(No Model.)

E. L. LLOYD.

BOTTLE STOPPER.

No. 345,910. Patented July 20, 1886.

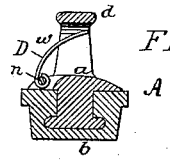


FIG. 9

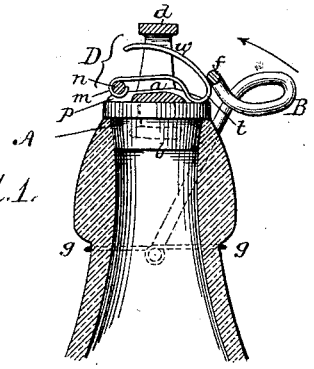


FIG. 1.

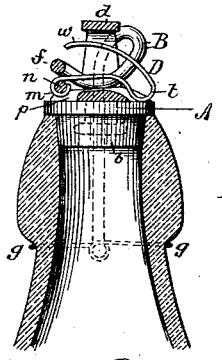


FIG. 2

FIG. 8

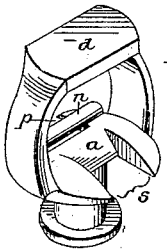


FIG. 10.

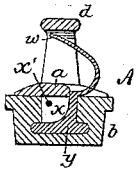


FIG. 12.

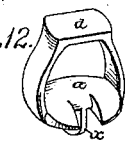


FIG. 11.

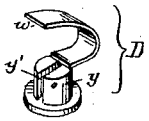


FIG. 3

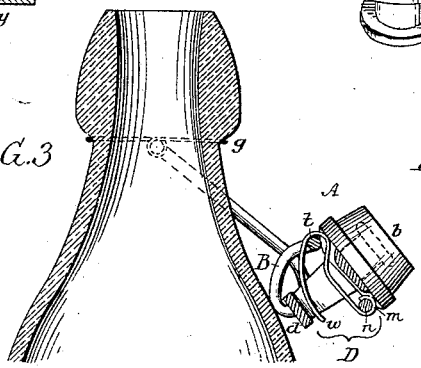


FIG. 4

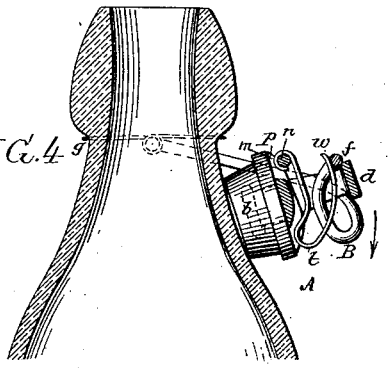


FIG. 5.

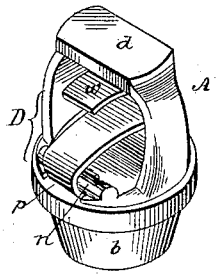


FIG. 7.

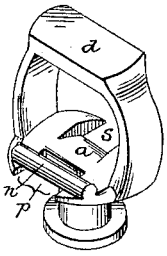
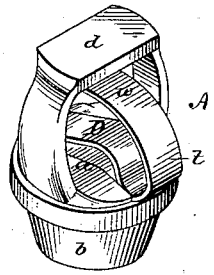


FIG. 6



Witnesses
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William D. Lowver

Inventor:
Edwin I. Lloyd
by his Attorneys
Howson and Sons

UNITED STATES PATENT OFFICE.

EDWIN L. LLOYD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO CHARLES C. JOLY, OF SAME PLACE.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 345,910, dated July 20, 1886.

Application filed May 12, 1886. Serial No. 201,938. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. LLOYD, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Bottle-Stoppers, of which the following is a specification.

My invention relates to stoppers for such bottles as are intended to contain effervescent liquids, the cork or stopper being separate from the retainer, in order that it may be passed through the tube of the filling-machine and held to its place on the mouth of the bottle after the same is filled and prior to the application of the retainer.

My invention consists of a novel form of catch applied to the stopper, for the purpose of engaging with the retainer as the latter is thrown back to release the stopper in opening the bottle, this catch being such that while it will engage with the retainer when the bottle is being opened, and will prevent the accidental release of the stopper from said retainer, said stopper can be readily removed by proper manipulation when such removal is necessary.

In the accompanying drawings, Figure 1 is a sectional view of part of the neck of a bottle with my improved stopper, showing the retainer about to be applied to the stopper; Fig. 2, a similar view showing the retainer in position for holding the stopper; Fig. 3, a view of the bottle open; Fig. 4, a view showing the adjustment of the stopper in respect to the retainer when it is desired to detach the stopper from said retainer; Figs. 5 and 6, perspective views of the stopper detached from the retainer; Figs. 7 and 8, perspective views of the stopper without its catch and rubber cap, and Figs. 9, 10, 11, and 12 views illustrating modifications of my invention.

A represents the stopper, which consists of a plate, *a*, having on the under side a projecting stem with enlarged head for the reception and retention of the rubber cap *b*, which is seated upon the mouth of the bottle and forms the packing of the stopper. Projecting above the plate *a* is a yoke, *d*, into and through which passes the central inwardly-projecting loop, *f*, of the retaining-bail B, which is similar to that set forth in my Letters Patent No. 325,181, dated August 25, 1885, the opposite legs of the bail being provided with trunnions hung to eyes on the neck-wire *g*, in the usual manner.

When a bottle is intended to contain an effervescent liquid, the stopper A must be separate from the retaining-bail B, as said stopper has to be passed through the tube of the bottle-filling machine, and held to its place on the mouth of the bottle by means of the plunger of said machine while the bail is being applied. It is necessary, however, to provide such a stopper with some means whereby, when the retainer is thrown back from the stopper in opening the bottle, said stopper will be caught and held by the retainer, in order to prevent its loss, and this device must be such that the stopper can be readily detached from the retainer when it is necessary to again fill the bottle. The device which I employ for this purpose is in the nature of a spring-catch, D, and consists of a plate of metal possessing the desired elasticity, this plate being bent at one end to form an eye, *m*, adapted to a bar, *n*, which crosses a recess, *p*, at one edge of the plate *a* of the stopper, the other edge of which has a recess, *s*, for the reception of a loop, *t*, due to the bending of the plate D backward, in order to form an elastic finger, *w*, extending through the yoke *d* of the stopper. This catch does not interfere with the free passage of the stopper through the tube of the filling-machine, or with the ready application of the retainer to the stopper, said retainer being adjusted by moving it in the direction of the arrow, Fig. 1, and the centrally-projecting loop *f* of the retainer being such as to depress the spring-finger *w* of the catch until the foremost part of the loop has passed beyond the end of the finger, whereupon the latter resumes its normal position, as shown in Fig. 2, and is in position to engage with the loop of the retainer, as shown in Fig. 3, when said retainer is moved back in order to release the stopper from the mouth of the bottle.

The loop *t* of the catch has a bearing upon the rubber cap *b* of the stopper, this cap thus serving to furnish an elastic backing for said loop, and thus facilitate the depression of the finger *w* by the loop of the retainer, and this elastic backing may, if desired, take the place of inherent elasticity in the finger; or, on the

other hand, the lower portion of the catch D may have a rigid bearing upon the plate *a* of the stopper, the elasticity of the finger *w* alone being relied upon to permit the depression of said finger and to cause its recoil in order to engaged with the loop of the retainer.

The pin *n* extends completely across the plate *a* of the stopper, and is cast integral with said plate, so that its security is insured.

When it is desired to release the stopper from the retainer, the parts are adjusted to the position shown in Fig. 4, the cap *b* of the stopper having a bearing upon the neck of the bottle, and the loop *f* of the retainer being between the top bar of the yoke *d* and the top of the spring-finger *w*, whereupon pressure tending to move the retainer in the direction of the arrow, Fig. 4, will effect the ready release of said retainer from the stopper.

In Fig. 9 I have shown a modified form of spring catch and a modified form of pivot-bar for the same; but the form of catch shown in Figs. 1 to 6 is preferred, as the pivot-bar in that case is on the opposite side of the stopper to that over which the retainer is forced, so that said pivot bar offers no obstacle to the ready application of the retainer.

Another form of pivoted catch in accordance with my invention is shown in Figs. 10, 11, and 12. In this case the stopper is cast in two parts, the plate *a* having on the under side a projecting tongue, *x*, to which is pivoted by a pin, *x'*, the headed stud *y* for receiving the rubber cap of the stopper, said stud having a slot, *y'*, for receiving the tongue *x*, and a curved finger, *w*, which projects up into the yoke of the stopper, and serves as a catch for engaging with the retainer when the latter is thrown back, the elasticity of the rubber cap *b* permitting the stud *y* to swing on its pivot and the finger *w* to yield when subjected to the pressure of the loop *f* of the retainer in applying the latter to the stopper.

I claim as my invention—

1. The combination of the retainer, the stopper detachable therefrom, and a catch hung to a transverse pin or bar on the stopper and constructed to engage with the retainer, all substantially as specified.

2. The combination of the stopper having a yoke with a catch hung to a transverse pin or bar on the stopper and projecting up into said yoke, all substantially as specified.

3. The combination of the stopper having a yoke with a catch hung to a transverse pin or bar on the stopper and having an elastic finger projecting up into said yoke, all substantially as specified.

4. The stopper having a base-plate with recessed edge and pin crossing said recess, in combination with a catch hung to said pin, and having a finger constructed to engage with the stopper-retainer, all substantially as specified.

5. The combination of the retainer, the stopper detachable therefrom, and a catch pivoted to the stopper and constructed to engage with the retainer, all substantially as specified.

6. The combination of the stopper having on the under side a rubber cap or packing with a catch pivoted to the stopper and having a bearing upon said rubber cap, said catch having a finger constructed to engage with the stopper-retainer, all substantially as specified.

7. The combination of the stopper having a yoke and a rubber packing with a catch pivoted to a pin at one side of the stopper, and having at the other side of the stopper a loop bearing on the rubber packing and terminating in a finger projecting up into the yoke, all substantially as set forth.

8. The combination of the stopper having a yoke and a catch hung to the stopper, and having a finger projecting up into said yoke, with a retainer having a central inwardly-projecting loop adapted to pass beneath the yoke and engage with the catch-finger, all substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWIN L. LLOYD.

Witnesses:
WILLIAM D. CONNER,
HARRY SMITH.