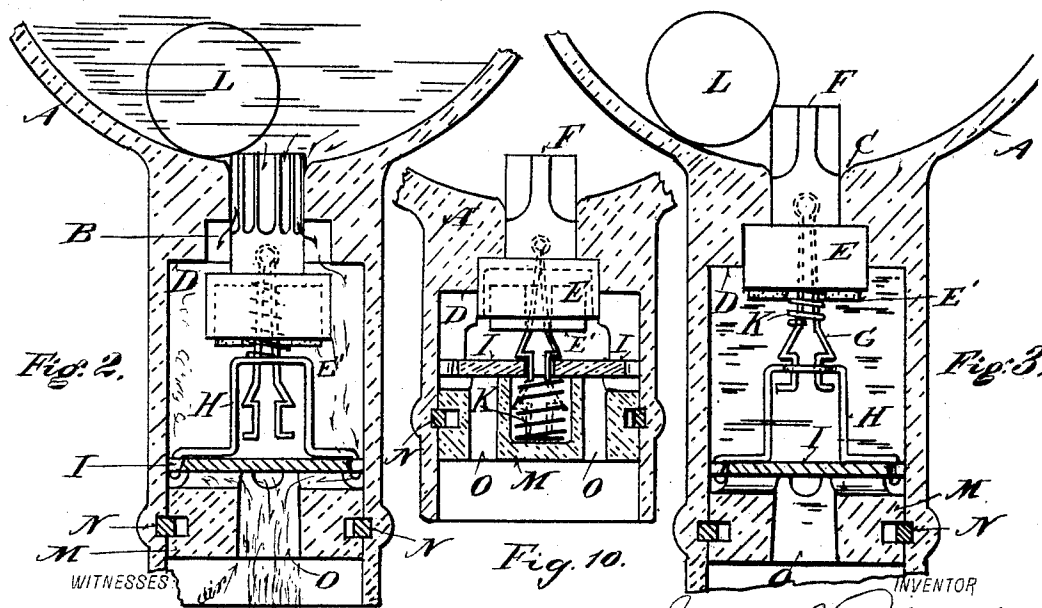


J. J. REIFGRABER.
AUTOMATIC BOTTLE LOCKER.

Patented July 20, 1897.



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AUTOMATIC BOTTLE-LOCKER.

SPECIFICATION forming part of Letters Patent No. 586,693, dated July 20, 1897.

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To all whom it may concern:

Be it known that I, JOSEPH JOACHIM REIFGRABER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Automatic Bottle-Lockers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in automatic-locking bottles, and its object is to provide means to lock the bottle under an attempted refilling.

The peculiarities of my device will hereinafter be fully described and claimed.

In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 represents a perspective sectional view of the bottle embodying my device; Fig. 2, a sectional view showing the discharge of liquid and the valve opened; Fig. 3, a sectional view showing the valve locked under an attempted refilling; Fig. 5, a bottom view of a plug guarding the automatic lock; Fig. 4, a detail spring-ring; Fig. 6, a detail of the guard-disk; Fig. 7, a hanger-guide for the locking-catch; Fig. 8, a spring-locking catch and closing-spring; Fig. 9, float-valve, and Fig. 10 a modification dispensing with the hanger-guide and using the guard-disk as a guide for the locking-catch and engaged therewith.

Referring to the drawings, the letter A represents a bottle having a neck of suitable construction, preferably cast to form a valve-seat socket B, in the form of a cylindrical socket between the discharge-opening C and the shoulder D at the enlarged portion of the neck. In this socket is mounted a float-valve consisting of a head portion E and a fluted stem F, located in the discharge-opening C.

The valve has a good sliding fit in the socket and discharge-opening, and the flutes of the stem extend a portion of the way to the head, so that when the valve is in its normal position, Fig. 1, the head is below the shoulder D and the flutes do not communicate with the socket B. The valve is thus closed, but the socket has a space below the head to allow further movement of the valve to an extreme position in order to lock it therein, as will presently be described.

The head of the valve is preferably hollow and filled with cork E' to form a float-valve when reversed during attempted refilling. The valve is provided with a shouldered opening *f* or otherwise adapted for engagement with a locking-catch G, adapted to support the valve in its normal position and to lock it under an attempt to refill the bottle. This catch is preferably of aluminium wire or other suitable material doubled to form legs, as in Fig. 8, with projecting shoulders *g* near the upper end inclined from the shoulders toward the end *g'*, which is engaged with the opening *f* of the valve. Thus a sharp shoulder or recess is formed at the upper ends of the legs, while the legs taper from the projections downward. This shouldered catch may be otherwise formed.

The catch is supported below the projection *g* by the engagement of its legs with the sides of an eye *h* in the hanger H or other device. This hanger has its ends bent to form hooks engaging with a disk I or other piece constituting a guard against tampering with the catch G. This disk is notched at its sides to allow passage of the liquid and rests upon ribs J or other supports in the neck of the bottle. The catch G has a strong enough spring tendency in its legs to support the weight of the valve in its normal position, as in Fig. 1. Under an extra pressure from without, however, the legs will spring inward and allow the projection *g* to pass the eye *h* and spring outward below or on the inward side of the eye, while the valve fully seats and the head sets itself within the socket B.

A coil-spring K encircles the legs of the catch G and normally bears against the bottom of the guide at one end and the top of the valve at the other. This spring is to maintain the valve in its normal position when the bottle is turned on its side or partially reversed. When fully reversed, the ball-weight L acts upon the stem F and forces the valve outward against the tendency-spring K. The flutes of the stem then communicate with the socket B, and the head, having passed the shoulder D, provides an outlet for the liquid in the bottle, as indicated in Fig. 2. The instant the weight of the ball L is removed from the stem the spring K returns the valve to its normal closed position, partly within the

socket B. The valve will not open in its horizontal or partially-reversed position, but only when the ball L acts thereon.

If it be attempted to refill the bottle when in an upright position, the liquid is met by the closure of the valve at the shoulder D and the socket B. If extra pressure be applied to the filling liquid, this pressure will force down upon the valve, spring together the legs of the catch, and draw the projections *g* past the guide or supporting-eye *h*, so that they will spring outward on the under side and lock the valve. The cork will slide upon the legs G and have no tendency to lift the valve.

If the bottle be reversed, as in Fig. 3, and the liquid be forced upward, the air confined in the cork cells or in the hollow head E of the valve will raise it against the opening tendency of the ball L and draw the projections *g* into their locking position, as shown. If it be attempted to refill the bottle by exhausting the air and immersing it in liquid, the intruding liquid will act upon the hollow head or the cork of the floating valve and snap it into its locking position, as before described.

In Fig. 10 I have shown a simplified construction on the same principle as before described. In this figure the eye *h* is formed in the disk I instead of in the supporting-hanger H, carried by said disk, as before shown. The spring K is mounted at the outer end of the legs G in a recess of the plug and bears normally against the projections *g*. The advantage is also toward compactness of construction and proper adjustment as the valve is checked at its middle position.

A positive lock outside of the disk I is provided to prevent tampering with the locking-catch by inserted wires. This positive lock may be of any suitable kind, but a preferred form consists of a plug M, fitting the mouth of the bottle and having a groove *m* in its edge matching a similar groove *a* on the inside of the bottle. A split ring N, of spring material, is forced into the grooved plug for insertion and then springs partially outward into the groove *a* when the grooves match, as shown in Figs. 2 and 3. The plug has one or more openings O and is laterally grooved on its inner face to form communicating passages with the notches of the disk I, while preventing insertion of wire to tamper with the catch G.

In Fig. 10 the plug has two or more holes instead of one and is recessed at its center to provide room for the outer ends of the catch G. The disk I may be otherwise than notched for the passage of the liquid.

A sealing-stopper, of cork or other material, closes the discharge-openings O.

The bottle is filled in the first instance before the insertion of the valve and its support and guard devices.

I do not limit myself to the construction herein shown and described.

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

1. A bottle-locking device comprising a valve-seat, a valve, a spring-catch normally supporting said valve away from its seated position, a support slidably engaged by said catch in normal position and positively engaged by the same when the valve is seated, and adjunctive devices operating therewith.

2. A bottle-locking device comprising a valve-seat, a valve, a double-legged spring-catch carried by said valve, a supporting means slidably engaged by said spring-catch at or near the ends of its legs to support the valve above its seat, and positively engaging said supporting means to lock the valve when seated, a spring tending to close said valve, and means tending to open said valve in other than its locked position.

3. A bottle-locking device comprising a valve-seat, a valve, a spring-catch supporting said valve, having a shoulder, a support having an eye detachably engaged by said spring-catch in normal position, and positively engaging therewith in locking position, and a closing-spring for said catch-support and the valve, substantially as described.

4. A bottle-locking device comprising a bottle-neck having a valve-seat socket, a stem-opening and an enlargement above the socket, a valve having a stem and head fitting said stem-opening and socket respectively, a spring-supporting catch for said valve, a support for said catch having an opening detachably engaged by said catch in normal position, a spring acting upon said valve, tending to close the latter, and an interior weight tending to open said valve in a reversed position of the bottle.

5. An automatic-locking-bottle device comprising a bottle-neck provided with a valve-seat, having a cylindrical socket above said seat and enlarging above said socket, a valve having a cylindrical head slidably fitted in said socket and matching said seat, a spring-catch consisting of a double-legged piece secured to said valve, a support embracing said spring-catch at or near the ends of said legs in detachable engagement to support the valve-head midway in said socket, and by positive engagement when the valve is seated, means to open said valve from its middle position, and a spring tending to return the valve after said opening.

6. A bottle-locking device comprising a slidable valve, a spring-catch consisting of a double-legged shouldered support for said valve, a hanger having an eye normally embracing said catch below the shoulders, and bracing said catch when the valve assumes an extreme position, a spring for said valve and catch support to maintain the valve in its normal closing position, a socket to receive said sliding-valve, and an operative weight to open the valve on reversal of the bottle under normal conditions.

7. An automatic-locking-bottle device comprising a bottle-neck provided with a valve-seat having a cylindrical socket B and an enlargement above said socket, a floatable
5 valve having a stem and a cylindrical hollow head E slidingly fitted in said socket, a spring-catch G doubled to form legs with spreading ends, a support H slidingly engaged by said legs to support the valve midway in the
10 socket, and positively engaged to lock the

valve in seated position, a guard device above said valve provided with irregular passages, and an interior weight to open said valve from its normal position.

In testimony whereof I affix my signature 15
in presence of two witnesses.

JOSEPH JOACHIM REIFGRABER.

Witnesses:

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