No. 648,362. Patented Apr. 24, 1900.

L. STREBEL.

BOTTLE STOPPER.

(Application filed June 2, 1899.)

(No Model.)

Fig: 1.

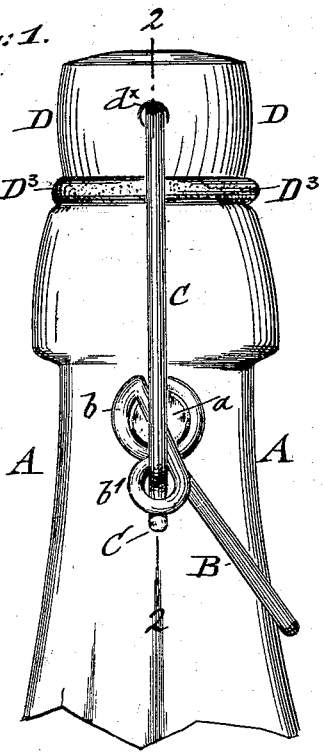


Fig: 2.

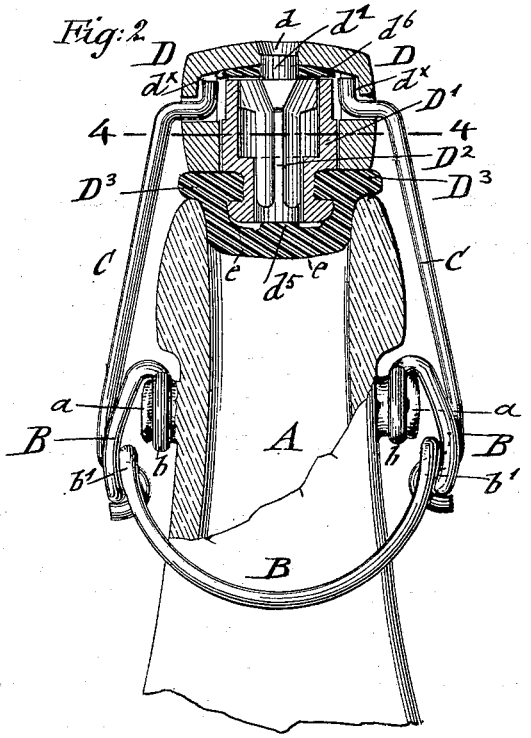


Fig: 4.

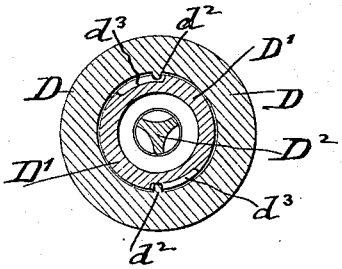


Fig: 3.

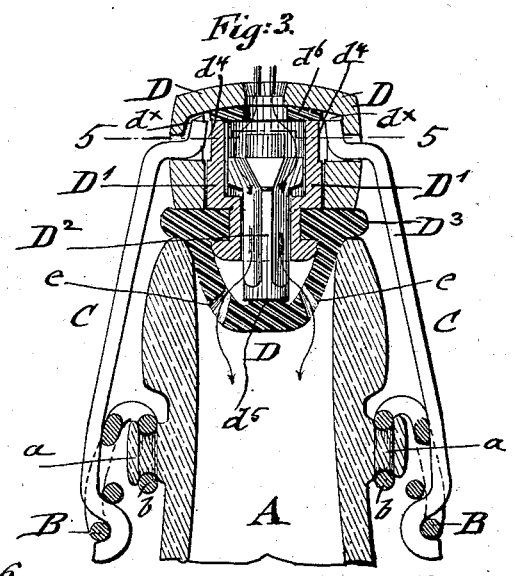


Fig: 5.

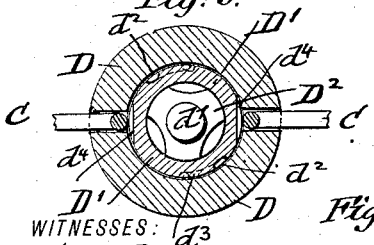
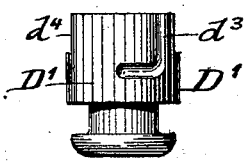


Fig: 6.



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UNITED STATES PATENT OFFICE.

LOUIS STREBEL, OF MOUNT VERNON, NEW YORK, ASSIGNOR OF ONE-HALF TO CHARLES W. WILLIAMS, OF NEW YORK, N. Y.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 648,362, dated April 24, 1900.

Application filed June 2, 1899. Serial No. 719,116. (No model.)

To all whom it may concern:

Be it known that I, LOUIS STREBEL, a citizen of the United States, residing at Mount Vernon, in the county of Westchester and State of New York, have invented certain Improvements in Bottle-Stoppers, of which the following is a specification.

This invention relates to certain improvements in bottle-stoppers of that class which are used for charging carbonated water into the bottle through the stopper, the stopper being held in position on the bottle by means of a pivoted bail and locking-lever; and the invention consists in the combination, with a bottle, of a stopper-head, a closing-lever pivotally secured to the bottle, and a bail consisting of two sections connecting the stopper-head and closing-lever, each bail-section being pivoted at its lower end to the closing-lever and connected at its upper end independently to the stopper-head, and, further, in a specific construction of stopper-head and in certain combinations of parts to be more fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of my improved bottle-stopper. Fig. 2 is a vertical central section of the same on line 2 2, Fig. 1. Fig. 3 is also a vertical central section showing the valve of the bottle-stopper in open position for charging the bottle. Figs. 4 and 5 are horizontal sections, respectively, on line 4 4, Fig. 2, and 5 5, Fig. 3; and Fig. 6 is a detail side view of the interior hollow plug of the stopper shown detached from the stopper-head.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the neck of a bottle for carbonated liquids. The neck of the bottle is provided at diametrically-opposite points with raised and circumferential teats a a, which serve as fulcra for the eyes b of a closing-lever B, said eyes being bent in one piece with the same. The closing-lever B is provided with a second eye b' below the larger eye b at each side of the lever, the eyes b' b' serving for the purpose of receiving the lower S-shaped ends of the bail-sections C, the upper ends of which are bent in angular shape and inserted into corresponding holes and sockets $d^{\times}$, formed in the cap-piece of the bottle-stopper.

The bottle-stopper is composed of four parts—a stopper-head D, which is preferably made of metal; an interior hollow plug D', which is preferably made of porcelain; a valve D^2, that is guided in the plug D' and made of porcelain, glass, metal, or other suitable material, and an elastic cap D^3, which is applied to the lower end of the plug and fitted to the lower part of the stopper-head D, as shown clearly in Fig. 2. The stopper-head D is made of cylindrical shape, open at the lower end and provided in its top with a small central opening d, in which the upper end d' of the valve D^2 is seated when the valve is closed, as shown in Fig. 2. At the interior the head D is provided at diametrically-opposite points with projecting lugs d^2, that engage L-shaped grooves d^3 in the outer wall of the plug D', so as to form with the same a kind of bayonet-joint by which the plug D' can be readily inserted into or detached from the head D of the stopper. The holes and recesses $d^{\times}$, into which the upper angular ends of the bail-sections enter, are located at right angles to the lugs of the bayonet-joint. The upper adjacent portions of the plug D' are slightly recessed at d^4, so as to permit the free play of the angularly-bent upper ends of the bail-sections C, as shown in Figs. 3 and 4. The plug D is provided at its upper part with a larger cylindrical opening for the head of the valve D^2, the shank or stem of which is made triangular in shape and provided with guide-ribs, as shown in Fig. 4, so as to be guided in the lower part of the plug D'. The lower part of the plug is provided with a circumferential groove for springing on the rim of the elastic head D^3, said rim being extended in inward and outward direction, so as to form a gasket between the bottle-head and the rim of the bottle-mouth. The elastic cap D^3 is provided at its inner central portion with a slightly-raised portion or seat d^5, on which the lower end of the valve D^2 rests when the parts of the stopper are in normally-closed position. The head of the valve is then pressed against

the elastic gasket d^6, which is interposed between said head and the inner surface of the stopper-head D, so as to produce the hermetical closing of the valve with the stopper-head.

The elastic cap D^3 is provided in its lower part with slits *e*, which extend nearly across the lower part and which are opened when the valve is opened by the pressure of the nozzle for the carbonated liquid on the same and by the pressure of the lower end of the valve on the middle bridge-like portion of the cap D^3, so as to permit the passage of the carbonated liquid along the shank of the valve through the slits to the interior of the bottle until the same is filled. As soon as this is accomplished the supply of carbonated liquid is interrupted, so that the pressure at the interior of the bottle closes the slits in the bottom of the elastic cap and produces the raising of the valve into its normal position, so as to close tightly the upper end of the bottle-stopper, as shown in Fig. 2. The stopper is thus closed at two points, so that there is no possibility of leakage from the interior of the same. By arranging the slits parallel or approximately parallel in the bottom part of the elastic cap a transverse or bridge-like portion is formed between the slits which acts in the nature of a spring that closes immediately the slits as soon as the downward pressure on the seat d^5 of the bridge portion, caused by the downward pressure on the valve, is relieved.

When my improved bottle-stopper is to be assembled, the valve is first inserted into the plug. The plug is then connected by the bayonet-joint with the head of the stopper, after which the elastic cap is placed in position on the lower end of the plug. The closing-lever is then applied by its eyes onto the raised and grooved lugs on the bottle-neck, and, lastly, the upper ends of the bail-sections C C sprung into the openings and sockets of the cap and plug and their lower ends into the eyes of the closing-lever B, so that all the parts of the stopper are in position on the bottle. When it is desired to fill the bottle, the head of the stopper is placed with its stopper-opening in connection with the supply-nozzle, being provided with a central pin which presses down the valve-head, so that the valve is opened and at the same time the slitted portion of the elastic cap pressed in downward direction, so as to form passages through which the carbonated liquid is supplied to the interior of the bottle. As soon as the bottle is filled the bottle-head is removed from the supply-nozzle and the valve closed automatically by the pressure at the interior of the bottle, as well as the tension of the spring bottom of the elastic cap. When the bottle is to be opened, the fulcrumed closing-lever is opened by being removed away from the neck of the bottle, so that the bail-sections are lifted and the stopper moved away from the mouth of the bottle. This is assisted by the interior pressure of the bottle. The contents of the bottle are then discharged, and the same may be refilled in the same manner as described after the same is returned to the bottler.

The advantages of my improved bottle-stopper are that the bottle-stoppers of the ordinary style, which are permanently attached by a wire bail and closing-lever to the bottle, can be used also for being filled with carbonated liquids, the stopper having by its valve construction all facilities for filling the bottle, while the bail and lever attachment retains the stopper permanently on the mouth of the bottle, so as to be always ready for use whenever the bottle is to be opened, emptied, and recharged.

By making the main parts of the bottle-stopper of porcelain a stopper is obtained that is not detrimental to the liquid supplied by the charging apparatus and that can be readily cleaned whenever desired by detaching the individual parts of the stopper and reassembling them again preparatory to replacing them on the bottle.

When the parts of the stopper are assembled and properly put together, the interior portions of the same are protected against the ingress of dust or other impurities by the tight fitting of the parts and the small opening which is arranged at the top part of the head, while the bottom part is closed by the circumferential rim of the elastic cap, so that the cleaning of the bottle-stopper for ordinary use may be conveniently accomplished without detaching the parts from each other.

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

1. The combination, with a bottle, of a stopper-head provided with side openings and interior recesses, a closing-lever pivotally secured to the bottle, and a bail consisting of two sections connecting the stopper-head and closing-lever, each bail-section being pivoted at its lower end to the closing-lever and provided with an inwardly-bent angular portion at its upper end for engagement with the stopper-head, substantially as set forth.

2. The combination, with a bottle, of a stopper-head provided with side openings and interior recesses, a closing-lever pivotally secured to the bottle, and a bail consisting of two sections connecting the stopper-head and closing-lever, each of said sections being provided at its upper end with an inwardly-bent angular portion pivoted in one of the side openings and at its lower end with an S-shaped portion pivoted to the closing-lever, substantially as set forth.

3. A charging-stopper for bottles, consisting of a stopper-head, a hollow plug connected with said stopper-head, a valve guided in said plug, and an elastic cap applied to the lower end of the plug and provided with slits in the lower portion of the cap, said slits being opened when the valve is depressed so as to

permit the charging of the bottle through the passages formed in the elastic cap, substantially as set forth.

4. A bottle-stopper for charging bottles with corbonated liquid, consisting of an exterior stopper-head, having an opening in its top part, a hollow plug secured into said head, a valve in said plug, an elastic cap applied to the lower end of the plug and provided with parallel slits in its bottom portion and a central raised portion or seat for supporting the lower end of the valve, the bridge or transverse portion between the slits exerting a spring action on the valve for closing the same when the charging of the bottle is completed, substantially as set forth.

5. A bottle-stopper, composed of an exterior head having an opening in its top part, a hollow plug secured into said head, a valve guided in said plug and having an enlarged upper part abutting against the head and a pin extending into the top opening of the head, and an elastic cap applied to the lower end of the hollow plug and provided with slits, the transverse or bridge portion of the cap between the slits serving as a spring for returning the valve into closed position, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

LOUIS STREBEL.

Witnesses:
PAUL GOEPEL,
M. H. WURTZEL.