(No Model.) 2 Sheets—Sheet 1.

F. W. FOLGER.

MACHINE FOR APPLYING OR ATTACHING BOTTLE STOPPERS.

No. 420,494. Patented Feb. 4, 1890.

Fig. 1.

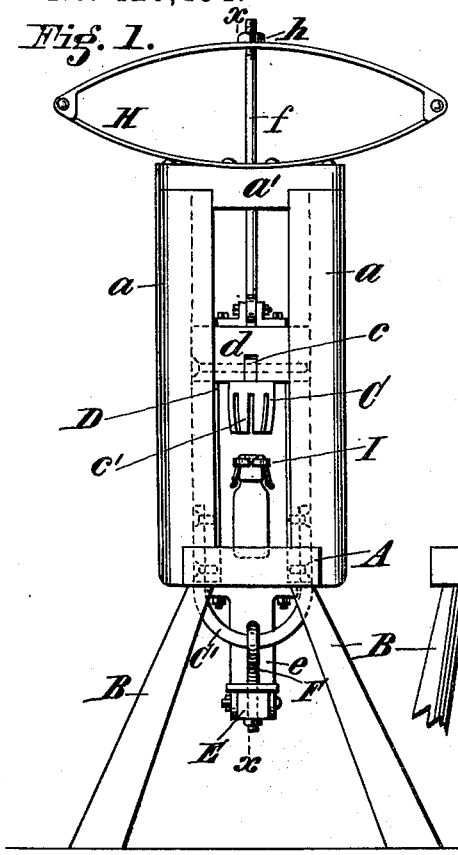


Fig. 2.

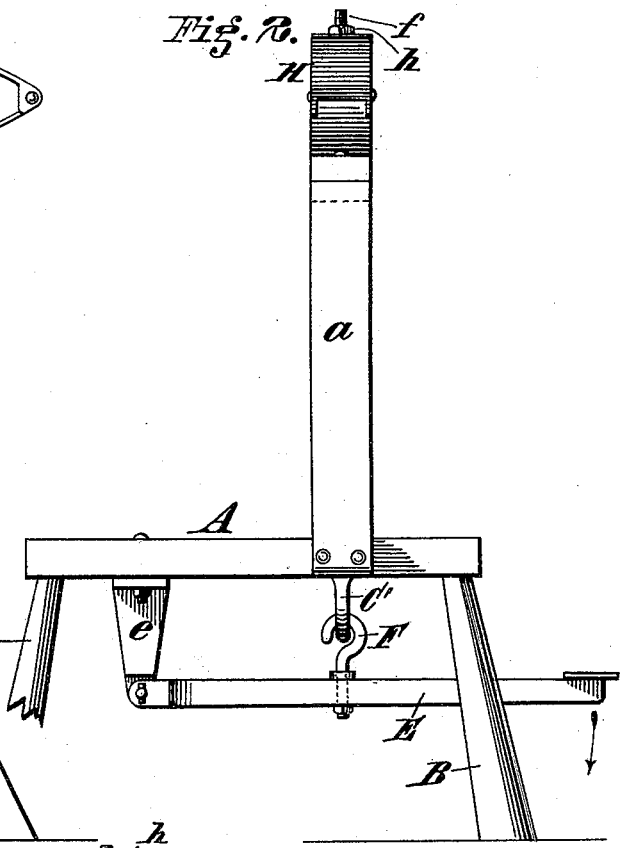


Fig. 3.

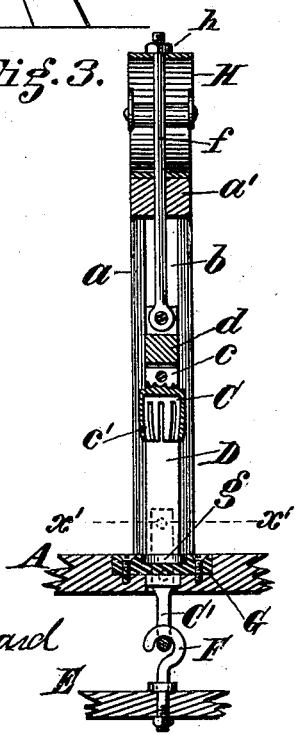
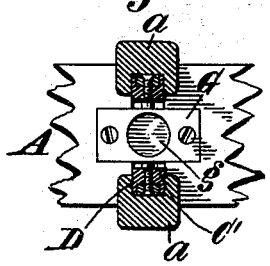


Fig. 4.



Witnesses:
N. G. Rich
Frank L. Millward

Inventor
Francis W. Folger,
by John E. Jones,
his attorney.

(No Model.) 2 Sheets—Sheet 2.

F. W. FOLGER.

MACHINE FOR APPLYING OR ATTACHING BOTTLE STOPPERS.

No. 420,494. Patented Feb. 4, 1890.

Fig. 5.

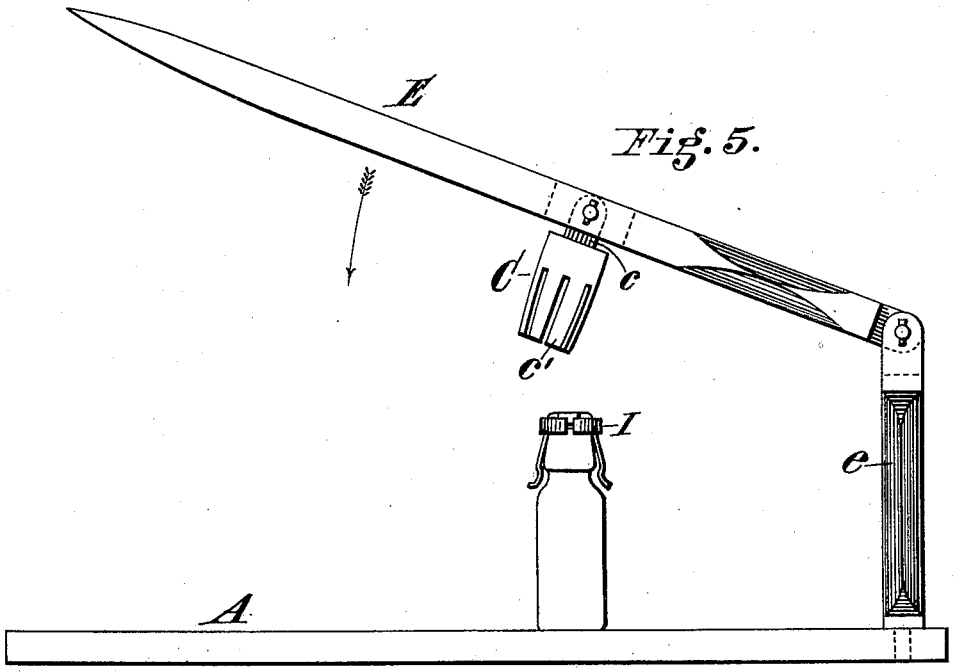


Fig. 6.

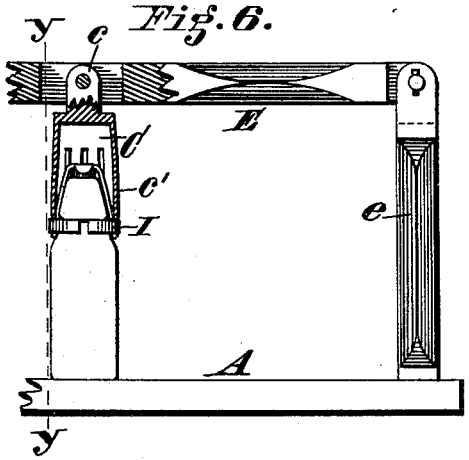
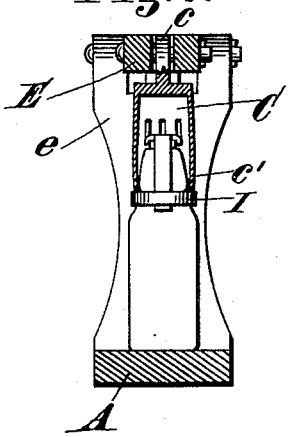


Fig. 7.



Attest
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Inventor
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his Attorney.

UNITED STATES PATENT OFFICE.

FRANCIS W. FOLGER, OF NICHOLASVILLE, KENTUCKY.

MACHINE FOR APPLYING OR ATTACHING BOTTLE-STOPPERS.

SPECIFICATION forming part of Letters Patent No. 420,494, dated February 4, 1890.

Application filed October 7, 1889. Serial No. 326,261. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS W. FOLGER, a citizen of the United States, residing at Nicholasville, in the county of Jessamine and State of Kentucky, have invented certain new and useful Improvements in Machines for Applying or Attaching Bottle-Stopper Fasteners, of which the following is a specification.

My invention relates to improvements in devices for applying bottle-stopper fasteners, or, more particularly speaking, to a machine for applying the resilient ring-fastener forming the subject-matter of an application for United States Letters Patent filed by me July 2, 1889, Serial No. 316,081, all of which will be fully described hereinafter, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a front elevation of the preferred form of machine embodying my invention, a bottle with my said resilient ring in position for application to the bottle-stopper fastener proper being shown therein; Fig. 2, a longitudinal side elevation of the same, one of the rear supporting-legs being broken off; Fig. 3, a broken sectional elevation on line $x\,x$ of Fig. 1, the bottle and fastener being omitted; Fig. 4, a broken sectional plan on line $x'\,x'$ of Fig. 3; Fig. 5, a longitudinal elevation of my improvement in a modified form, the same showing my device as being operated by hand, while that in the former views shows the same device as being operated by foot; Fig. 6, a broken longitudinal elevation, partly in section, of the machine shown in Fig. 5, with the lever down at the completion of its stroke and the plunger in engagement with the resilient ring, which it has delivered into proper locking position over the depending arms or prongs of the stopper-fastening; and Fig. 7, a transverse sectional elevation of the hand-machine shown in Figs. 5 and 6 on line $y\,y$ of Fig. 6.

A represents the operating-table of the machine; B, suitable supporting-legs therefor; and C, a pendent hollow plunger or inverted cup connected by a shank or lug c with a cross-head d, forming part of an open sliding frame D.

$a\,a$ represent upright bars on the table A, having suitable grooves or channels b in their inner faces, which form guides or ways for the open frame D to reciprocate in vertically.

C′ represents a U-shaped yoke or link suitably attached at its upper ends to the open sliding frame D, and E is a foot lever or treadle pivotally connected at its rear end to the hanger e on the bottom of table A, and similarly connected near said rear end to the yoke C′ by means of a hook F. A suitable slot or opening is provided in the table A, through which the sliding frame D passes up and down. A bar or plate G spans said opening in the table at right angles thereto, as clearly shown in Figs. 3 and 4, and said plate G is provided with a central socket g, in which the lower end of the bottle rests during the operation of the machine. Plate G is by preference detachably secured in place, so that it may be replaced by one having a larger or smaller socket, to suit various sizes of bottles, as desired.

The plunger C is made hollow and has its plane-faced lower portion or mouth end slitted upwardly to form jaws c', which are suitably tempered, for the purpose hereinafter explained.

a' is a horizontal cross-bar uniting the upper ends of the guide-bars $a\,a$, and having a central perforation through which the vertical rod f passes upward from the cross-head d of the sliding frame D to the elliptic or other suitable compressible spring H. Spring H is secured to cross-bar a' by means of screws which pass downward through its lower member, as shown in Fig. 1, and the upper end of rod f is coupled with the upper member of said spring, so as to compress the entire spring by means of the nut h, as shown in Fig. 1 and also in Figs. 2 and 3.

In Fig. 1 have shown the form of bottle-stopper fastener in connection with which my machine is especially adapted to operate. An open resilient ring I, such as is embodied in said former application, is shown resting on the top portion of the depending prongs of the stopper-fastener proper and the bottle itself in place in the socket g, ready for the operation of spring-plunger C. To operate the plunger, the foot-lever is depressed, thereby causing the sliding frame D and all parts attached thereto, as above described, to descend and the spring H to become compressed. The lower ends of the tempered jaws c' of the plunger now come into active contact with

said resilient ring and force it into place upon the lower ends of said depending prongs and under the shouldered neck of the bottle. When the pressure is withdrawn from the foot-lever, the reaction of spring H causes all the moving parts, together with plunger C, to automatically return to their respective normal positions ready for the next and succeeding operations on the bottle-stopper fasteners.

In the modified form of machine shown in Figs. 5, 6, and 7 the operating-table A has a hand-lever E, instead of a foot one, pivotally connected at one end to an upright or standard *e* on said table. The plunger C, which is of the same construction as the one in said foot-machine, is mounted on the hand-lever and brought down upon the resilient ring, as shown in Figs. 6 and 7, to force or apply said ring into place for securing the stopper-fastener on the shouldered neck of the bottle. In practice I prefer the foot-machine, for the reason (which is an obvious one) that the hands of the operator are not encumbered and he can use both of them to readily place bottles in the machine for operation and remove them therefrom after each operation.

I claim—

In a machine for applying bottle-stopper fasteners of the construction described, the combination of an operating-table, a pair of guideways thereon, and open sliding frame in said guideways, a pendent plunger having spring-jaws and attached to said sliding frame, a rod connecting said sliding frame with a retractile or returning spring, and an operating-lever suitably connected with said sliding plunger-frame, substantially as herein set forth.

In testimony of which invention I have hereunto set my hand.

FRANCIS W. FOLGER.

Witnesses:
W. H. PHILLIPS,
G. B. MOSELEY.