

No. 701,048.

Patented May 27, 1902.

F. W. JOHNSON.

DEVICE FOR PREVENTING REFILLING OF BOTTLES.

(Application filed Oct. 8, 1901.)

(No Model.)

Fig. 1.

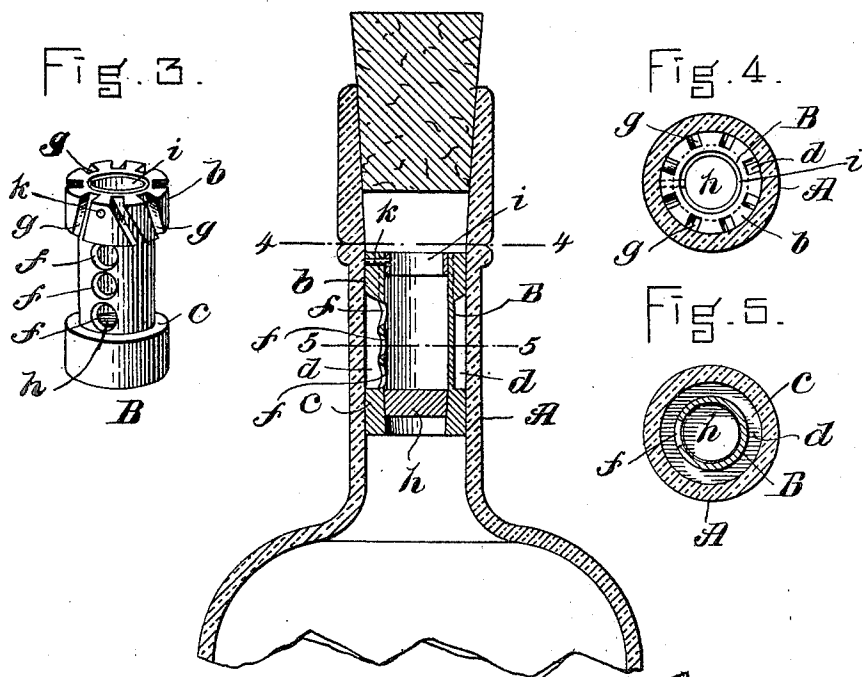


Fig. 3.

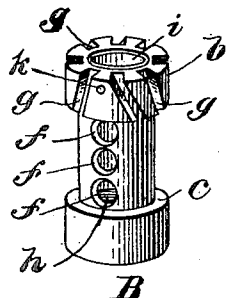


Fig. 4.

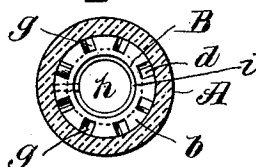


Fig. 5.

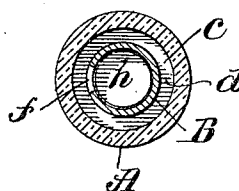
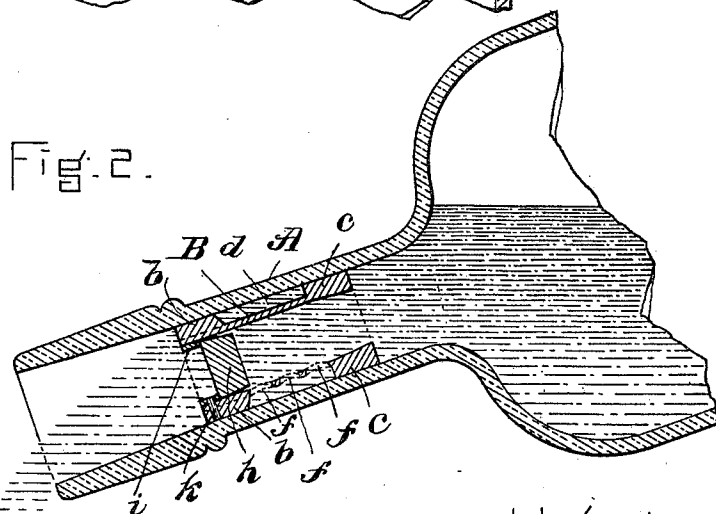


Fig. 2.



WITNESSES.

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FREDERICK W. JOHNSON, OF WALTHAM, MASSACHUSETTS.

DEVICE FOR PREVENTING REFILLING OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 701,048, dated May 27, 1902.

Application filed October 8, 1901. Serial No. 78,026. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. JOHNSON, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented an Improved Device for Preventing the Refilling of Bottles, of which the following is a specification.

My invention has for its object to simplify and improve the construction of devices for preventing the refilling of bottles after having been once emptied of their contents, such bottles being especially adapted for containing superior or well-known brands of liquids, as they cannot be again used for containing fraudulent compounds or imitations of the liquids originally put up therein.

To this end my invention consists in a simple and effective device of this character which is adapted to be applied to the neck of any ordinary bottle of the proper size to receive it, said device embodying certain novel features and details of construction, as hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section through the neck of an ordinary bottle having my improved device applied thereto. Fig. 2 is a similar section showing the position of the check-valve when the bottle is tipped to pour out the liquid which it contains. Fig. 3 is a perspective view of the device removed from the bottle-neck. Fig. 4 is a horizontal section on the line 4 4 of Fig. 1. Fig. 5 is a horizontal section on the line 5 5 of Fig. 1.

In the said drawings, A represents the neck of an ordinary glass bottle, within which after the bottle has been filled is inserted and securely fastened by cement or otherwise a hollow cylindrical plug B, which is composed of glass or other suitable material and is open at both ends to form a straight uninterrupted passage therethrough. This hollow plug B is provided at its opposite ends with flanges or heads *b c*, made integral therewith and adapted to snugly fit the interior of the bottle-neck A, said heads when the plug is in place within the bottle forming between them an annular chamber *d*, which communicates with the interior of the cylindrical plug through a series of openings *f* on one side

only thereof, said openings *f* extending in a straight line from one flange to the other, as shown in Figs. 1 and 2. The upper flange *b* is provided with a series of channels or grooves *g*, preferably inclined to the longitudinal axis of the cylindrical plug, as shown in Fig. 3, for a purpose to be hereinafter explained.

Within the interior of the plug B is placed a loose check-valve *h*, which normally seats itself near the bottom of the plug, the diameter of which is slightly contracted and tapered at that point to conform to the taper of the valve, and thus form a seat therefor, as shown in Fig. 1, the valve being prevented from falling out of the plug when the bottle is inverted by means of a suitable stop at the upper end or mouth of the plug, said stop in the present instance consisting of a narrow ring *i*, secured within the outer open end of the plug by means of a pin *k* or in any other suitable manner and forming a shoulder against which the valve *h* will be brought into contact when the bottle is inverted or tipped up, as shown in Fig. 2.

The channels or grooves *g* of the head or flange *b* are arranged on each side of the openings *f* and are inclined downward in a direction away from the same, as shown in Fig. 3, thereby rendering it absolutely impossible to pass a wire or other implement through said openings *f* and beneath the valve *h* when away from its seat for the purpose of holding up said valve and preventing it from being closed by the inward pressure of liquid attempted to be forced into the bottle to refill the same.

When the bottle is tipped down below a horizontal position, the pressure of the liquid therein will force the valve *h* to the outer end of the cylindrical plug B, as shown in Fig. 2, thereby permitting the liquid to flow out freely through the openings *f* into the annular chamber *d* and thence out through the channels *g* and mouth of the bottle, as shown in Fig. 2. If the bottle is held in a horizontal position, the air will not enter to permit the liquid to flow out; but when the bottle is tipped down below a horizontal line the liquid is divided and broken up by the partitions between the openings *f*, thus affording an entrance for the air, which will pass in at

the upper opening, while the greater part of the liquid will flow out through the lower openings into the chamber *d* and thence out through the channels *g*. If the attempt
 5 should be made to refill the bottle when submerged in a horizontal position, the liquid in attempting to pass through the holes *f* will be met and arrested by the pressure of the air in the bottle, which must necessarily escape
 10 before the liquid can enter, the pressure being thus equalized, and in the meantime the pressure of the liquid entering the large open outer end of the plug B will at once act with undiminished force on the loose check-valve
 15 *h* and instantly force it onto its seat, thus effectually preventing the entrance of any liquid into the bottle.

It will be obvious that the successful operation of this device depends on the arrangement of the openings *f* in a straight line and on one side only of the hollow plug B, for the reason that if one or more additional openings were made on the opposite side of the plug or if the openings *f* were out of line with
 25 each other the air in the bottle rising above the liquid would escape through the upper opening or openings and allow the liquid to enter the lowermost opening or openings and pass into the bottle, and consequently in order to produce the desired results, as demonstrated by actual tests, it is necessary that the outer end of the plug should be open in order to allow the liquid to act directly with its full force upon the check-valve and that the openings *f* should be in a straight line and on one side only of the plug, as shown.

An important advantage incident to the employment of my improved device is that the bottle to which it is applied requires no
 40 special construction or change, as it will fit any ordinary bottle the neck of which is of the proper size to receive it.

What I claim as my invention, and desire to secure by Letters Patent, is—

45 1. In a bottle, the combination with a bottle-neck, of a hollow cylindrical plug open at both ends to form a straight uninterrupted passage therethrough, and having end flanges or heads fitting tightly within said bottle-

neck and forming between them an annular
 chamber, said plug having a series of open- 50
 ings on one side only leading from its interior into said annular chamber, and arranged in a single straight line between said flanges or heads, the outer head or flange being pro- 55
 vided with channels or openings for the escape of the liquid from said annular chamber, combined with a loose check-valve free to slide within said cylindrical plug and seat itself at the inner end thereof to close the 60
 straight passage therethrough, and a stop at the outer end of the plug to retain the valve therein, substantially as described.

2. A device for preventing the refilling of bottles, comprising a hollow cylindrical plug 65
 open at both ends to form a straight uninterrupted passage therethrough and having end flanges or heads adapted to fit tightly within the neck of a bottle to form an annular chamber therein, said plug having a series of open- 70
 ings on one side only and arranged in a single straight line, and the outer head or flange having channels or openings for the escape of the liquid from the bottle, combined with a loose check-valve free to slide within said 75
 cylindrical plug and seat itself at the inner end thereof to close the straight passage therethrough, and a stop at the outer end of the plug to retain the valve therein.

3. The combination with the hollow cylindrical plug open at both ends and having a series of openings on one side only arranged in a single straight line, and a loose check-valve free to slide within said cylindrical plug and seat itself at the inner end of the 80
 same, of end flanges or heads adapted to fit tightly within the neck of the bottle to form an annular chamber therein, the outer flange being provided with channels or grooves inclined to the axis of the plug and in a down- 85
 ward direction away from the side openings therein, substantially as described. 90

Witness my hand this 5th day of October, A. D. 1901.

FREDERICK W. JOHNSON.

In presence of—

P. E. TESCHEMACHER,
 F. B. SPAULDING.