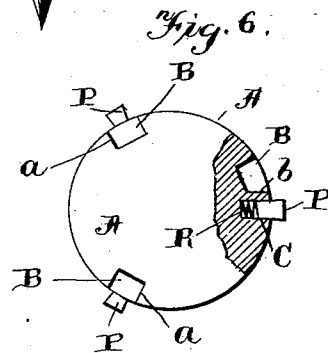
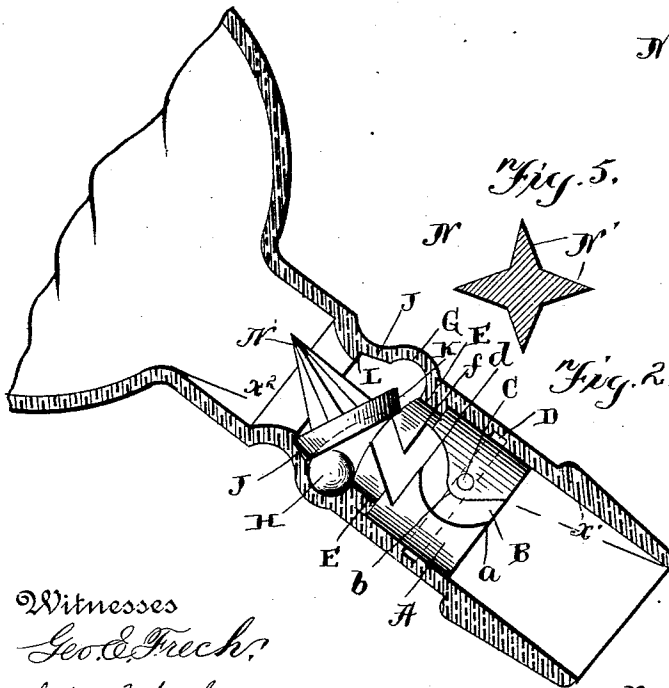
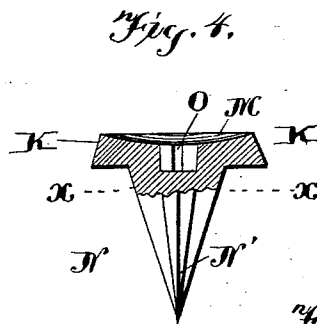
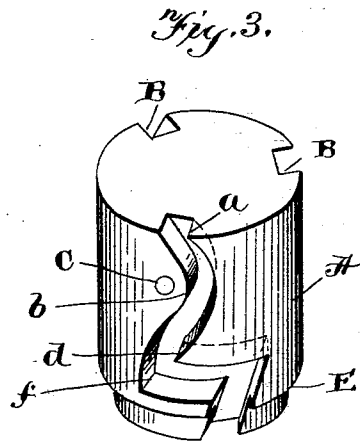
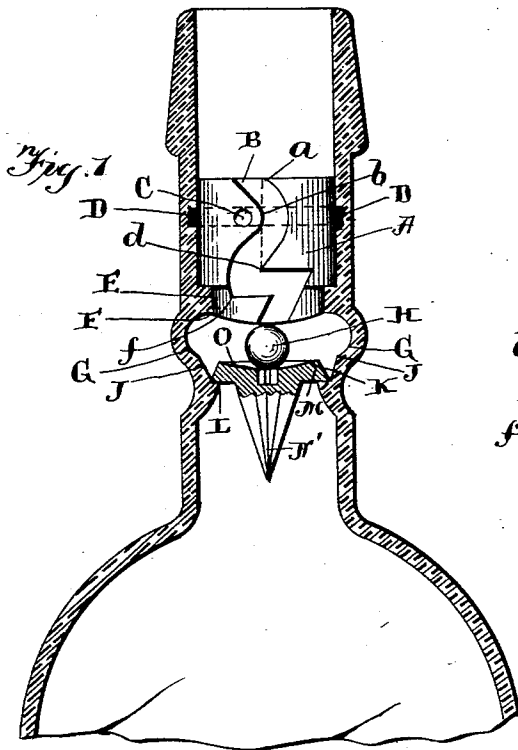


(No Model.)

T. FOLKS.
ANTIREFILLING BOTTLE.

No. 573,775.

Patented Dec. 22, 1896.



Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

THOMAS FOLKS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO ARTHUR RATHBUN PERRY, OF SAME PLACE.

ANTIREFILLING BOTTLE.

SPECIFICATION forming part of Letters Patent No. 573,775, dated December 22, 1896.

Application filed March 22, 1895. Serial No. 542,779. (No model.)

To all whom it may concern:

Be it known that I, THOMAS FOLKS, a citizen of the United States, residing at New York, in the county of New York and State of New

York, have invented an Improved Bottle and Device, the object of which is to prevent the refilling of bottles and other vessels with liquids, of which the following is a specification.

Referring to the accompanying drawings, wherein like letters of reference indicate similar parts on each view, Figure 1 is an elevation of my improved device. Fig. 2 is my improved bottle and device at the necessary angle to discharge its contents. Fig. 3 is a perspective view of lock or safety stopper. Fig. 4 is an elevation of gravity-valve. Fig. 5 is a section of gravity-valve at lines X X, Fig. 4. Fig. 6 is a plan of safety-stopper having lock-pins, together with spring seated in lock-pin seat or hole.

A, Figs. 1, 2, and 3, is the safety or lock stopper, provided with channels B, lock-pin hole C, and rabbet or recess E. The channels B are preferably formed of a series of curves and angles, said curves to be so arranged as to prevent the passage through said channels B of any instrument, the object of which instrument is to dislodge gravity-valve N or to extract the safety-stopper A. It will be readily seen by reference to dotted lines in channel B, Figs. 1, 2, and 3, that if an attempt be made to introduce any stiff instrument, as aforesaid, in channel B it would be impossible to pass the point *d*, for before said instrument would reach point *d* it would come in contact with points *a* and *b* and therefore could not reach point *d*, as *a*, *b*, and *d* are all on a straight line. If the instrument employed be pliable, it could be forced past point *d*, but in its passage would press hard against points *a*, *b*, and *d*, causing it to curve in passing point *d*, and the end of said instrument would consequently lodge in angle *f*, beyond which it would be impossible to force it. So it would be impossible for any instrument to reach gravity-valve N or any sharp angle in channels B on which to get sufficient hold to extract said safety-stopper A.

C, Figs. 1, 2, and 3, are holes or seats made in stopper A for the reception of lock-pin P, Fig. 6.

D, Figs. 1 and 2, is a groove formed on the inside of neck of bottle for the reception of lock-pin P when safety-stopper A, Figs. 1, 2, and 3, is forced into the neck of the bottle.

E, Figs. 1, 2, and 3, is a rabbet or recess formed in the lower outside edge of stopper A for the purpose of allowing the bottom of stopper A to pass the required depth into the neck of bottle, so as to leave barely space enough between stopper A and gravity-valve N, Figs. 1 and 2, to allow ball to roll freely in all directions, the bottom of stopper A being rounded to conform to the basin in gravity-valve N.

F, Figs. 1 and 2, is a flange formed on the inside of neck of bottle for the purpose of forming a seat for stopper A and also a seat for ball H when the bottle is inclined in position to discharge its contents.

G, Figs. 1 and 2, is a circular recess or groove formed in the inside of neck of bottle, as per drawings, for the purpose of forming a lateral seat for ball H when bottle is in an inclined position, said recess or groove being deep enough to allow the center of ball H to engage the then lower outside rim of concave portion or basin M of gravity-valve N when the bottle is in an inclined position for the purpose of holding the then lowest part of rim of gravity-valve N firmly to its seat L at the then lowest part of said seat L, thereby forming a hinge or pivot for said gravity-valve N to act on, allowing the then highest part of rim of said gravity-valve N to fall over against the bottom of stopper A, allowing the liquid to flow freely over and around said gravity-valve N and out through channels B.

The above position of ball and gravity-valve will be assumed no matter from what side of the bottle it is attempted to discharge its contents, the ball always passing to the lowest part of recess G and forming a rest or stop for gravity-valve N to pivot on.

H, Figs. 1 and 2, is a ball which when the bottle is in an inclined position occupies the then lowest part of recess G and operates against the then lowest part of rim of basin M of gravity-valve N for the purpose of forming a lock or stop to hold the then lowest part of rim of gravity-valve N firmly to the then

lowest part of said valve-seat L for a purpose hereinafter described. This ball never leaves the gravity-valve, no matter in what position the bottle may be placed.

5 J, Figs. 1 and 2, is a bevel formed in neck of bottle immediately below recess G to enable gravity-valve N to fall over against stopper A without leaving valve-seat L at the then lowest point.

10 K, is a bevel formed on the outside of rim of gravity-valve N, Figs. 1, 2, and 4, for a purpose hereinafter described.

L, Figs. 1 and 2, is a flange or valve-seat formed on the inside of neck of bottle, as per 15 drawings.

M, Figs. 1, 2, and 4, is a basin or concavity formed in the upper surface of gravity-valve N for the purpose of holding ball H in the center of gravity-valve N when the bottle is 20 in an upright position, thereby keeping said ball H an equal distance from recess or internal groove G when the bottle is in said upright position, so that said ball H will take the least time possible in reaching the recess 25 G when the bottle is being inclined.

N, Figs. 1, 2, 4, and 5, is a gravity-valve, the upper part of which is provided with a bevel K, a basin M, and cavity O, and its lower part is preferably formed of a series of 30 conical or pointed ribs wedge shape in cross-section, Fig. 5. The object of this gravity-valve is to prevent the introduction of any substance into said bottle beyond said gravity-valve N.

35 O, Figs. 1, 4, and 6, is one or more slots or cavities in the top of gravity-valve N for the purpose of more easily handling said gravity-valve.

P, Fig. 6, are lock-pins used for the purpose 40 of locking stopper A in the neck of the bottle.

R, Fig. 6, is a spring which is to be placed in lock-pin seat C before lock-pin is introduced therein. The purpose of said spring is to force the lock-pin P beyond the surface 45 of safety-stopper A into groove D when said stopper A has been forced to its seat F.

When it is desired to use my improved bottle, I would suggest that the bottle first be 50 filled, after which place the gravity-valve N in position, as per Fig. 1. Then drop the ball H on top of gravity-valve N, introduce lock-pin spring and lock-pin into lock-pin seat C in stopper A, and force said stopper to its seat F, so that lock-pin P will spring out of lock-pin seat C sufficiently to occupy groove D.

When it is desired to discharge the contents of bottle and the bottle is in the act of being 60 inclined, the ball H will immediately occupy the then lowest point of recess G, and that part of the gravity-valve N against which the ball H rests will be held firmly against its seat, allowing the uppermost part of rim of said gravity-valve N to drop over against the bottom of stopper A, allowing the liquid to flow 65 freely over and around said gravity-valve N and through said channels B out of the bottle.

If an attempt be made to refill the bottle,

no matter at what angle the bottle may be placed, it will be found impossible to do so, as the gravity-valve N always remains closed 70 until the center of gravity of gravity-valve N is reached, which does not take place until after the water-seal line X' X², Fig. 2, is reached. The bottle is as completely sealed after the water-seal line is passed, even though the 75 gravity-valve N be open, as it was before such water-seal line was reached and the gravity-valve N closed, as it would be impossible to insert any instrument in the bottle for the purpose of forcing or removing the air from 80 the bottle by suction, it being impossible to refill the bottle without removing the air, and as it is impossible to remove the air without the vacuum causing the gravity-valve to close it necessarily follows the bottle cannot be re- 85 filled.

I am aware that prior to my invention anti-refilling bottles have been invented in which stoppers, balls, and valves have been used. These I do not claim, broadly; but 90

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

1. A device to prevent the refilling of bottles or like vessels, consisting of a stopper A, gravity-locating ball H, and concaved gravity- 95 valve N, in the neck of a bottle or like vessel, substantially as described for the purposes set forth.

2. A device to prevent the refilling of bottles and like vessels, consisting of stopper A, 100 having channels B, a gravity-locating ball H, and a gravity-valve N, concaved on surface adjacent to said ball, substantially as described.

3. A device to prevent the refilling of bottles and like vessels, consisting of a stopper A, 105 having channels B, lock-pin seats C, a ball H and a gravity-valve N, substantially as and for the purposes specified.

4. A device to prevent the refilling of bottles and like vessels, consisting of a stopper A, 110 having channels B and rabbet E, a ball H and a gravity-valve N, for the purposes specified.

5. A device to prevent the refilling of bottles and like vessels, consisting of a stopper A, 115 having channels B and lock-pin seats C, a groove D, a ball H, a gravity-valve N, as and for the purposes specified.

6. A device to prevent the refilling of bottles and like vessels, consisting of a stopper A, 120 having channels B, lock-pin seats C, rabbet E, lock-pins P and springs R, a ball H and a gravity-valve N, as and for the purposes specified. 125

7. A device to prevent the refilling of bottles and like vessels, consisting of a stopper A, 125 having channels B, lock-pin seats C, lock-pins P, rabbet E, a groove D, a flange F, a ball H and a gravity-valve N, as and for the purposes 130 specified.

8. A device to prevent the refilling of bottles and like vessels, consisting of a stopper A, 135 having channels B, lock-pin seats C, rabbet

E, a flange F, a circular recess G, ball H and a gravity-valve N, as and for the purposes specified.

9. A device to prevent the refilling of bottles and like vessels, consisting of a stopper A, having channels B, lock-pin seats C, rabbet E, a groove D, lock-pins P, a flange F, a circular recess G, ball H, a gravity-valve N, and a valve-seat L, all as and for the purposes

10 substantially as set forth.

10. A device to prevent the refilling of bot-

15 tles and like vessels, consisting of a stopper A, having channels B, lock-pin seats C, rabbet E, a groove D, lock-pins P, lock-pin springs R, a flange F, a circular recess G, a ball H, a gravity-valve N and a valve-seat L, all substantially as described and for the purposes set forth.

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