of any preferred shape or configuration and is illustrated as the ordinary form of neck.

50 My improved stopper B is applied within the neck of a bottle and is provided with a central aperture B', extending therefrom, and

at its upper portion with an enlarged valve-chamber B<sup>2</sup>, the base of which forms a seat to cooperate with a valve C.

The stopper B has been shown as formed of one piece of material; but it may be found  
55 desirable in manufacture to form the upper portion B<sup>3</sup>, surrounding the chamber B<sup>2</sup>, of a separate piece, as indicated by dotted lines in Figs. 1 and 2, and placing the same upon the main stopper B. The upper edge of the  
60 walls B<sup>3</sup> of the stopper are provided with suitable recesses or grooves B<sup>4</sup>, which permit the outflow from the stopper. This stopper may be formed of any desired material—for instance, cork, pulp, or rubber; but it is de-  
65 sirable that the material should be slightly resilient or yielding in order that the prongs D' of the guard-cap D may compress and be slightly embedded within the same.

The valve C may be simply a disk guided  
70 by the walls of the recess B<sup>2</sup>, but has been shown with a guide-stem C', which, however, is not material. Above the valve C and within the recess B<sup>2</sup> a valve-disk E is provided, which upon its under surface is provided with  
75 grooves or channels E' and at its central portion with an aperture E<sup>2</sup>. This disk may be fixed within the recess B<sup>2</sup> at a proper distance above the valve C or may be located therein,  
80 so as to freely move with the valve, the operation in both instances being desirable. The channels or grooves E' permit the outflow of liquid from the chamber when the valve is in contact with the disk E through the central aperture E<sup>2</sup>, and if the disk be  
85 movable and fall into contact with the cap D the liquid will also flow around the edges of the disk. If it be attempted to insert liquid into the bottle, the disk drops into contact with the inclined walls B<sup>3</sup> of the chamber B<sup>2</sup>,  
90 preventing the flow of liquid around the edges thereof and causes the same to pass through the center aperture E<sup>2</sup>, thus contacting with the upper surfaces of the valve C and holding it upon its seat.

95 When the valve and disk are located within the stopper, the same are held in position by means of the cap D and its prongs D', which embed themselves in the body of the upper portion of the cork, leaving the lower portion  
100

of the cork free to make a tight closure in contact with the walls of the bottle-neck. The edges of the cap D are provided with suitable serrations or indentations D<sup>2</sup>, which permit the flow of liquid outward through the passages B<sup>4</sup> and around the edges of the cap. This cap prevents any tampering with the valve and as the stopper, with its cap, is forced downward beneath the upper portion of the neck prevents the easy removal of the stopper. If found desirable, however, a stopper or guard F may be applied at the upper portion of the bottle-neck. This plug may be formed of glass and provided with outlet apertures or channels F' at its side, and when once in position effectually prevents any access to the valved stopper beneath the same.

In the operation of pouring the liquid from the bottle the valve C will rest in contact with the disk E and the liquid flow through or around said disk and outward around the edges of the guard-cap D. Any attempt to refill the bottle when the same is in an upright position will cause the liquid to pass through the central aperture E<sup>2</sup> of the disk E and strike the upper portion of the valve, thus holding the same upon its seat, while if the bottle be inverted in an attempt to refill the same the valve C, which may be of floatable or buoyant material, will rise to its seat as the liquid enters, and thus prevent the filling of the bottle.

It will be obvious that the several parts may be formed of any preferred material and that either the valve or disk may be formed of floatable substance if the same be found desirable in the use of the bottle. It is also obvious that changes may be made in the details of construction and configuration with-

out departing from the spirit of the invention as defined by the appended claims.

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

1. The combination with an apertured stopper provided with a valve-seat and a peripheral wall above the same having apertures at its upper portion, of a valve located upon said seat, a disk within said wall provided with a central aperture above said valve and radiating channels upon its flat under face communicating with said aperture, and a recessed guard-cap resting upon the upper portion of said wall above said aperture and having prongs extending longitudinally of the stopper to be embedded therein; substantially as specified.

2. The combination with an apertured stopper provided with an enlarged chamber at its upper portion having a valve-seat and outlet-apertures formed in the edge of a wall above said seat, of a valve upon said seat, a disk within said wall provided with a central aperture above said valve communicating with radiating channels upon the lower horizontal face thereof, a guard-cap resting upon the upper portion of said stopper over said outlet-apertures and having at its edges inwardly-extending recesses, and depending prongs from said cap adapted to be embedded in the walls of said stopper; substantially as specified.

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

VAN DYKE CRUSER.

Witnesses:

JAMES H. WOOD,  
JUNIOR M. WHITE.