No. 830,566. PATENTED SEPT. 11, 1906.

M. A. BROWN.

NON-REFILLABLE BOTTLE.

APPLICATION FILED JULY 25, 1905.

Fig. 1.

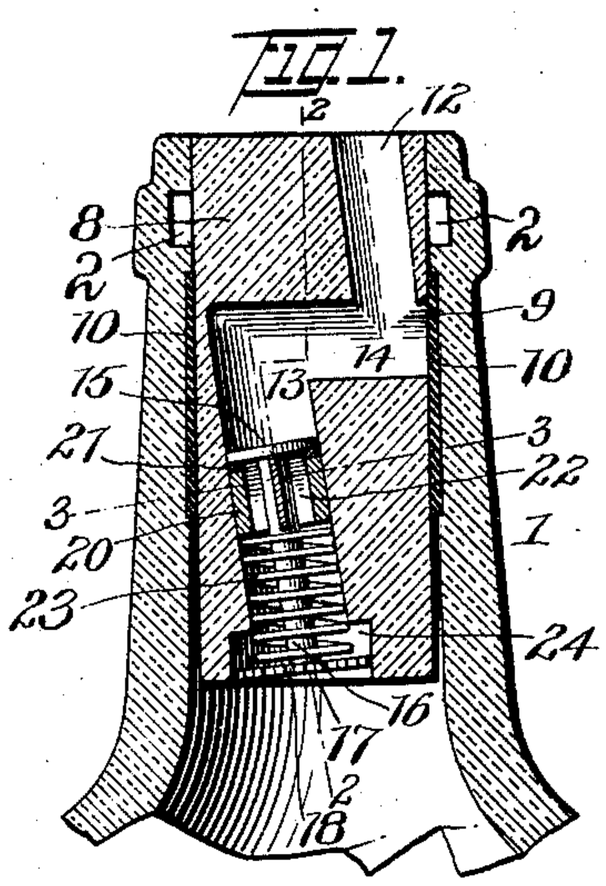


Fig. 2.

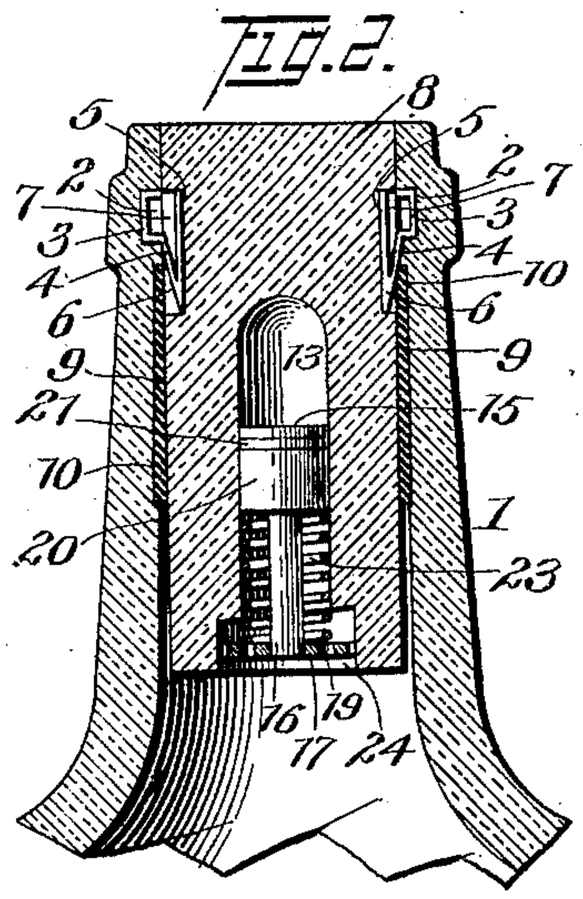


Fig. 3.

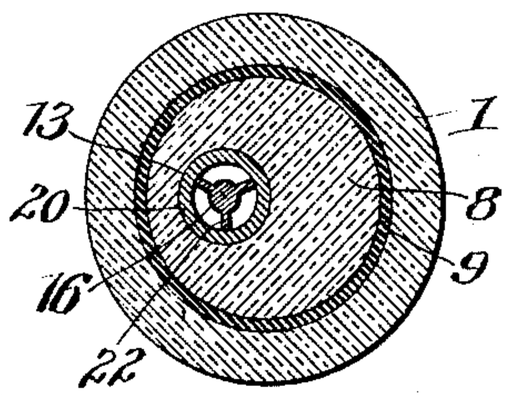


Fig. 4.

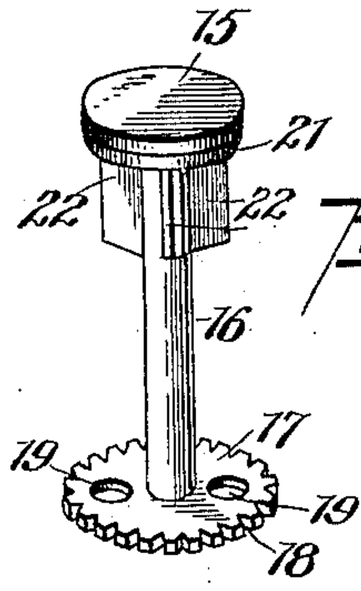


Fig. 5.

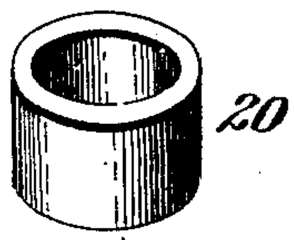
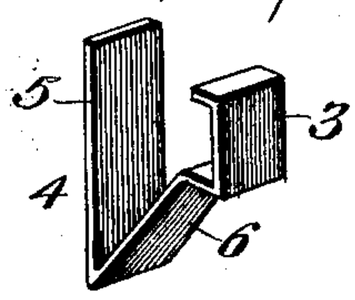


Fig. 6.



Witnesses

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NON-REFILLABLE BOTTLE.

No. 830,566. Specification of Letters Patent. Patented Sept. 11, 1906.

Application filed July 25, 1905. Serial No. 271,212.

To all whom it may concern:

Be it known that I, MARK ANTHONY BROWN, a citizen of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented a new and useful Non-Refillable Bottle, of which the following is a specification.

The invention relates to improvements in non-refillable bottles.

The object of the present invention is to improve the construction of non-refillable bottles and to provide a simple, inexpensive, and efficient one adapted to be readily corked after it has received its original contents and capable of permitting the same to be freely decanted and of effectually preventing a liquid from being introduced into it, thereby avoiding all adulteration and fraudulent refilling.

A further object of the invention is to provide a non-refillable bottle provided with an automatic valve which will be opened only by the outward flow of the contents of the bottle and which will remain closed in all positions of the bottle after the contents thereof have been consumed, so that the bottle cannot be partially filled by immersing it in a receptacle containing a liquid.

Another object of the invention is to provide means for permitting the contents of the bottle to flow freely therefrom and at the same time to prevent an instrument introduced into the bottle from operating the valve.

The invention also has for its object to provide means for effectually preventing the stopper from being withdrawn or forced into the bottle, so that the stopper cannot be removed without breaking the bottle.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a vertical sectional view of the neck of a non-refillable bottle constructed in accordance with this invention. Fig. 2 is a vertical sectional view taken substantially on the line 2 2 of Fig. 1. Fig. 3 is a transverse sectional view on the line 3 3 of Fig. 1. Fig. 4 is a detail perspective view of the valve. Fig. 5 is a similar view of the tubular valve-seat. Fig. 6 is a detail perspective view of one of the catches for locking the stopper in the neck of the bottle.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates the neck of a bottle; but the improvements herein described may be applied to various other receptacles having a neck adapted to receive a stopper. The neck 1, which is tapered interiorly from the bottom to the top, is provided near its upper end with an interior annular groove 2, having horizontal upper and lower walls forming shoulders for engaging a substantially rectangular loop 3 of one side of a substantially V-shaped catch 4. The catch 4 consists of an inner vertical side 5 and an outer inclined side 6, which has its upper portion angularly bent to form the said loop 3, and the latter consists of upper and lower horizontal portions and a vertical connection portion. The upper and lower horizontal portions engage the upper and lower shoulders of the grooves, and the vertical portion of the loop fits against the vertical wall of the groove. A pair of catches is preferably employed, and the inner vertical sides of the catches are arranged in recesses 7 of a stopper 8, which is constructed of glass, porcelain, or other suitable material and which is adapted to be inserted in the neck of the bottle or other receptacle after the same has been filled. The catches are compressed when the stopper is inserted in the bottle, and they are adapted to automatically engage the groove of the neck, and when in engagement with the same and with the recesses of the stopper the latter is positively locked against inward and outward movement and cannot be removed without breaking the bottle.

The catches may be constructed of any suitable resilient material, and in order to prevent any leakage of the contents of the bottle through the intervening space between the cylindrical stopper and the neck of the bottle an elastic sleeve 9, of cork or other suitable material, is interposed between the neck and the stopper. The sleeve 9, which

prevents the contents of the bottle from being affected by the metal of which the catches are constructed, is preferably fitted in a slight groove or depression 10 of the neck, the groove or depression forming sufficient shoulders to retain the sleeve in position prior to the introduction of the stopper and while the same is being forced into the neck. By this construction the resilient catches may be constructed of any suitable metal, as the liquid is prevented from coming in contact with them.

The stopper is provided with a tortuous passage consisting of inclined upper and lower portions 12 and 13 and a horizontal connecting portion 14, the upper portion or passage 12 being of a less diameter than the lower passage 13 and having its lower end located at the opposite side of the stopper from that at which the upper end of the lower passage is located. The lower wall of the transverse passage extends inwardly a considerable distance beyond the lower end of the upper leg or portion 12. This construction effectually prevents an instrument introduced into the neck of the bottle from operating the valve 15, which is located in the lower passage 13. The valve mechanism and the passages which are shown exaggerated in the accompanying drawings for convenience of illustration, may be constructed of any desired size to adapt them to the character of the bottle and to the various kinds of liquids. The valve 15 consists of a disk or head and a stem 16, to the lower end of which is secured a disk or plate 17, having a central opening to receive the stem. The valve and the disk or plate 17 may be constructed of any suitable material—such as metal, glass, porcelain—and the disk or plate threaded, cemented, brazed, or otherwise secured to the stem, and when parts are constructed of metal they are preferably nickeled or made of aluminium or some material which will not affect the contents of the receptacle. The plate is provided with peripheral notches 18, and it has openings 19 for permitting the contents of the bottle to flow freely through it. The stem 16 passes through a tubular valve-seat 20, which is cemented or otherwise secured in the lower leg or portion 13 of the tortuous passage, and its upper edge receives the valve 15, which is preferably provided with a washer or packing 21, of rubber, cork, or any other suitable material, for preventing leakage at the valve.

The valve is guided and held against lateral movement by means of a plurality of wings or flanges 22, formed integral with and extending radially from the upper portion of the stem. These wings or flanges fit the interior of the tubular valve-seat 20 and guide the valve in its opening and closing movements. The valve is normally held in a closed position by means of a light coiled spring 23, which is interposed between the lower edge of the tubular valve-seat and the disk or plate 18 and is designed to be of a strength just sufficient to overcome the weight of the valve and maintain the same in a closed position when the bottle is emptied and which permits the valve to yield readily to the pressure of the contents of the bottle. The disk or plate 17 is arranged within a recess or counterbore 24, formed by enlarging the lower end of the leg or passage 13, and the shoulder formed by the recess or counterbore 24 limits the opening movement of the valve. Any other suitable means, however, may be employed for forming a bearing for the spring and a stop for the valve.

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

1. In a device of the class described, the combination with a stopper having a tortuous passage consisting of upper and lower inclined portions or legs having their adjacent ends located at opposite sides of the stopper, and a transverse connecting portion, the lower wall of the transverse connecting portion being extended inward beyond the lower end of the upper leg or portion, and a valve operating in the lower leg or portion.

2. In a device of the class described, the combination of a stopper having a passage, a tubular valve-seat arranged in the passage, a valve arranged on the seat and provided with a stem extending through the same and having guiding means, a plate carried by the lower portion of the stem, and a coiled spring interposed between the plate and the valve-seat.

3. In a device of the class described, the combination with a neck having a tapering interior, and a stopper fitted in the neck and provided with a passage and having a valve, of locking means for securing the stopper in the neck, and a flexible sleeve located below the locking means and interposed between the stopper and the neck.

4. In a device of the class described, the combination of a receptacle having a neck provided with an interior groove, a stopper fitted within the neck and provided with a side recess and having a passage through it, valve mechanism operating within the passage, and a resilient catch composed of two sides, one of the sides being arranged within the recess of the stopper, and the other side being provided with a projecting portion extending into the groove and engaging the same at the top and bottom thereof, whereby the stopper is locked against both inward and outward movement.

5. In a device of the class described, the combination of a receptacle having a neck provided with an interior groove, a stopper fitted within the neck and provided with a side recess and having a passage through it, valve mechanism operating within the pas-

sage, and a substantially V-shaped catch having its inner side fitted into the recess of the stopper, the outer side of the catch being provided with a substantially rectangular bend fitted into the groove of the neck and engaging the said groove at the top and bottom thereof, whereby the stopper is locked against both inward and outward movement.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MARK ANTHONY BROWN.

Witnesses:
W. E. GRIFFIN,
L. K. MELDRIM.