

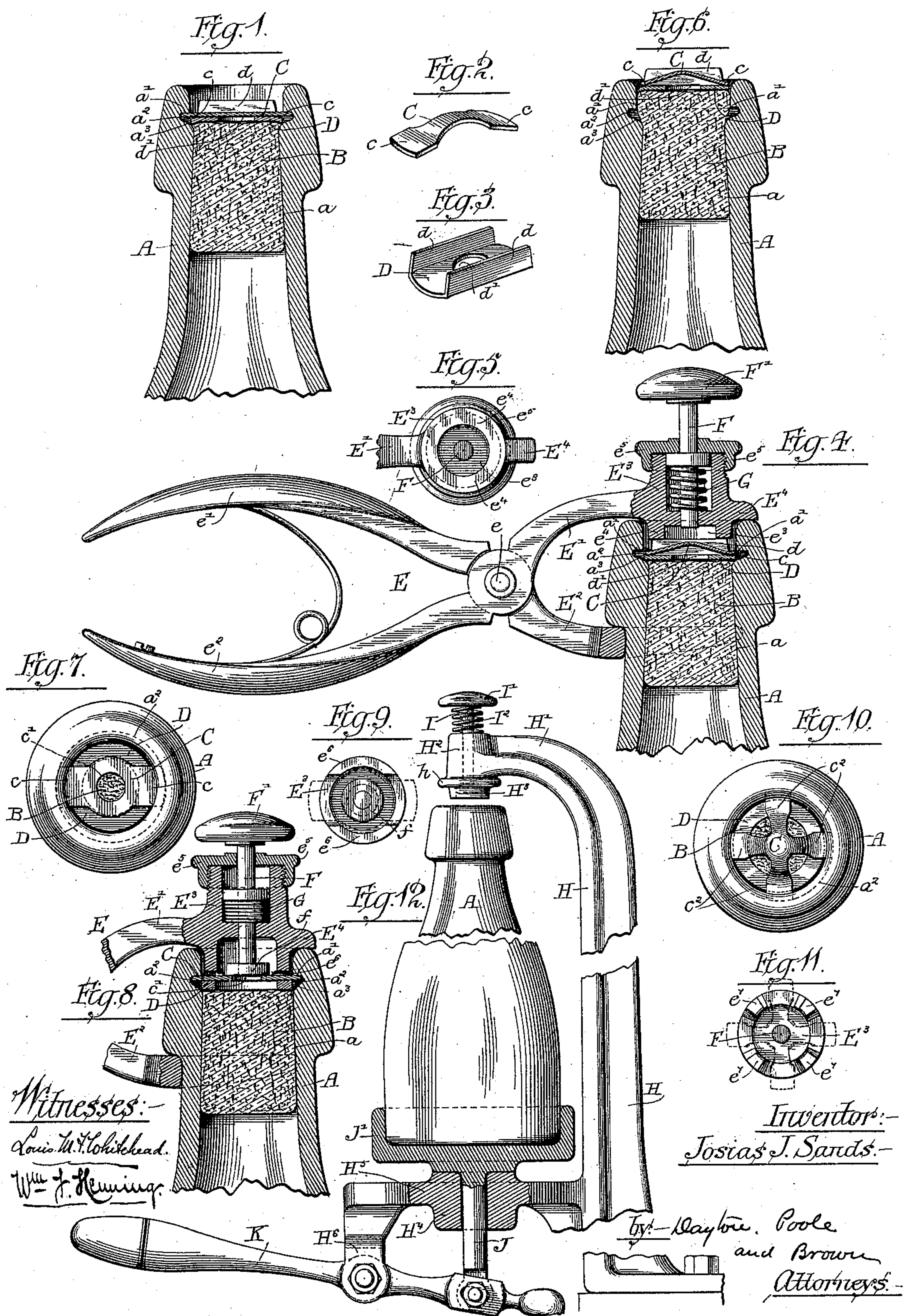
(No Model.)

J. J. SANDS.

DEVICE FOR INSERTING STOPPER HOLDING DEVICES.

No. 417,446.

Patented Dec. 17, 1889.



UNITED STATES PATENT OFFICE.

JOSIAS J. SANDS, OF MERTON, WISCONSIN.

DEVICE FOR INSERTING STOPPER-HOLDING DEVICES.

SPECIFICATION forming part of Letters Patent No. 417,446, dated December 17, 1889.

Application filed May 13, 1889. Serial No. 310,603. (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 Devices for Inserting Stopper-Holding Devices; 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 improvement in means for inserting in bottles and other vessels stopper-holding devices of that class which comprises a holding-bar placed within the orifice of the vessel over the cork or stopper therein, which holding-bar is engaged with a groove in the orifice and is adapted to be expanded and contracted longitudinally by the bending of the bar to engage its ends and disengage them from the groove of the orifice.

A stopper-holding device of this kind is shown in a prior application for patent, Serial No. 293,125, filed December 10, 1888, also in another application, Serial No. 310,604, and filed simultaneously herewith, and in patent No. 413,962, issued October 22, 1889, is shown an apparatus embodying my invention, consisting, primarily, in a tool adapted to act upon the top of the cork or stopper or upon a plate resting thereon or upon the ends of a holding-bar resting on the cork and acting to press the top surface of the cork downwardly until the holding-bar is in position with its ends opposite the groove in the bottle-neck, said tool being provided with a separate movable part or plunger adapted to act upon the central upwardly bent or arched part of the holding-bar to depress or straighten the latter and thus elongate the same to engage with the groove of the orifice.

The invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a sectional view of a bottle-neck provided with a stopper-holding device inserted by the use of the novel implement herein described. Fig. 2 is a perspective view of the holding-bar removed from the bottle-neck. Fig. 3 is a perspective

view of the flanged supporting-plate. Fig. 4 shows in sectional view, with parts in side elevation, a tool or implement for inserting stopper-holding devices, together with a bottle-neck containing holding devices made like that shown in Fig. 1. Fig. 5 is a plan view of the end of the inserting devices adjacent to the orifice of the bottle. Fig. 6 shows the position of the stopper and holding devices before the inserting tool is applied thereto. Fig. 7 is a plan view of a bottle-neck containing a centrally-apertured holding-bar. Fig. 8 is a sectional view showing the bottle-neck containing a holding-bar like that shown in Fig. 7, together with a device for inserting this particular form of holding-bar. Fig. 9 is a face view of the working end of the tool shown in Fig. 8. Fig. 10 is a plan view of a bottle-neck, showing an arched holding-bar having four arms. Fig. 11 is a face view similar to Fig. 9 of the working end of the inserting-tool, such as is shown in Figs. 8 and 9, adapted for use in connection with the form of holding-bar shown in Fig. 10. Fig. 12 illustrates a machine for inserting the stopper-holding device, said machine containing the same principles of construction illustrated in the other figures of the drawings.

The stopper-holding device shown in Figs. 1 to 6, both inclusive, is like that illustrated in said simultaneously-filed application, Serial No. 310,604, and in said Patent No. 413,962, and is made as follows:

A is the bottle-neck, of which a is the orifice to be stopped. Near the top of the orifice is located an annular shoulder a' , which in the instance illustrated forms the upper wall of an annular groove a^2 , the lower wall of which is formed by an inclined or beveled surface a^3 . The part of the orifice below the groove a^2 is shown as made smaller than that above said groove.

B is a cork or stopper inserted in the bottle-neck with its top somewhat below the groove a^2 .

C is a flexible sheet-metal holding-bar having flat ends c , adapted to enter the groove a^2 and to hold the stopper from outward movement. The holding-bar C, after insertion, is flat or straight, as shown in Fig. 1, but before insertion is bent into curved or arched form, as shown in Fig. 2, so as to

shorten it or bring its ends together sufficiently to allow them to pass the shoulder a' .

D is a metal bar or plate, which is located beneath the holding-bar and rests upon the stopper, said plate being made of suitable length to pass freely through the part of the vessel-orifice above the groove a^2 . Said plate is made flat in its central part with, parallel side edges, and has upwardly-extending lateral flanges $d\ d$, a main purpose of which is to give longitudinal stiffness to the plate. The ends of said flanges $d\ d$ are flush with the ends of the plate, so that when the plate is dropped into the bottle-neck they will come in contact, or nearly so, with the shoulder a' , and thereby act to center the said plates within the bottle-neck. Said plate is preferably made of such length and thickness that when placed in position for the engagement of the ends of the holding-bar resting thereon with the groove of the bottle-neck its ends will rest upon the beveled surfaces a^3 .

The stopper-holding device constructed as above described is removed for extracting the cork by pulling upwardly or lifting the central part of the holding-bar, so as to bend the same at its middle and withdraw its ends from engagement with the groove of the bottle-neck, as fully set forth in said separate application, Serial No. 310,604, and in said Patent No. 413,962.

E indicates as a whole a tool or implement for inserting the stopper-holding device shown in said Figs. 1 to 6 and hereinbefore described. Said implement E comprises two jaws $E' E^2$, connected by a pivot e and provided with handles $e' e^2$. The lower jaw E^2 is pronged and is adapted to engage the external shoulder commonly present in bottle-necks in the manner illustrated. The upper jaw E' is provided with a cylindric part or head E^3 , the lower end of which is adapted to enter the orifice of the bottle-neck and is provided with a central recess e^3 , forming an annular downwardly-projecting flange e^4 , adapted to engage the end portion of the flanges $d\ d$ of the plate D in the manner clearly shown in Fig. 4.

The central recess e^3 affords space for the upwardly-bent part of the arched holding-bar before the same is straightened, so that when the upper jaw of the tool is brought against the holding device placed over the cork it will act upon the said plate D without having any tendency to straighten the holding-bar.

F is a plunger mounted in the upper jaw concentric with the cylindric part E^3 thereof and adapted to act upon the middle part of the holding-bar when the tool is engaged with the plate D. Said plunger F may be actuated in any suitable manner, but, as herein shown, is provided with a head or knob F' , which may be struck or pressed down by the hand of the operator for actuating the plunger. For convenience in use of the implement a spring G is preferably em-

ployed to throw upwardly the plunger F and to hold the same normally in its elevated position. In the particular construction of the parts illustrated the cylindric part E^3 of the implement is extended upwardly and is provided with a central recess, within which the spring G, in this instance made of spiral form, is located, said part E^3 being also provided with a screw-cap e^5 , which guides the upper part of the plunger and acts as a stopper to limit the upward movement of the plunger, which latter is provided with a fixed collar below the cap, against which the said spring bears. Said jaw E' is provided with stops or projecting parts $E^4 E^4$ to limit the inward or downward movement of the upper jaw in pressing the holding device downwardly into place, the parts being so arranged that when the said stops or projections $E^4 E^4$ come against the upper edge of the bottle-neck the plate D will be in position to sustain the ends of the holding-bar which rest thereon opposite the groove a^2 of the bottle-neck and in position to enter the same.

In inserting the stopper-holding devices by use of the implement described the corks will preferably be driven by the corking-machine not quite to the point at which they will finally remain, so that the top of the cork will be left somewhat above the groove a^2 in the manner clearly shown in Fig. 6—that is to say, the corks are so driven that their upper surface will stand above the groove after the plunger of the corking-machine is lifted from the cork, and the corks may either be driven a less distance than the usual depth or the corks may be allowed to expand to bring their upper surfaces into the position described after being driven to the usual depth. After the cork is inserted in the manner described the plate D and holding-bar C are placed on the top of the cork in the manner illustrated in Fig. 6. The implement E is then applied to the bottle-neck and the jaws brought together to press downwardly or inwardly upon the plate D until the top of the cork has been depressed sufficiently to bring the ends of the holding-bar opposite the groove of the bottle-neck in the manner shown in Fig. 4. The jaws will of course be brought together until the stops or projections thereon strike the top of the bottle-neck, the same operating to determine the position of the holding-bar in the manner hereinbefore described. After the cork has been compressed the plunger F is actuated to expand the holding-bar into engagement with the groove of the bottle-neck in a manner readily understood.

It will of course be understood that an implement like that shown in Figs. 4 and 5 may be used to insert a holding-bar which is flat after insertion as well as one which is permanently arched and is expanded by partially flattening the arch. The holding-bars constructed in both these ways are shown in said simultaneously-filed application, Serial

No. 310,604, and in said Patent No. 413,962, as employed in connection with the flanged plate like the plate D, which latter plate is employed mainly for the purpose of bringing the upward or outward strain of the cork upon the end portions of the bar, thus preventing said bar from being bent at its middle by the direct pressure of the cork. Aside from this function of said plate D the presence of the latter is very desirable in inserting the holding-bar by the use of a tool giving pressure upon the top of the cork in the manner hereinbefore described, for the reason that said plate acts to support or sustain the ends of the holding-bar opposite the groove of the bottle-neck and to take the downward pressure of the ends of said bar when the plunger is brought against the same for elongating it. The employment of such plate to support the ends of the bar is not, however, essential for use in connection with the implement herein described, for the reason that the annular part e^4 of the implement may be arranged to bear upon the ends of the holding-bar and upon the surface of the cork at the sides of the holding-bar, so as to press these parts down until the ends of the holding-bar are opposite the groove, after which the plunger may be depressed to elongate the holding-bar. The use of the plate to support the holding-bar is, however, of great advantage and will usually be preferred, inasmuch as it affords a better support for the holding-bar than the unprotected top of the cork while the said holding-bar is being expanded, and at the same time acts to transmit the pressure of the cork to the ends of the holding-bar in the manner hereinbefore described.

In Figs. 8, 9, and 10 I have shown a holding-bar having a central aperture through which may be inserted a champagne-tap, and which is similar to a holding-bar illustrated in the said Patent No. 413,962, hereinbefore referred to. The holding-bar C illustrated in this instance is flat after insertion and is provided with a central aperture c' , while below said plate, between the same and the cork, is placed a supporting-plate D, which in this instance is of annular form. Said plate D serves to sustain the ends of the holding-bar and to transmit the upward pressure of the cork to the ends of the holding-bar in the same manner as does the plate D. (Shown in Fig. 3.) The implement E in this case is made like that shown in Figs. 4 and 5, with the exception that the cylindric projection E^3 thereof is provided with two opposite points or prongs $e^6 e^6$, adapted to pass upon either side of the holding-bar C and engage the ring D, said holding-bar in this instance being made sufficiently narrow to expose the greater part or the whole of the width of the ring at the sides thereof. The form of the prongs $e^6 e^6$ is clearly shown in Fig. 9, wherein the dotted lines indicate the shape of the holding-bar and its position in relation to said prongs

when the implement is in use. The plunger F is shown in said Figs. 8 and 9 as provided with an enlargement or head f at its lower end, which is larger in diameter than in the central aperture c' of the holding-bar, so as to properly engage the latter when downward pressure is brought upon the flange to elongate the bar.

The bottle-neck shown in Figs. 1, 4, and 6 is provided below the groove a^2 with a beveled surface a^3 , against which the plate D may strike and rest when the said plate is forced downwardly into the bottle-neck by the use of the inserting implement described. The presence of such inclined surface or shoulder is not, however, essential, and in Fig. 8 the bottle-neck is shown as being made of the same internal diameter both above and below the groove a^2 . In a construction of this kind the plate D will of course be free to pass into the bottle-neck below the groove provided sufficient downward pressure is brought upon the top of the cork; but the presence of the stop E^4 on the upper jaw of the inserting implement prevents the said plate and the holding-bar from being forced into the bottle farther than necessary for the proper engagement of the holding-bar with said groove.

In Fig. 10 I have shown a bottle-neck provided with a holding-bar C, having four arms $c^2 c^2$, adapted to engage the groove of the bottle-neck, such holding-bar being similar to that illustrated in said prior application, Serial No. 293,125, filed December 10, 1888, and hereinbefore referred to. When a holding-bar of this shape is used, the working face of the head E^3 of the tool will be provided with four prongs $e^7 e^7$, arranged as clearly shown in Fig. 11, which figure is a face view of the said head E^3 , and shows in dotted lines the form of the holding-bar and its relation to the points $e^7 e^7$ when the implement is in operation.

Instead of using an implement in the nature of the hand-tool or pinchers such as is shown in Figs. 4 and 8, a machine operated either by hand or foot lever or by a suitable motor may be employed for the same purpose. Such a machine is illustrated in Fig. 12. In said figure, H is a vertical standard provided in its top with an overhanging arm H' , provided at its end with a hub H^2 and with a depending cylindric projection H^3 . I is a plunger inserted through the hub H^2 and provided with a knob I' . The spring I^2 , interposed between the said knob and the top of the hub H^2 , holds the plunger elevated. The cylindric projection H^3 on the lower end of the plunger I is constructed in the same manner as the corresponding part shown in Figs. 4 and 8 to 11. Said projection H^3 is desirably surrounded by an annular flange h , which forms a stop corresponding with the stop E^4 to limit the distance which the cylinder-head H^3 may enter the bottle-neck. H^4 is a vertical guide upon a bracket H^5 , attached to the

standard H. Within the said guide H⁴ is placed a vertical sliding rod J, having at its top end a cup-shaped receptacle J' to receive the bottom of the bottle. K is a hand-lever 5 pivoted to a bracket H⁶ and engaged at its end with the lower end of the sliding rod J. The receptacle J' and the cylindric head H³ are so arranged that the bottle may be easily inserted beneath the head and will be held 10 axially in alignment therewith. In the operation of the machine thus constructed the parts constituting the stopper-holding devices are inserted in the bottle-neck over the stopper either before or after the bottle is placed 15 in the machine, and the bottle is then lifted by pressure upon the hand-lever K until the top of the bottle-neck is brought into contact with the stop h, and the cork is thereby depressed and the supporting-plate and holding- 20 bar thrust inwardly or downwardly into proper position for the engagement of the ends of the holding-bar with the groove. The plunger I is then actuated to elongate the holding-bar in the same manner as before de- 25 scribed.

The machine shown in Fig. 12 is only one of many forms in which this machine may be made, it being entirely obvious that as far as the operation of the parts constituting my 30 invention is concerned the part or head which acts upon the top of the cork may be forcibly applied to the cork in any manner found convenient or desirable, and the plunger within said head may be actuated in any de- 35 sired manner. It will of course be seen that the working end of the cork-compressing implement made generally as above described may be shaped in such manner as to operate in connection with either of the forms of 40 holding-bar shown in the several separate applications hereinbefore referred to or in connection with other forms of such holding-bars.

In the separate application, Serial No. 45 310,604, filed simultaneously herewith, and in said Patent No. 413,962 I have shown and described a supporting-plate to be placed beneath the holding-bar and adapted to rest upon the inclined or beveled surface, like 50 that shown at α^3 , Fig. 1, so as to sustain the ends of the holding-bar opposite the groove at the time of elongating said bar by pressure upon its upwardly-bent central part. When such inclined or beveled shoulder is relied 55 upon to sustain the supporting-plate, however, the parts can be conveniently inserted without the use of a tool like that herein shown only when the cork is driven below the said shoulder, so that the plate will rest freely 60 thereon at the time of inserting the holding-bar. In case, however, the top of the cork is left somewhat above the groove or rises above the same by expansion of the cork, the holding-bar cannot easily be inserted without 65 pressing downwardly upon the supporting-plate or the ends of the holding-bar, and for this purpose the implement such as is herein

shown is necessary. When the bottle-neck is smaller below than above the groove and is provided with an inclined surface α^3 , such as is shown in Fig. 1, the use of the stop upon the head of the implement to prevent the holding-bar being thrust too far into the bottle-neck is, of course, not essential, inasmuch as the contact of the supporting-plate with 75 the said beveled surfaces acts to limit the inward movement of the same. When said stop is present, however, as illustrated in the accompanying drawings, the supporting-plate and holding-bar will be thrust the proper 80 distance into the orifice whether the said beveled surface is present in the orifice or not, and the use of such stop is preferred, for the reason that it insures the holding-bar being brought accurately in position with ref- 85 erence to the groove of the bottle-neck when the beveled surface or shoulder α^3 is either present or absent.

I claim as my invention—

1. A device for inserting a stopper-holding 90 device, which embraces a holding-bar and a plate beneath the same, comprising a head of less size than the orifice, adapted to enter the orifice and to press said plate and the stopper into the same, and a plunger extending 95 through said head for acting upon said holding-bar.

2. A device for inserting a stopper-holding device, which embraces a holding-bar and a plate beneath the same, comprising a head 100 adapted to enter the orifice of the vessel and a plunger, said head being provided with a plurality of projections or prongs to engage said plate without acting on the holding-bar, substantially as described. 105

3. A device for inserting stopper-holding devices of the character described, comprising a head adapted to enter the orifice of the vessel and a plunger, said head being provided with a central recess to receive the cen- 110 tral part of the holding-bar, substantially as described.

4. A device for inserting stopper-holding devices of the character described, comprising a head adapted to enter the orifice of the vessel, a plunger movable in said head, and a spring applied to retract said plunger, sub- 115 stantially as described.

5. A device for inserting stopper-holding devices of the character described, comprising a head adapted to enter the orifice of the vessel and a plunger movable in said head, said head being provided with a stop to en- 120 gage the margin in the orifice for limiting the inward movement of the head in applying pressure to the stopper, substantially as described. 125

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.