

(No Model.)

L. LANDAU.
CORK.

No. 587,835.

Patented Aug. 10, 1897.

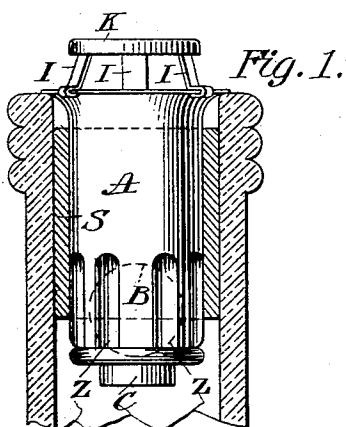
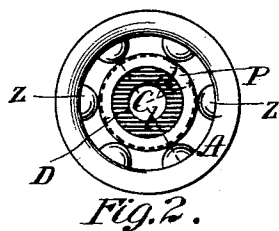
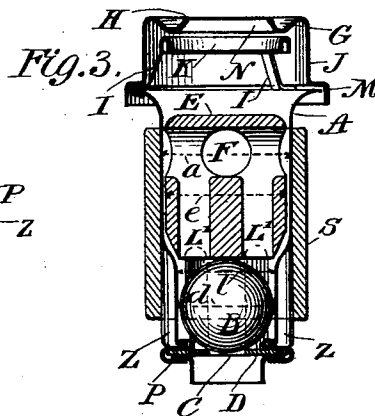
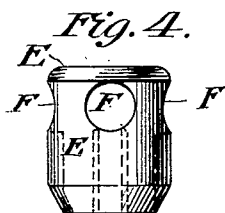
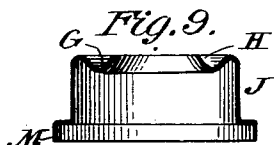
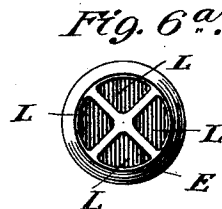


Fig. 5.

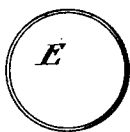


Fig. 10.

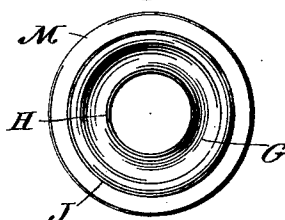


Fig. 7.

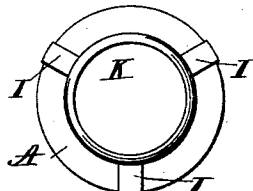


Fig. 6.

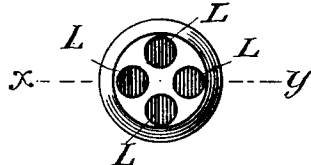


Fig. 11.

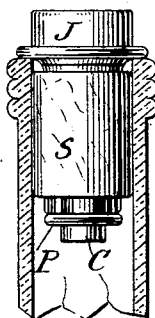
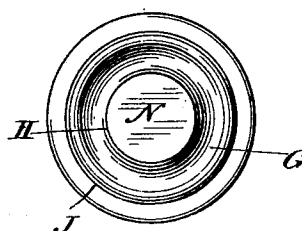


Fig. 8.



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SPECIFICATION forming part of Letters Patent No. 587,835, dated August 10, 1897.

Application filed April 22, 1897. Serial No. 633,322. (No model.)

To all whom it may concern:

Be it known that I, LEOPOLD LANDAU, a citizen of the Republic of France, residing at Paris, in the Department of the Seine and Republic of France, have invented certain new and useful Improvements in Corks, of which the following is a full, clear, and exact description.

This invention relates to safety-stoppers for bottles or like vessels. When the same has been fixed upon the vessel and covered with seals, it is impossible to refill the said vessel after it has been emptied without breaking the seals or removing the stopper. The latter is, however, constructed in such a manner as to allow of a complete emptying of the bottle or vessel to which it is applied. It will thus be easy when making use of this stopper to discover at once any fraud or attempt of fraud.

My invention is shown in detail in the accompanying drawings, in which—

Figure 1 is a vertical section of the neck of the bottle, showing my improved stopper therein in side elevation. Fig. 2 is a plan of the stopper with the interior mechanism and cap removed. Fig. 3 is a vertical section of stopper. Figs. 4, 5, and 6 are a side elevation and top and bottom views of the movable piece. Fig. 6^a is a bottom view of a modification of the movable piece. Fig. 7 is a plan of the washer. Fig. 8 is a plan of the cap. Figs. 9 and 10 are respectively a section and plan of the cap with its center plate removed; and Fig. 11 is a vertical section of the neck of the bottle, showing the complete stopper therein in operative position.

The stopper consists of a cylindrical tube A, of aluminium or other suitable material, of which Fig. 1 shows a view in elevation, Fig. 3 a longitudinal section, and Fig. 2 a plan view. The upper part of said tube is widened or flaring, and its lower part is provided internally with ribs *z*. Its lower end is closed by a bottom piece P, in which an opening C is made which is fitted or not with a rubber washer D. When the stopper is in the vertical position, the edge of the opening C or of the rubber washer D serves as a seat for a ball B, which, according to the material of which it is made, must be solid or hollow, so that it can float in any kind of liquid. If

the ball B is made of rubber or some flexible material, the rubber washer D at the bottom of the cylinder can be dispensed with, as the seating of said ball upon the edge of the opening C will form a sufficiently-tight closure under the influence of some outside pressure.

The diameter *d* of the ball B is slightly smaller than the distance *l* between the inside ribs *z*. Therefore the ball will be guided by the ribs in the cylinder A.

Inside the cylinder A and above the floating ball B a piece E is placed, of which Fig. 4 shows a view in elevation, Figs. 5 and 6, respectively, a plan view and a view from below, and Fig. 3 a sectional view on the line *xy* of Fig. 6. This piece E, which is cylindrical over the greater part of its elevation, ends slightly conical at its lower extremity. The diameter *e* of its cylindrical part is slightly smaller than the inside diameter *a* of the tube A, so that the piece E can move easily in the cylinder. The conical part of said piece E can penetrate between the ribs *z* of the cylinder A, so that when the stopper is in a vertical position the piece E rests upon the ball B, as shown in Fig. 3. A number of conduits L, of any suitable cross-section, (circular, square, oval, &c.,) are formed through the piece E. At the lower part thereof they have their outlets at L', and laterally below the upper surface, which is solid, they have their outlets at F. In order to increase the cross-section of said conduits L, I can give them the shape a view from below of which is shown in Fig. 6^a. The piece E can be made of aluminium, tin, glass, earthenware, china, or other material. When at rest, the stopper being in a vertical position, the piece prevents the ball from being raised from its seat by the liquid that might rise into the stopper or might remain therein after pouring out liquid. After the ball B and the piece E have been inserted in the cylinder A, fitted out with the bottom P, a washer K, (of which Fig. 1 shows a view in elevation, Fig. 7 a plan view, and Fig. 3 a sectional view on the line *x'y'* of Fig. 7, (is fixed upon the upper widening by means of the clamps I, which pass over the edge and serve as supports for the same. Finally, the whole of the tube A and the washer K are covered by a cap J, (of which Fig. 8 shows a plan view and Fig. 3 a sectional

view,) which is soldered or otherwise secured upon the upper edge of the cylinder A, under which its rim M turns. The part N, which constitutes the middle plate of the cap J, is made thinner at the periphery H, so that it can easily be cut through by the point of a knife, allowing the vessel to be emptied after it has been removed. Fig. 9 shows a sectional view, and Fig. 10 a plan view, of the cap J after its center plate has been removed. The groove G of the cap J and the raised edge of the washer K prevent the insertion of any kind of rod or tool into the safety-stopper.

A rubber or cork sleeve S is placed frictionally upon the cylinder A, so that its outside surface enters the neck of the vessel exactly as does an ordinary cork.

A view in elevation of the thus-completed stopper in its operating position is shown in Fig. 11.

It is evident that in order to keep the stopper in the vessel and in order that it cannot be removed without breaking the seals some well-known process for setting seals of fixing-bands can be used. As soon as the seals have been destroyed the vessel can be emptied by cutting away with a knife on the line H the plate N of the cap J. If after this has been done the vessel is inclined or inverted, the piece E will move into contact with the washer K. The outlet-openings F will then allow the liquid to run out, passing between the washer K and the cap J after having passed successively between the ribs z and through the conduits L.

It is obvious that in no matter what position the vessel is placed it will be impossible to introduce any liquid therein. If it be tried to establish a vacuum in the same, the ball B would immediately be pressed upon its seat, and, guided as it is by the ribs z, it could not be turned away from its axis.

My invention does not only create a safety-stopper that guarantees against all fraud, but it has the advantage that when the bottle is uncorked or open it has the same aspect as if it were intact. Of course I reserve the right to make the stopper of varying dimensions and of no matter what material—aluminium, tin, glass, china, wood, &c.

Having thus described my invention, I claim—

1. In a bottle provided with a valve-seat in its neck, the passage above the valve-seat being widened through a portion of its length, the combination of a ball-valve located in the passage and a reciprocating piece provided

with a passage for the liquid opening laterally through said piece, said piece being located above the ball-valve whereby it will rest in its lower position upon the ball to close the passage and when in its upper position will release the ball and expose its lateral passage in the widened portion of the neck of the bottle, substantially as described.

2. In a safety-stopper for bottles and similar vessels, the combination with a cylindrical tube provided with ribs on its lower part and having a widened zone at its upper part, a ball-valve guided to and from its seat at the lower end of the tube by said ribs, a movable piece in said tube located above the ball and provided with conduits opening laterally, said movable piece adapted when in its lower position to rest upon the ball and hold it to its seat and when in its upper position to bring the lateral conduits into the widened zone of the tube to permit of the passage of liquid, substantially as described.

3. In a safety-stopper for bottles and similar vessels, a cylindrical tube in combination with a ball-valve adapted to close an opening at its lower end, and a movable piece located above the said ball-valve and provided with conduits opening laterally against the sides of the cylindrical tube, said movable piece being adapted to rest upon the ball when in its lower position and to uncover its lateral ports when in its upper position, for the purpose set forth.

4. In a safety-stopper for bottles and similar vessels, the combination of a cylindrical tube and ball-valve therein adapted to close an opening at its lower end, a reciprocating piece in the tube located above the ball-valve, a washer limiting the outward movement of said piece and covering the upper surface of the piece and the cap covering the washer and secured to the outer edge of the tube, the said reciprocating piece being provided with conduits opening laterally against the sides of the tube, which conduits are uncovered when the piece is in its upper position against the washer and covered when in its lower position against the ball, the center portion of the cap being removable to permit the outflow of the liquid.

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

LEOPOLD LANDAU. [L. S.]

Witnesses:

SAMUEL E. MORSS,
EMILE WEIL.