No. 648,197. Patented Apr. 24, 1900.

T. J. DONAHUE.

TOOL FOR FINISHING NECKS OF BOTTLES.

(Application filed Sept. 9, 1899.)

(No Model.)

Fig. 1.

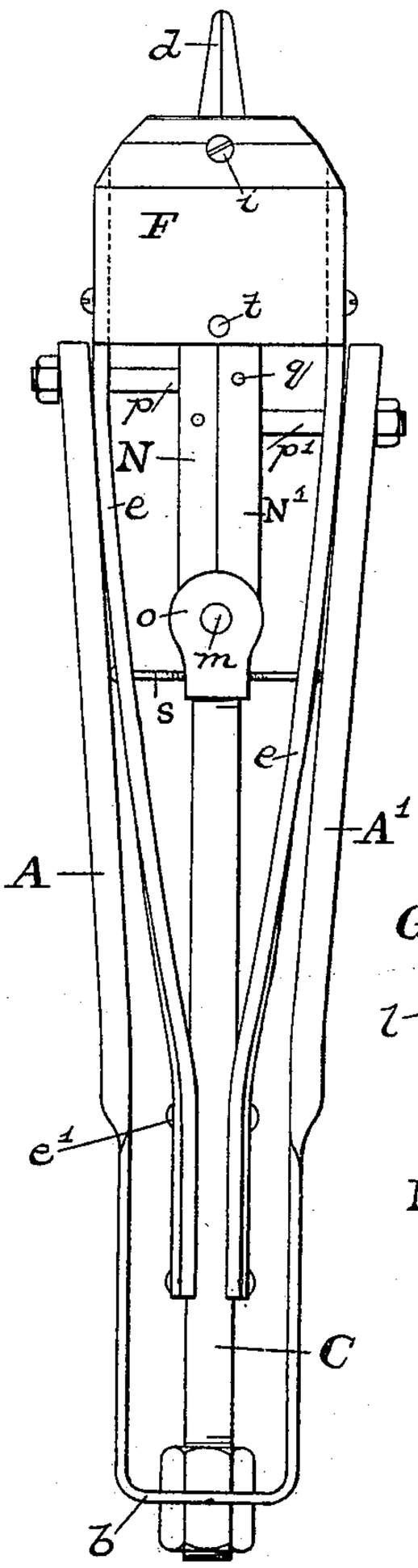


Fig. 2.

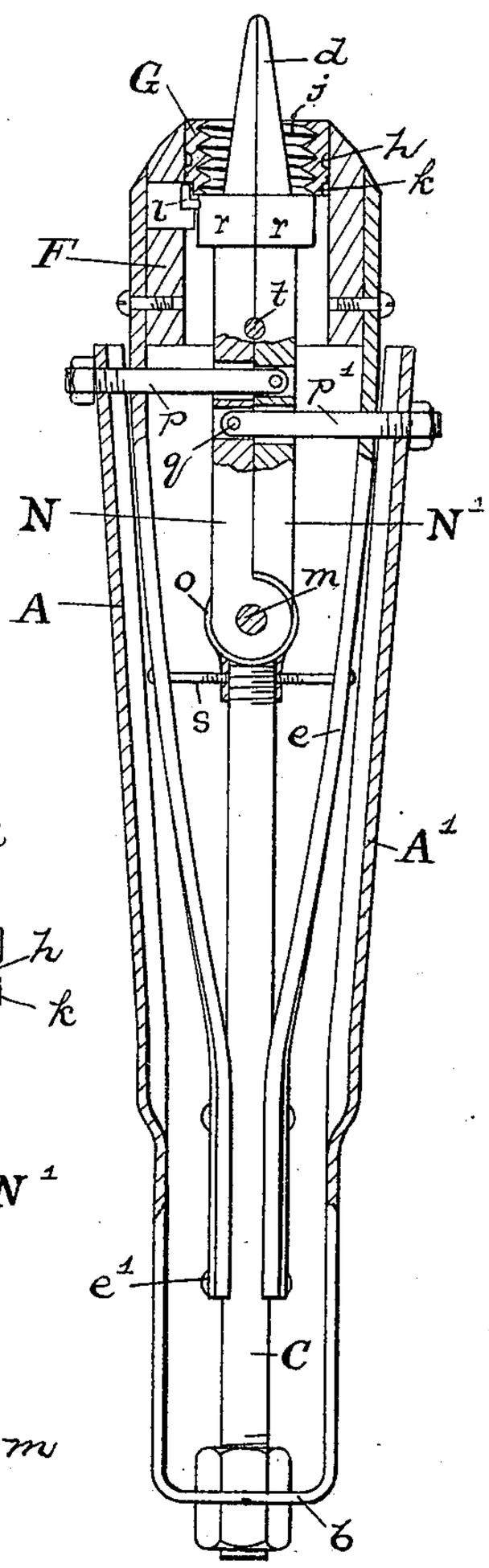


Fig. 3.

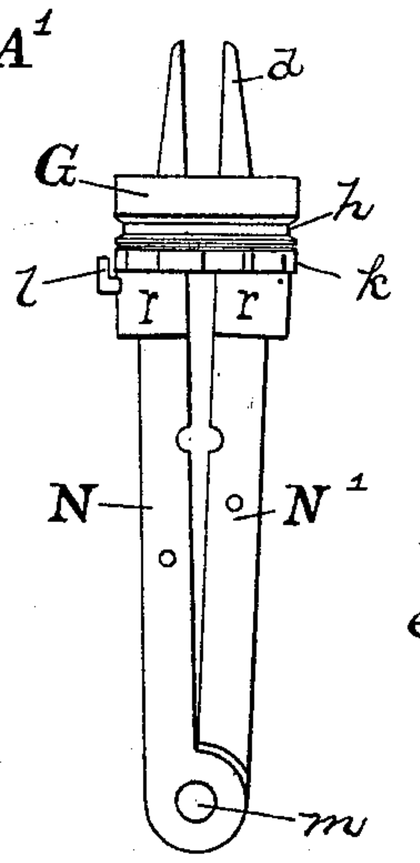
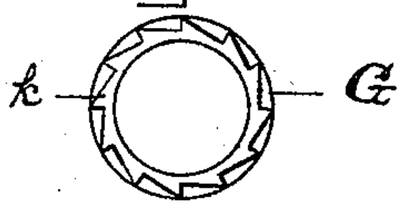


Fig. 4.



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UNITED STATES PATENT OFFICE.

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TOOL FOR FINISHING NECKS OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 648,197, dated April 24, 1900.

Application filed September 9, 1899. Serial No. 729,959. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. DONAHUE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Tools for Finishing the Necks of Bottles, of which the following is a specification.

This invention relates to improvements in a tool for finishing the interior and threading the exterior of necks of bottles while in a heated condition.

In the accompanying drawings, Figure 1 is a side view of the improved tool. Fig. 2 is a longitudinal sectional view of same, showing the pivoted arms constituting the split mandrel in closed position. Fig. 3 is a view of the split mandrel in open position and the screw-threading collar around same. Fig. 4 is a bottom view of the screw-threading collar and shows the ratchet-teeth thereon.

Two spring-arms A A′ are joined by a union cross-piece *b*, to which latter a stem C has one end attached. This stem is between the two spring-arms. The spring-arms are normally expanded and constitute the handle or grasp part of the tool and serve also to expand the split mandrel *d*, as will be explained hereinafter. An annular head F surrounds the split mandrel and is carried at the ends of two bars *e*, whose other ends are attached by screws or rivets *e′* to the stem C. A screw-threading collar G to act on the exterior of the bottle-neck is loosely mounted within the annular head F so as to permit the head to turn freely around the collar when the latter is on the bottle-neck. The said collar has a circumferential groove *h* extending all around it, and the end of a screw *i*, which is in the annular head, projects into said groove. This screw confines the collar to its position, but allows it to turn loosely or freely. The interior of the collar has the screw-thread *j*, which forms the thread on the neck of the bottle. The collar also has a ratchet *k*, which is engaged by pawl *l* on one of the pivoted arms composing the split mandrel. Two arms N N′ are pivoted on the same pin *m* at the upper end of the stem C. A U-shaped head *o* is attached to the end of the stem, and the pivot-pin *m* passes through the two ears of the U-shaped head and also through the two arms N N′. Each arm carries one half of the split mandrel *d*, the two halves together forming a tapered or cone-shaped mandrel that enters the mouth of the bottle and when expanded serves to finish the interior of said mouth.

Each pivoted arm is connected with a different one of the two springs A A′ by a pin. One pin *p* connects the spring-arm A at one side with the pivoted arm N′ on the opposite side, and another pin *p′* connects the spring-arm A′ with the pivoted arm N opposite. The connection of the pins with the pivoted arms is effected by a small pin *q* through the latter. By this arrangement when the two spring-arms A A′ are compressed the effect is to expand the split mandrel *d*. Each one of the pivoted arms carries half of a collar *r*, rigidly secured thereto, which bears on the rim or lip of the glass bottle and serves to smooth it when rotated.

The pawl 1, heretofore mentioned, is attached to one of the half-collars *r* and is so positioned that when the two halves of the mandrel *d* are closed in contact, as in Fig. 2, the pawl will be engaged with one of the teeth of the ratchet *k*, and the collar G must then remain stationary with the tool, and when the two halves of the mandrel are expanded, as in Fig. 3, the pawl will be disengaged and the bottle and collar may be turned without turning the tool.

The split mandrel when closed will have a central position in the screw-collar G by reason of the center-pin *t* extending diametrically across the annular head F and between the two pivoted arms N N′. When the two arms are closed together, they contact on opposite sides of this pin.

Stay-screws *s* extend from the bars *e* to the stem C and serve to keep those parts in fixed relation.

The operation, briefly stated, is as follows: The bottle is placed in the snap-holder and held in one hand and the tool held in the other. The neck of the bottle is then inserted in the collar G, which is stationary with respect to the mandrel. The spring-arms A A′ are then compressed, which has the effect to simultaneously expand the mandrel and disengage the pawl *l* from the ratchet-teeth of the collar. The snap and bottle are then turned with the collar, and the action of the expanded

mandrel is to force the glass into the screw-thread of the collar and smoothly finish the interior of the bottle-neck, while at the same time the rigid collar *r* on the mandrel smooths the rim or lip of the bottle-mouth. To remove the tool, the spring-arms A A′ must be allowed to expand, which has the effect to engage the pawl *l* with the ratchet of the screw-collar G, and then the bottle must be turned in a direction to unscrew the glass bottle-neck from the collar G.

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

In a tool for finishing the necks of bottles while in a plastic condition, the combination of a stem, C; two arms, N, N′, both pivoted at one end of said stem and together forming a split mandrel—each arm having one half of a rigid collar, *r;* an annular head, F, surrounding the split mandrel and supported by two immovable bars, *e*, which are attached to the said stem; a screw-forming collar loosely mounted within said annular head; a pin, *t*, extending centrally across the said annular head between the two arms of the split mandrel; and two spring-arms, A, A′, outside of the said two immovable bars and connected with the split mandrel to operate the same, as described.

In testimony whereof I affix my signature in the presence of two witnesses.

THOMAS J. DONAHUE.

Witnesses:

CHARLES B. MANN, Jr.,

CHARLES VIETSCH.