(No Model.)

# J. J. SANDS.

## BOTTLE STOPPER.

No. 409,374. Patented Aug. 20, 1889.

Fig. 1.

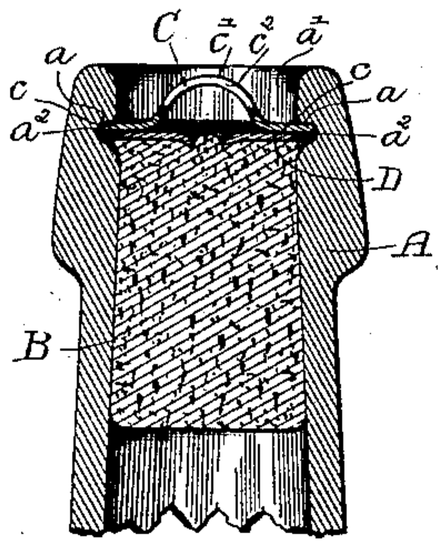



Fig. 2.

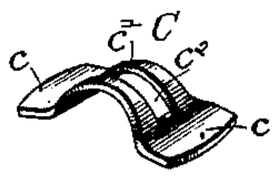



Fig. 4.

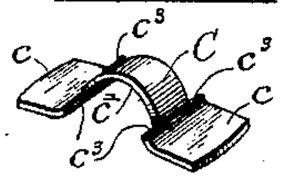



Fig. 3.

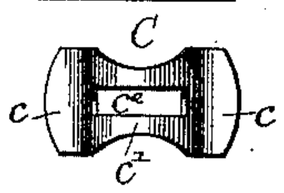



Fig. 5.

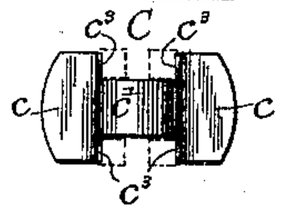



Fig. 6.

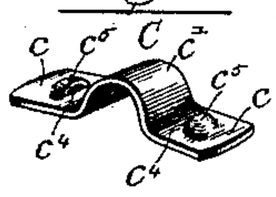
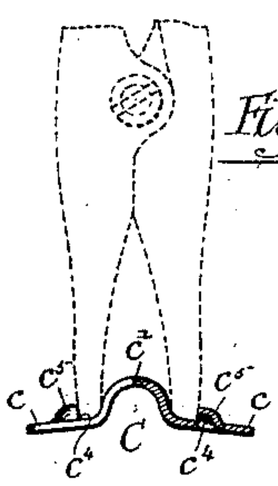



Fig. 7.



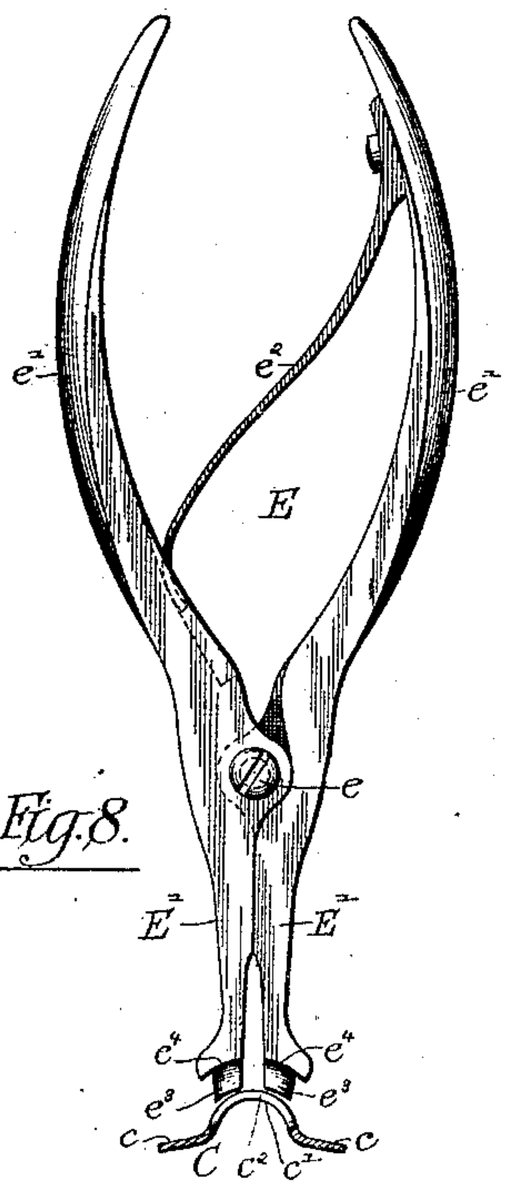




Fig. 8.

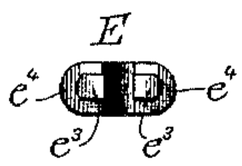



Fig. 9.

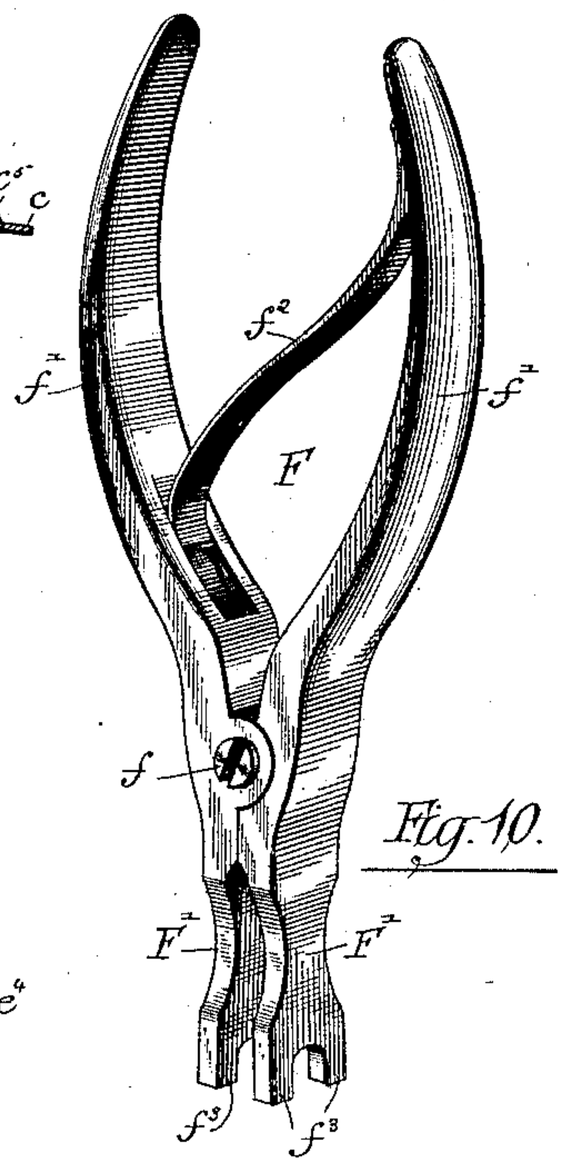



Fig. 10.

Witnesses:-

Louis M. Whitehead.

Wm. H. Fleming.

Inventor:-

Josias J. Sands.-

by: Clayton. Poole & Brown

Attorneys.-

# UNITED STATES PATENT OFFICE.

JOSIAS J. SANDS, OF MERTON, WISCONSIN.

## BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 409,374, dated August 20, 1889.

Application filed April 2, 1889. Serial No. 305,665. (No model.)

*To all whom it may concern:*

Be it known that I, JOSIAS J. SANDS, of Merton, in the county of Waukesha and State of Wisconsin, have invented certain new and useful Improvements in Bottle-Stoppers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved device for retaining corks or other stoppers in bottles or in the orifices of other vessels of that class, consisting of a longitudinally expansible and contractible bar or holder employed in connection with a bottle or other vessel provided with opposite shoulders in the neck or orifice for engagement with the said stopper-holding bar—such, for instance, as is shown in a prior application for patent filed December 10, 1888, Serial No. 293,125.

In the accompanying drawings, illustrating my invention, Figure 1 is a sectional view of a bottle-neck having my improved holding-bar inserted therein over a cork and a top plate resting upon the latter. Fig. 2 is a perspective view of the holding-bar removed from the bottle-neck. Fig. 3 is a top or plan view of the holding-bar shown in Figs. 1 and 2. Fig. 4 is a perspective view of a somewhat different form of the holding-bar. Fig. 5 is a plan view of the holding-bar shown in Fig. 4. Fig. 6 is a perspective view of still another form of the holding-bar embodying the main features of the invention. Fig. 7 is a side elevation, partly in central vertical section, of the holding-bar shown in Fig. 6, a tool for expanding the same being shown in dotted lines. Fig. 8 is a side view of a tool adapted for expanding the bar shown in Figs. 1, 2, and 3. Fig. 9 is an end view of a part of the tool which engages the bar. Fig. 10 is a perspective of a tool adapted for insertion of the holding-bar shown in Figs. 4 and 5.

The invention is herein illustrated as applied to bottles; but obviously it may be used in connection with the stopped orifices of other vessels of various kinds.

In the form of the invention shown in Figs. 1, 2, and 3, A is a bottle-neck, of which $a'$ is the orifice to be stopped. Near the top of the orifice is located a shoulder or shoulders $a$, which may be the upper wall of an annular groove $a^2$ or the under surface of an annular projection standing out from the wall of the orifice. While a continuous shoulder $a$ is preferable, short shoulders may be employed in proper position to engage with the ends of the stopper-holding device.

B is a stopper inserted in the bottle-neck with its top somewhat below the shoulder $a$.

C is a flexible sheet-metal holding-bar having flat ends $c$ $c$ and adapted to engage the shoulder $a$ at opposite sides of the bottle-neck, and also having a central arch or inverted-U-shaped bend $c'$.

D is a circular plate, which may sometimes be advantageously applied to the top of the stopper beneath the holding-bar when the stopper is of cork. The plate D is preferably flanged about a central hole therein, the flange serving by entering the stopper to hold the plate from lateral displacement.

As far as above described, the stopper-holding device is constructed like that illustrated in said prior application and is applied in the same manner—that is to say, the stopper is forced into the orifice $a'$ until its top is below the shoulder $a$, the plate D, when used, being placed upon the stopper. The holding-bar is then inserted with its arch upward, and its ends are then engaged with the shoulder $a$ to retain the stopper in place by expanding the said bar lengthwise.

The present invention relates more especially to a construction in the holding-bar by which the same may be easily and conveniently expanded endwise to effect the engagement of its ends with the shoulder or shoulders of the bottle-neck. In the form of the invention shown in Figs. 1, 2, and 3 the holding-bar C is provided with a slot $c^2$, arranged lengthwise of the bar or crosswise of the arch. The said slot $c^2$ is extended nearly to the base of the arch at either side of the same, so that its ends form transverse shoulders or surfaces which may be engaged with a suitable expanding implement adapted for applying pressure in a direction endwise of the arch in a manner to expand the same.

Any one of a great variety of tools or devices may be used for expanding the holding-

bar endwise by engagement with the ends of the slot $c^2$, and I have shown one form of a tool for this purpose in Figs. 8 and 9 of the drawings, the tool consisting of a pair of jaws hinged to each other and provided with handles, by which the jaws are forced apart when the handles are compressed or brought together, the ends of the jaws being adapted to engage the opposite ends of the slot $c^2$.

E in said Figs. 8 and 9 indicates the tool referred to, consisting of two jaws E′ E′, connected by a pivot $e$ and having handles $e'$ $e'$. A spring $e^2$, attached to one handle and acting upon the other, serves to throw the handles apart and to bring the jaws together. The extreme ends $e^3$ $e^3$ of the jaws are made of proper size and shape to fit within the ends of the slot $c^2$ of the holding-bar, and shoulders $e^4$ $e^4$ are formed upon the jaws a short distance from the ends thereof in such manner as to limit the distance to which the ends of the jaws may be inserted into the said slot. The presence of said shoulders enables the implement to be quickly and easily engaged with the holding-bar in proper position and without liability of the jaws being inserted so far therein as to encounter the cork and prevent the placing of the bar in position to engage the shoulders.

In the use of the tool described the holding-bar may be quickly picked up and held by the operator by inserting the ends of the jaws thereof into the slot of the holding-bar and pressing slightly upon the handles, so as to open the jaws sufficiently to engage the ends of the slot without expanding the bar. The holding-bar may then be placed within the bottle-neck while held upon the jaws of the tool, and when in place a more forcible pressure upon the handles of the tool will open the jaws and expand the holding-bar until its ends are suitably engaged with the shoulder or shoulders of the bottle-neck.

In Figs. 4 and 5 I have shown another form of holding-bar, which is also provided with shoulders or surfaces near its ends to allow the application of an expanding-tool or other means for elongating the bar. In this instance the bar C is provided with flat ends $c$ and a central arch $c'$, the central arch being narrower than the flat ends, and abrupt transverse edges or shoulders $c^3$ $c^3$ being formed at or near the junction of the arch and the said flat ends. The edges or shoulders $c^3$ $c^3$ in this case afford means for the engagement with the bar of any suitable expanding-tool—such, for instance, as that illustrated in Fig. 10. In this instance a tool F is shown, having jaws F′ F′, which are pivoted at $f$ and have handles $f'$ $f'$, similar to those of the tool shown in Fig. 8. A spring $f^2$ serves to normally hold the jaws together, and each of the latter is provided at its extreme end with two prongs $f^3$ $f^3$, placed at a sufficient distance apart to pass upon opposite sides of or straddle the central arch $c'$. By engaging the prongs $f^3$ $f^3$ with the shoulders $c^3$ $c^3$ and compressing the handles $f'$ $f'$ the holding-bar may obviously be elongated or expanded in the same manner as above described in connection with the form of bar shown in Figs. 1 to 3.

Still another way of forming a transverse edge or shoulder upon the end portions of the bar to allow the application of a tool for elongating the same is shown in Figs. 6 and 7. This bar is provided with flat ends $c$ $c$ and a central arch $c'$, constructed in the same manner as hereinbefore described. In the central portion of said flat ends $c$ $c$, however, a transverse slit $c^4$ is formed, and the metal outside of the slit is punched or bent up, as indicated at $c^5$, thereby forming a transverse shoulder, which may be easily engaged by the ends or prongs of a tool similar to those shown in Figs. 8 and 10, and such as is indicated by dotted lines in said Fig. 7.

It will be obvious from the above that the main feature of the present invention consists in a transverse edge or shoulder formed by, upon, or in a projection, stud, or hole upon or in the end portion of the arched holding-bar to afford means for engaging with the bar an expanding tool or device, and as far as this broad feature of the invention is concerned I do not desire to be restricted to the specific construction herein shown. For some reasons, however, the construction illustrated in Figs. 1, 2, and 3, and comprising a longitudinal slot through the arch, the ends of which form engaging-surfaces for an expanding-tool, is preferred. The presence of such slot is desirable, for instance, because it will admit a screw-driver or similar instrument to rotate the bar into or out of engagement with short opposite shoulders in the bottle-neck, such as are shown in another prior application for patent, Serial No. 299,276, filed on the 9th day of February, 1889. In said application, Serial No. 299,276, the slot in the arched holding-bar is not intended for expanding the bar lengthwise, but solely for the application of a screw-driver or similar implement. While the slot illustrated in said application is not long enough to enable the bar to be easily expanded by the engagement of an implement with its ends in the manner herein described, yet the claims of this application are intended to cover a holding-bar provided with such slot, provided the latter is adapted for the use of an expanding implement in the manner above stated.

I claim as my invention—

1. The combination, with the walls of a vessel-orifice having an internal shoulder or shoulders and with a stopper in the orifice, of a flexible metal holding-bar inserted over the stopper and engaged at its ends with the said shoulders, the said metal holding-bar having a central arch or U-shaped bend, and shoulders or transverse edges on its end portions

for engagement with an expanding implement, substantially as described.

2. The combination, with a vessel the orifice of which is provided with a shoulder or shoulders and with a stopper in said orifice, of a flexible metal holding-bar provided with a central arch and with a slot running lengthwise of the holding-bar and terminating at points near the base of the arch, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

JOSIAS J. SANDS.

Witnesses:
C. CLARENCE POOLE,
HARRY COBB KENNEDY.