(No Model.)

G. W. STEFFENS.

CLOSING PIECE FOR BOTTLES, &c.

No. 588,784. Patented Aug. 24, 1897.

FIG. 1.

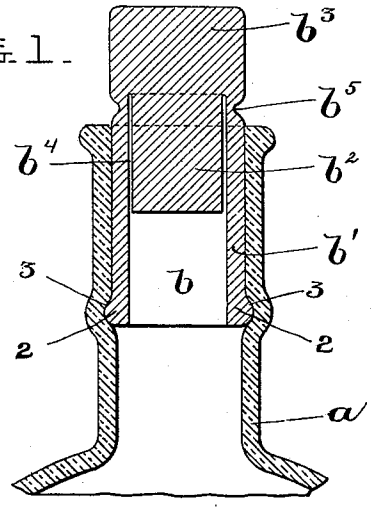


FIG. 2.

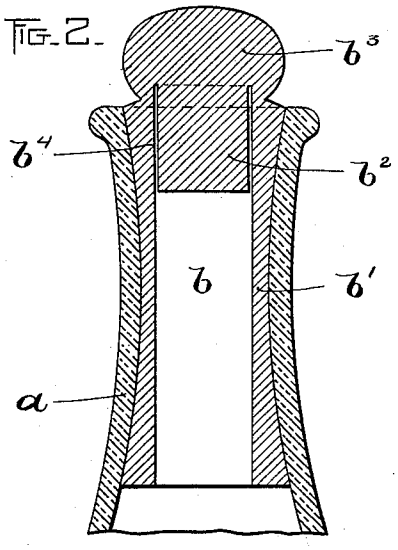
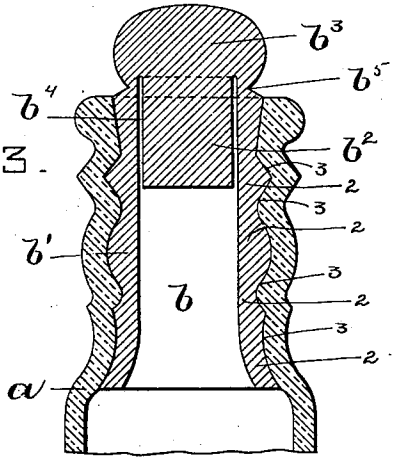


FIG. 3.



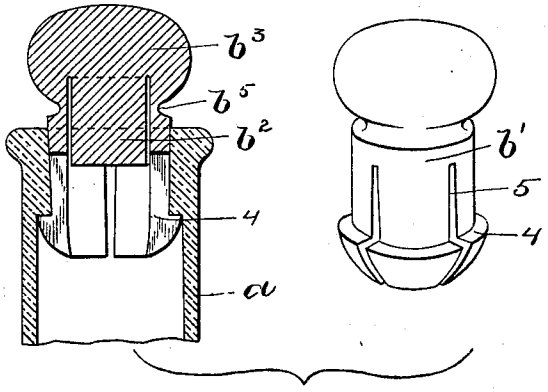
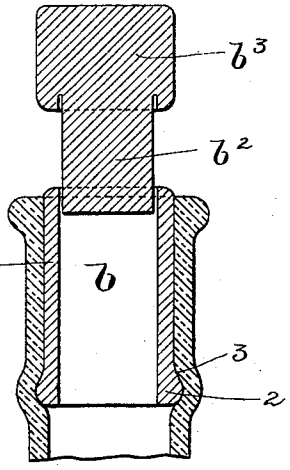


FIG. 4.

FIG. 5.



WITNESSES:
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UNITED STATES PATENT OFFICE.

GEORGE W. STEFFENS, OF BOSTON, MASSACHUSETTS.

CLOSING-PIECE FOR BOTTLES, &c.

SPECIFICATION forming part of Letters Patent No. 588,784, dated August 24, 1897.

Application filed March 13, 1897. Serial No. 627,355. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. STEFFENS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Closing-Pieces for Bottles, &c., of which the following is a specification.

This invention relates to bottle-closing devices, and has for its object to provide a simple closing device adapted to be retained firmly in its place by the action of the liquid contained in the bottle, and of such construction that the device may readily be separated into two parts, one of which remains engaged with the neck of the bottle, while the other may be removed to allow access to the contents.

To these ends the invention consists in the improvements which I shall now proceed to describe and claim.

Of the accompanying drawings, forming part of this specification, Figure 1 represents a vertical section through the neck of a bottle and stopper constructed according to my invention. Figs. 2, 3, and 4 are views showing modifications. Fig. 5 shows the device after it has been separated into two parts.

The same letters and numerals of reference indicate the same parts in all the figures.

Referring to the drawings, *a* designates the neck of a bottle, and *b* designates my improved closing device, which is preferably composed of seasoned wood or any material which will expand by reason of the absorption of moisture after having been compressed. The said closing device is formed with an outer casing or shell b', adapted to be inserted in the neck of the bottle *a*, a central plug b^2, extending part way down into the shell b', or all the way down and integral therewith at its upper edge, and a head or top portion b^3, integral with the shell b' and with the plug b^2 and adapted to remain outside the bottle, as shown. The outside shell b' and the internal plug b^2 are formed from a solid blank, having about the size and shape of an ordinary bottle-cork, by cutting a very narrow annular slot or incision b^4 in the material of the stopper near the periphery of the lower or neck-entering portion, the cut being continued upwardly from the inner end to such an extent that its upper termination is in the head b^3 beyond the mouth of the bottle. The thickness of the casing b' is preferably decreased just beyond the mouth of the bottle by cutting an annular peripheral groove b^5 in said casing, so as to nearly sever the shell from the central plug b^2 and the head b^3, but leaving a neck of connecting material sufficient to withstand the pressure or blows incident to the insertion of the device in the neck of the bottle.

The device is preferably retained in the neck of the bottle in the manner described in Letters Patent No. 561,356, granted to me June 2, 1896—that is, some part of the neck-engaging shell b' is subjected to compression to reduce its diameter to that of the mouth of the bottle. The material (preferably wood) of which the device is made is well seasoned, and the compression, reducing the thickness of the shell from its normal thickness, enables the device to be readily inserted in the bottle, but causes a greater expansion when the liquid in the bottle saturates the shell than would have been the case without the compression. The shell or casing is therefore expanded to such an extent that a locking member, shoulder, or enlargement 2 is formed thereon, which interlocks with a corresponding shoulder or shoulders 3, formed on the internal periphery of the bottle-neck, and the device is thereby firmly engaged with the bottle and will withstand a high degree of internal pressure, such as that caused by an aerated liquid or caused by heating the liquid contents after the bottle has been filled and stoppered.

To unstopper the bottle and expose the contents, it is only necessary to make an annular incision in the casing with a penknife at the bottom of the groove b^5, thereby separating the plug b^2 and the head from the casing b', when the said plug may be removed with the fingers, leaving the casing, which then becomes a hollow conduit, in engagement with the bottle, as shown in Fig. 5. The plug may be reinstated at any time, if desired, a tight closure being formed by the swelling of the moistened parts.

In Fig. 4 I have shown a modification of the closing device, which may be partly or wholly independent of the swelling of the material, for engagement with the bottle-neck. In this modification a shoulder or enlargement 4 is formed at or near the lower end of the casing b' to engage a corresponding shoulder on

the bottle, and the said casing is slotted vertically from its lower edge, as at 5, to render it springy and capable of compression and expansion by displacement, so that the device may readily be inserted in the mouth of the bottle, and when inside will engage the shoulder formed on the bottle.

It will be seen from the foregoing description that I have provided an exceedingly simple and cheap bottle-closure which forms a tight engagement with the bottle and at the same time enables the bottle to be opened without the use of a special tool, such as a corkscrew.

It will be observed that the plug will be expanded by absorption of liquid after the closing-piece has been inserted in a bottle-neck, so that it will fit closely in the casing and will serve as a stopper after it has been detached from the casing. I consider it desirable to compress the original block or blank from which the closing-piece is made to such an extent that the plug portion will be partially compressed and will thus be adapted to swell sufficiently to fill the annular slot. The expansion of the casing will also contribute to this result.

I do not limit myself to the use of this improved closing-piece for bottles, as it may be used for any other similar receptacles.

I claim—

1. A bottle-closing device comprising a hollow casing formed to serve as a conduit and having means for engagement with the interior of a bottle, a plug within said casing, and a head integral with and extending above the casing and plug and connected with the casing by an annular neck which is adapted to be severed to disconnect the head and plug from the casing, whereby said plug may be used as a stopper after severance.

2. A bottle-closing device comprising a hollow casing of absorbent and expansive material formed to serve as a conduit and having a compressed portion which is adapted after its insertion in a bottle to expand and form a shoulder or enlargement caused by absorption of liquid, a plug within said casing, and a head integral with and extending above the casing and plug and connected with the casing by an annular neck which is adapted to be severed to disconnect the head and plug from the casing, whereby said plug may be used as a stopper after severance.

3. A bottle-closing device comprising a neck-filling portion having means for engagement with the interior of a bottle-neck, and a closed outer portion or head, the said neck-filling portion having an annular slot or incision which extends from its inner end into the head and forms a hollow casing or conduit and a plug or stopper therein, the head extending above the plug and casing, the head and stopper being adapted to be severed from the casing, and used repeatedly as a stopper as set forth.

4. A bottle-closing device comprising a neck-filling portion having means for engagement with the interior of a bottle-neck, and a closed outer portion or head, the said neck-filling portion having an annular slot or incision which extends from its inner end into the head and forms a hollow casing or conduit and a plug or stopper therein, the head extending above the plug and casing, the upper portion of the casing having a peripheral groove surrounding the upper portion of the annular slot or incision, whereby the head and plug may be severed from the casing to form a stopper.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 2d day of March, A. D. 1897.

GEORGE W. STEFFENS.

Witnesses:
A. D. HARRISON,
P. W. PEZZETTI.