

(No Model.)

F. ACHTENHAGEN.
TOOL FOR FORMING BOTTLE NECKS.

No. 532,191.

Patented Jan. 8, 1895.

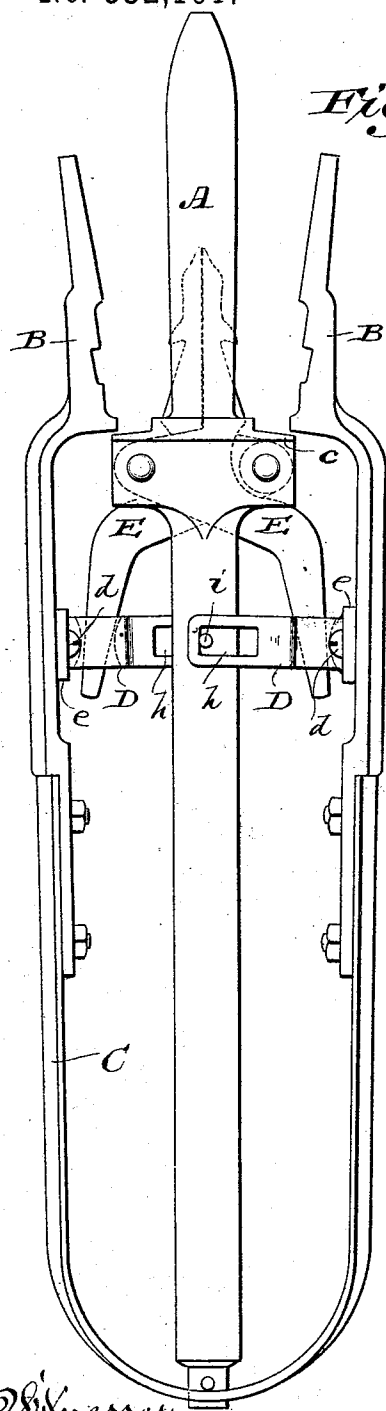


Fig. 1.

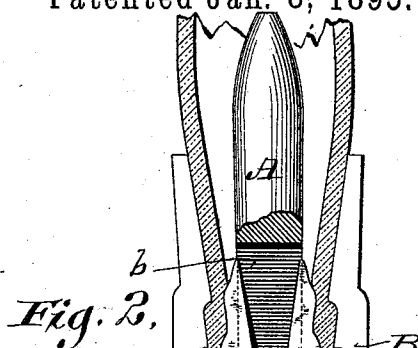


Fig. 2.

Fig. 5.

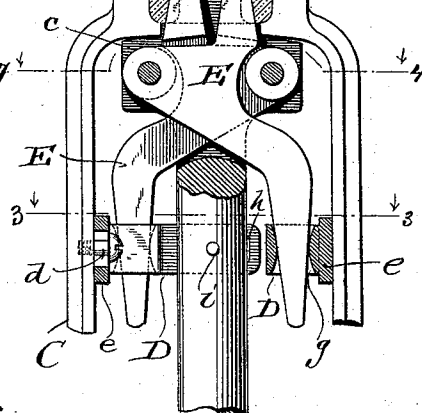
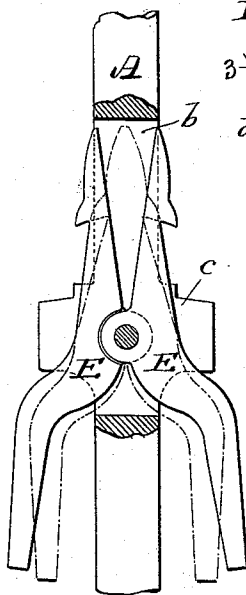


Fig. 3.

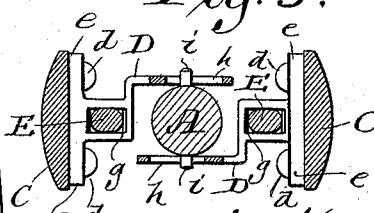
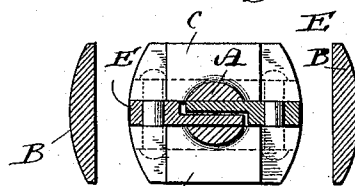


Fig. 4.



Inventor.

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UNITED STATES PATENT OFFICE.

FERDINAND ACHTENHAGEN, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO
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TOOL FOR FORMING BOTTLE-NECKS.

SPECIFICATION forming part of Letters Patent No. 532,191, dated January 8, 1895.

Application filed May 22, 1894. Serial No. 512,081. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND ACHTENHAGEN, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Tools for Forming Bottle-Necks; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a simple, economical and efficient tool for forming the necks of bottles; and it consists in certain peculiarities of construction and combination of parts hereinafter described with reference to the accompanying drawings and subsequently claimed, the tool herein shown being especially designed for obtaining an undercut groove and ogee contour upon the interior of a bottle neck, as well as a flare outward from the groove.

In the drawings: Figure 1 represents an elevation of a tool constructed according to my invention and as it appears when not in use; Fig. 2, a detail elevation of a portion of the tool partly in section and in operation on a bottle; Figs. 3 and 4, horizontal sections taken on lines 3—3 and 4—4 of the preceding figure, and Fig. 5 a partly sectional view of a portion of another form of the tool illustrated by the preceding figures.

Referring by letter to the drawings A represents a centering core provided with a longitudinal slot *b* and angular wings *c* the latter being adjacent to the slot. The horizontal portions of the wings herein shown are stepped to obtain clearance for shaping jaws B that close thereon, and the higher portions of said wings co-operate with the jaws to properly shape and smooth the lip of a bottle, the inner contour of said jaws being such as to shape the bottle neck according to a predetermined design and obtain a smooth finish.

The shanks of the jaws B are bolted or otherwise rigidly secured to the extremities of a bow-spring C centrally fitted to the shank of the core A so as to have sufficient loose play thereon, and by means of set-screws *d* engaging vertical slots in lateral ears *e* of angular arms D the latter are adjustably secured to the inner sides of the jaw-shanks.

The arms D are provided with vertical

openings *g* engaged by the tapered outer ends of shaping levers E that in one form of my invention are crossed upon each other and independently pivoted to the vertical portions of the angular core-wings, but as shown in Fig. 5, the levers may be united to each other and said core by a rule-joint. The arms D on the jaw-shanks are also provided with longitudinal slots *h* that engage guide-lugs *i* on the core-shank A, the width of the slots being sufficient to permit positive vertical adjustment of said arms.

As a matter of detail the jaw-shanks are preferably offset to form shoulders against which the ends of the bow-spring rest to thereby form practically flush joints upon the outside of the tool.

The inner ends of the levers E are normally within the core-slot as shown by dotted lines in Fig. 1, and the working faces of these inner ends of said lever may have any contour that it is desirable to reproduce within the neck of a bottle, but as herein shown this contour is especially designed for obtaining an undercut groove and ogee in the bottle neck, as well as a flare outward from the groove, this formation being clearly shown in Fig. 2.

The depth of the undercut groove and the area of the bottle mouth are determined by the vertical adjustment of the arms D to regulate the throw of the levers E engaged therewith.

In practice the bottle is slipped on the core to rest upon its wings *c*, and the bow-spring C being compressed the jaws B are brought toward each other against the lip and neck of said bottle to shape and smooth the outside of the same, while at the same time, the levers E are tilted on their pivots by the arms D, whereby the inner ends of said levers are spread apart out of the core-slot and forced against the bottle-neck to shape and smooth the inside thereof, the action of the aforesaid jaws and levers being limited by the stop-lugs on the core-shank in engagement with the longitudinal slots in the vertically adjustable angular arms above specified.

The bow-spring being expanded, the jaws are retracted and the inner ends of the levers brought back within the core-slot to permit of the bottle and tool being disengaged.

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

1. A tool for forming the necks of bottles, 5 the same comprising a centering core provided with a longitudinal slot and wings adjacent to the slot, a bow-spring centrally connected to the core-shank, shaping-jaws that close on the wings and have their shanks fast 10 to the extremities of the spring, longitudinally slotted arms extended inward from the jaw-shanks, stop-lugs on the core-shank engaging the arm-slots, and shaping-levers that are in pivotal connection with said core and 15 loosely engaged with said arms, the inner or working ends of said levers being retractive in the core-slot, substantially as set forth.

2. A tool for forming the necks of bottles, the same comprising a centering core provided with a longitudinal slot and wings adjacent to the slot, a bow-spring centrally connected to the core-shank, shaping-jaws that close on the wings and have their shanks fast 20 to the extremities of the spring, longitudinally slotted arms extended inward from the jaw-shanks and vertically adjustable thereon, stop-lugs on the core-shank engaging the arm-slots, and shaping-levers that are in pivotal

connection with said core and loosely engaged with said arms, the inner or working ends of 30 said levers being retractive in the core-slot, substantially as set forth.

3. A tool for forming the necks of bottles, the same comprising a centering core provided with a longitudinal slot and stepped wings 35 adjacent to the slot, a bow-spring centrally connected to the core-shank, shaping-jaws that close on the wing-steps and have their shanks fast to the extremities of the bow-spring, longitudinally slotted arms extending 40 inward from the jaw-shanks, stop-lugs on the core-shank engaging the arm-slots, and shaping-levers that are in pivotal connection with said core and loosely engaged with said arms, the inner or working ends of said levers being 45 retractive in the core-slot, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wis- 50 consin, in the presence of two witnesses.

FERDINAND ACHTENHAGEN.

Witnesses:

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H. G. UNDERWOOD.