C. B. H. LA BOUNTY.
VALVE FOR NON-REFILLABLE BOTTLES.
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1,161,693. Patented Nov. 23, 1915.

[Diagram of the valve for non-refillable bottles]

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Witnesses
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by WILLSOWNE
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To all whom it may concern:

Be it known that I, CHARLES B. H. LA BOUNTY, of Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Valves for Non-Refillable Bottles; and I do declare the following to be full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in valves designed more particularly for non-refillable bottles.

The object of my invention is to provide a simple and inexpensive valve for the purpose specified, yet one which will be highly efficient, an improved method of connecting the valve to the seat being employed.

With this general object in view, the invention resides in certain novel features of construction and combination, hereinafter described and more particularly pointed out in the claims.

In describing the invention, I shall refer to the accompanying drawing wherein like reference characters designate corresponding parts throughout the various views and wherein:

Figure 1 is a vertical section through the upper end of a bottle constructed in accordance with my invention: Fig. 2 is a horizontal sectional view as seen along the plane indicated by the line 2—2 of Fig. 1; Fig. 3 is a perspective view of the partition and the flap valve carried thereby.

In this drawing, constituting a part of the application, I designate the body of a bottle which is equipped with any preferred type of tubular neck 2, an integral shoulder 3 being here shown as provided at the lower end of the neck 2, although it might well be disposed at any preferred point.

Compressed within the neck 2 and seated upon the shoulder 3, is a packing ring 4 which may be constructed of cork, rubber, or other appropriate material for forming a fluid tight connection at this point. The ring 4 in turn supports a horizontally disposed partition 5 having a central aperture 6, the lower side of said partition being here shown as formed with a depending annular flange 7 which frictionally engages the inner side of the packing ring 4. It may here be explained that the frictional contact existing between the flange 7 and the ring 4 is sufficient to positively prevent the partition from being dislocated by jarring the bottle. The upper side of the partition 5 is in all cases provided with some preferred type of flat horizontal valve seat, the latter being here shown as disposed at the upper end of a tubular neck 8 which rises from the partition 5 and surrounds the aperture 6 therein, this neck 8 as well as the partition 5 proper and its flange 7, being all constructed of glass as is likewise the bottle 1 and its neck 2.

Formed integrally with the neck 8, is one end 9 of an angular gripping flange 10, the other arm 11 of said flange being disposed horizontally in a plane spaced slightly above the flat upper end of said neck 8. With the parts in this position, a flexible flap valve 12 which is preferably formed of mica, is disposed upon the aforesaid flat upper end of the neck 8, in which position it is retained by having one of its edges gripped between said end and the arm 11 of the flange 10. It may here be explained that when manufacturing the device so far described, the arm 11 of the flange 10 is disposed either in or substantially in an upright position, and that the flap valve 12 is then positioned upon the neck 8, after which the flange 10 is heated by a blow torch or the like, thus causing its arm 11 to bend inwardly and overlie said valve 12. When the glass has been cooled and hardened, the valve 12 will of course be rigidly clamped in active position, in which position its own resiliency retains it normally seated at all times.

By securing the valve 12 to the partition in the above described manner, it will be seen that the parts directly associated with said valve may be easily and inexpensively manufactured, and that they may all be constructed of glass, this having been heretofore practically impossible when securing such valves in position by other means.

In conjunction with the parts above described, any preferred type of guard member 20 is provided for preventing the insertion of a wire or the like into the neck of the bottle, for the purpose of raising the valve 12. In the present application, the member 20 is shown as comprising a cylindrical body 21 which is cemented or otherwise secured in the upper end portion of the neck 2 and is preferably provided with an outstanding annular flange 22 overlying the upper end of said neck. The body 21 is


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Value for Non-Refillable Bottles.

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further provided with a solid bottom 23 having downwardly and outwardly inclining outlet openings 24 near its peripheral edge, said bottom 23 being provided with a cylindrical depending portion 25 whose lower end terminates in a tubular flange 26 surrounding the neck 8 and having its lower edge disposed an appropriate distance above the partition 5. By so constructing the guard member 20, it will be evident that it is impossible to open the valve 12 from the exterior of the bottle.

In applying bottles of the class above described, to use, they are first filled with the fluid to be marketed, after which the partition 5 is wedged in position upon the ring 4 and may if desired, be cemented to this ring, the guard member 20 is then disposed within the neck 2 and cemented or otherwise secured therein, and finally a cork C or the equivalent thereof, is used for sealing the upper end of the bottle neck until it be delivered to the consumer. When the cork C is removed, however, and the bottle is tilted to the necessary extent, the weight of the fluid within the bottle will force the valve 12 open, thus allowing such fluid to be readily discharged. It is essential, however, that the partition 5 be provided with an air vent 5a for allowing air to enter the bottle as the fluid is discharged therefrom. This vent, however, is of a size which will readily allow air to enter the bottle but through which fluid cannot travel.

By actual tests, it has been proven that an emptied bottle constructed in the manner above described, may be immersed in fluid in a number of positions, and that the same will not be filled with such fluid. Furthermore, jarring of the bottle which causes a number of those now on the market to admit the fluid, will not accomplish this end when the device is constructed in accordance with my invention. It will thus be seen that I have provided a very simple and efficient non-refillable bottle which may be totally constructed of glass, with the exception of the valve 12. In manufacturing the latter, I preferably employ mica since it possesses more resiliency than similar materials, but it will be evident that should any material be discovered which would operate to equal advantage for this purpose, it could well be used without departing from or sacrificing any of the advantages of the invention as set forth in the following which I claim to be the novel features thereof.

I claim:-

1. A valve comprising a seat member formed of frangible material and having a flat seat, a flexible non-fusible valve disk resting on said seat, and a gripping flange formed integrally with the seat member and bent around one edge of the disk to anchor the latter with respect to the seat.

2. The method of securing a flexible non-fusible valve disk to a frangible seat member having a flat seat, consisting in forming a gripping flange integrally with said seat member adjacent the seat, and in then heating said flange and bending it around one edge of the disk, whereby, when said flange cools, it will remain in contact with the edge of the disk and will effectively anchor the latter.

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

CHARLES B. H. LA BOUNTY.

Witnesses:

W. L. ASKIER.

FLORENCE JOHNSRUD.