

(No Model.)

T. T. McCOY.
TOOL FOR THREADING BOTTLE NECKS.

No. 463,575.

Patented Nov. 17, 1891.

FIG. 1.

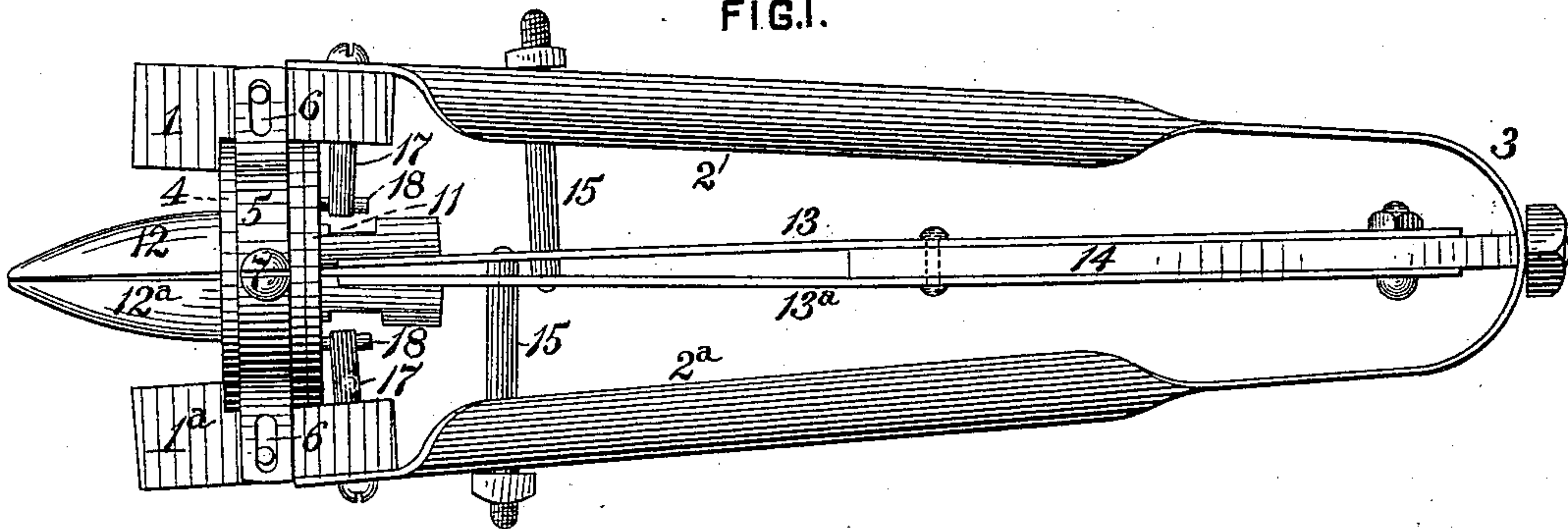


FIG. 3.

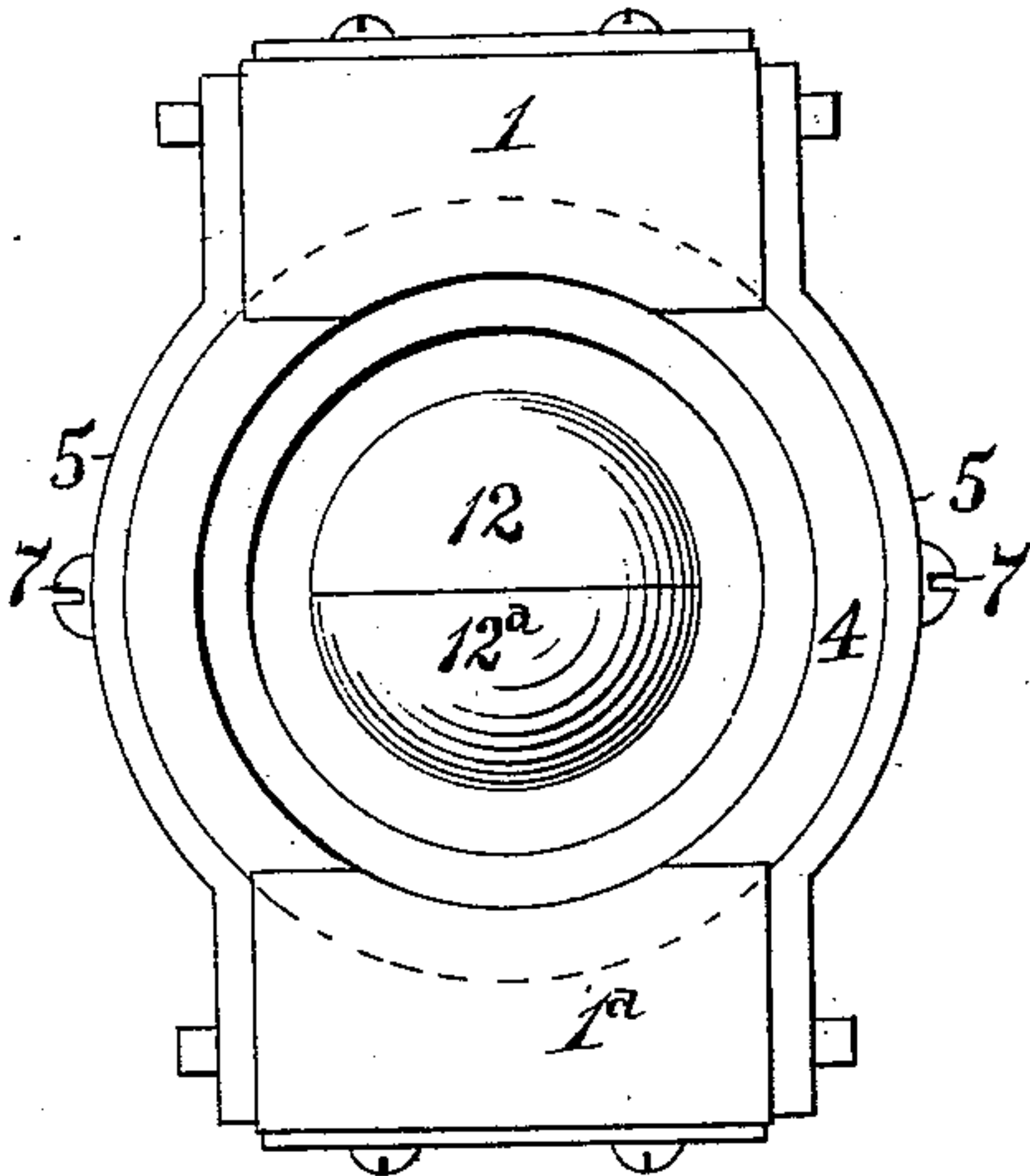


FIG. 4.

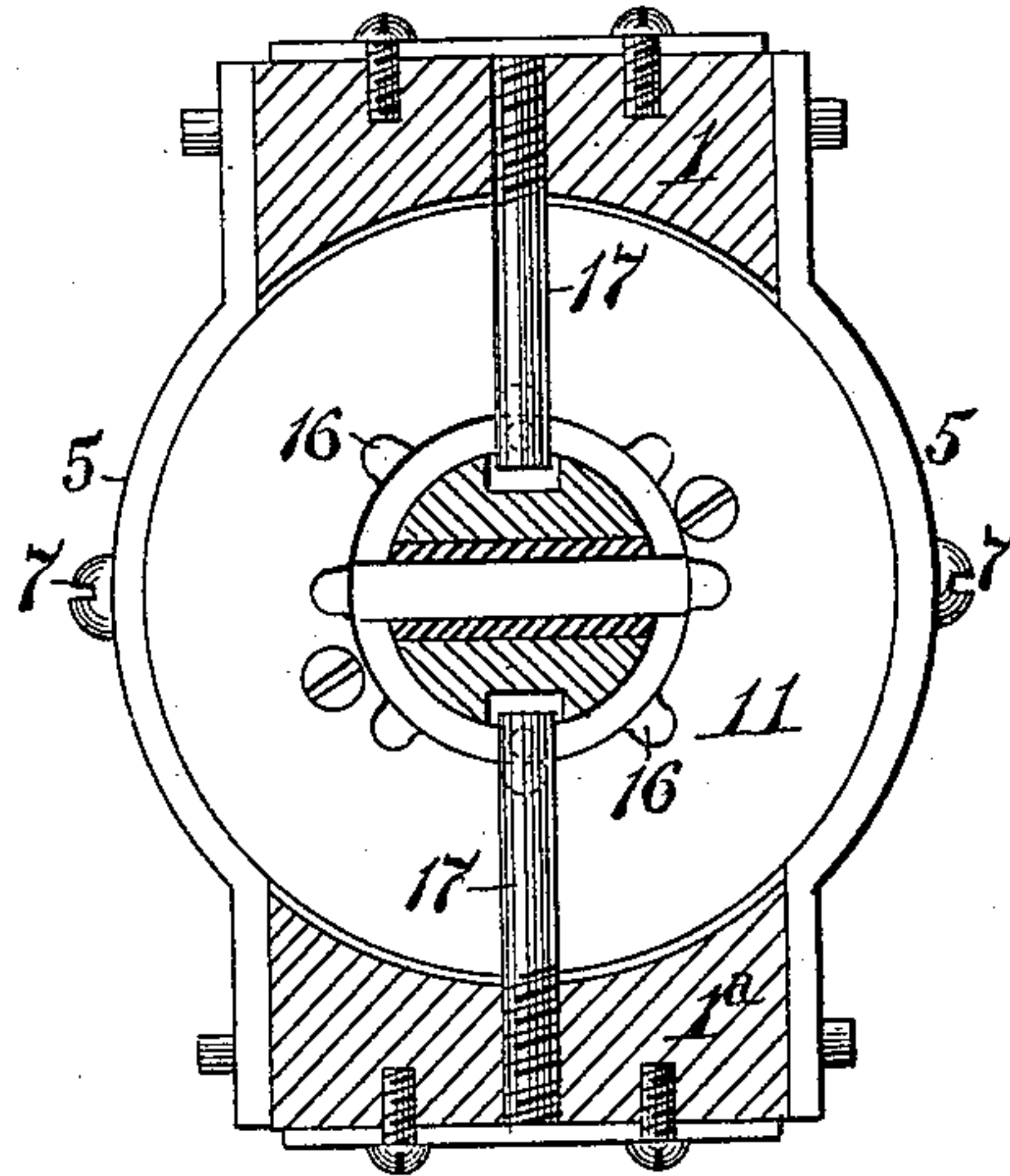
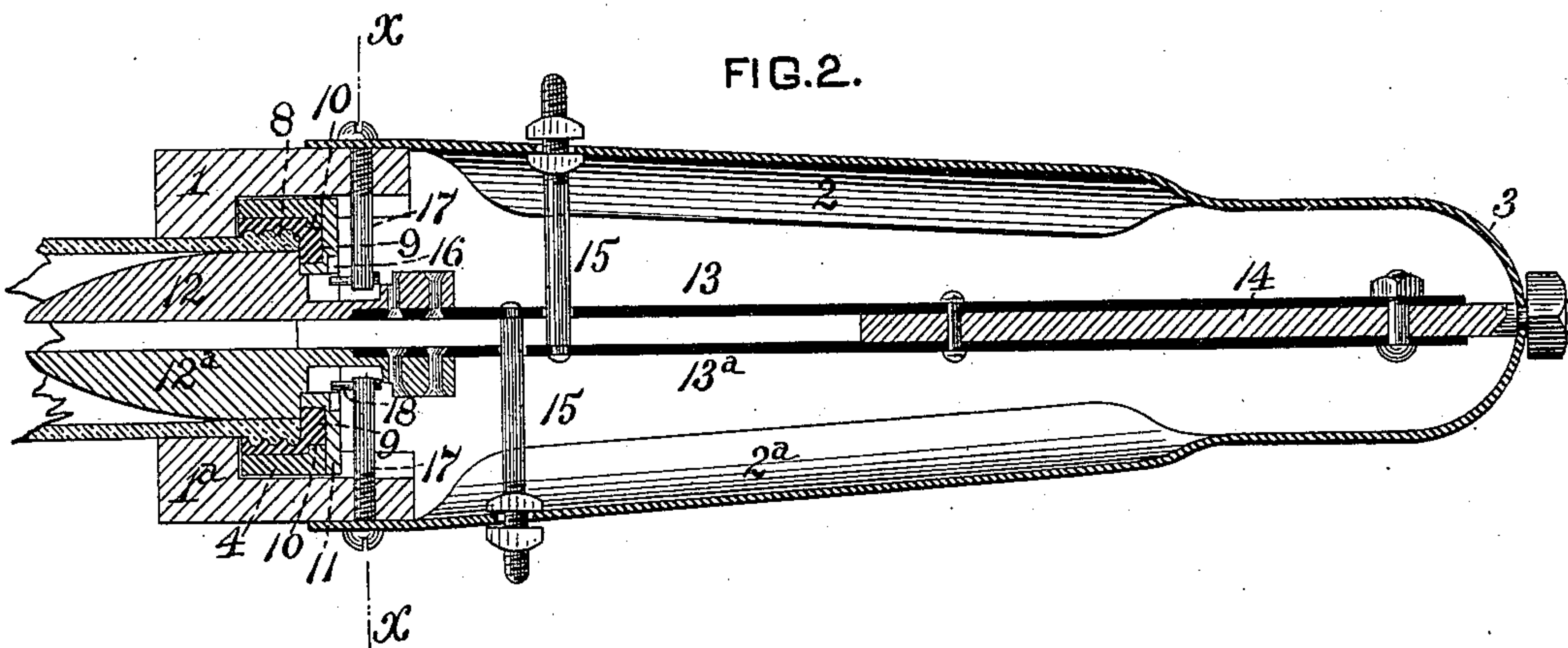


FIG. 2.



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UNITED STATES PATENT OFFICE.

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TOOL FOR THREADING BOTTLE-NECKS.

SPECIFICATION forming part of Letters Patent No. 463,575, dated November 17, 1891.

Application filed June 4, 1890. Renewed September 24, 1891. Serial No. 406,687. (No model.)

To all whom it may concern:

Be it known that I, THOMAS T. MCCOY, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Tools for Threading Bottle-Necks, of which improvements the following is a specification.

The invention described herein relates to certain improvements in tools for threading and finishing the necks of bottles, jars, &c.

Heretofore in manufacturing bottles the threads on the necks have been formed in the mold simultaneous with the formation of the bottle itself. In this molding operation there is always more or less overfill at the neck, which has to be ground off in order to provide a seat for the sealing-gasket. This grinding operation is not only expensive, but also destroys the exterior shell or enamel and forms a sharp edge, which is liable to cut the hands of the user.

The object of this invention is to provide a tool whereby the neck of the bottle may be shaped and finished and an external thread formed thereon without in any way injuring the enamel surface of the bottle.

In general terms, the invention consists in the construction and combination of mechanical devices or elements, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in side elevation of my improved tool. Fig. 2 is a longitudinal section of the same. Fig. 3 is an end view, and Fig. 4 is a transverse section on the line $x x$, Fig. 2.

In the practice of my invention the external or clamping jaws 1 are secured to the outer ends of arms 2 2^a, the inner ends of said arms being connected by a spring 3, preferably formed integral with said arms and constructed to force the outer ends of the arms and the jaws 1 apart. These jaws are undercut a short distance from their outer ends for the reception of a supporting-ring 4, which is supported in proper position between the jaws by means of bands 5, having their middle portions curved, so as to partially embrace the ring 4, the ends of the bands being attached to the jaws 1 by means of screws passing through slots 6 in the bands, such

slots permitting of the movement of the jaws independent of the bands. The ring 4 is attached to the bands by means of screws 7. Within the supporting-ring 4 is placed a forming-ring 8, having its inner wall threaded, as shown in Fig. 3, and provided at its inner end with an inwardly-projecting rim 9, against which the end of the bottle-neck bears during the finishing operation. The forming-ring 8 is held as against movement inwardly by an internal shoulder 10 on the ring 4, engaging a rebate in the ring 8 and as against outward movement by a washer or annular plate 11, screwed to the inner end of the ring 8 and projecting outwardly over the end of the ring 4. This construction insures the retention of the forming-ring in position, while permitting of its free rotation, as hereinafter described.

Pressing-fingers 12 12^a, each having a semi-cylindrical outer wall at its base and tapering to a point at its outer end, are arranged with their cylindrical portions within the forming-ring 8. These fingers are attached to the outer ends of flexible strips 13 13^a, whose inner ends are secured to a bar 14, fastened to the spring 3 in or approximately in line with the axis of the forming-ring. The flexible strips are connected by rods 15 to the arms 2 2^a in such manner that when these arms are pressed toward each other the fingers will be moved apart, and vice versa—that is to say, the strip 13 is connected to the arm 2^a and the strip 13^a to the arm 2.

When employing my tool, the bottle is formed in the mold in the usual manner except that the neck is made plain or unthreaded, care being taken, however, to provide sufficient glass in the neck portion for the formation of the threads, as hereinafter described. The bottle after being removed from the mold is placed in a snap and the neck heated until the glass is in a plastic condition. The neck of the bottle is then thrust into the forming-ring 8, the jaws 1 being separated and the fingers 12 12^a closed together, as shown in Fig. 1. By pressure applied to the arms 2 2^a the jaws are closed upon opposite sides of the neck above the portion to be threaded, and by the same movement of the arms the fingers are moved outwardly, so as to press the glass into the threads in the forming-ring. As

will be readily understood, the diameter of the cylinder formed by the fingers when closed together must be less than the internal diameter of the forming-ring 8 by an amount a little greater than twice the thickness of the glass in the bottle-neck, so as to permit of the insertion of the neck into the ring. Hence when the fingers are separated they will press the glass against the forming-ring at two points only. It is therefore necessary either to rotate the tool or the bottle, or both, in opposite directions in order to effect the expansion of the entire circumference of the neck against the ring 8. This independent movement of the tool or bottle is permitted without injury to the threads formed thereon by the ring 8 and fingers 12 by making the ring easily rotatable, as hereinbefore described, the ring moving with the bottle if it be rotated or remaining stationary if the tool be rotated. The jaws 1 prevent any outward-flow or movement of the glass under the outward pressure of the fingers. After the glass has hardened the pressure on the arms 2 2^a is relaxed, thereby permitting the jaws to move outwardly and the fingers to be moved inwardly. The bottle or tool is then rotated so as to screw the neck of the bottle out of the ring, which must be locked to the tool during this operation. For this purpose I provide a catch device or lock operated by the jaws or arms, such as that shown in Figs. 2 and 4, consisting of a series of notches 16, formed in the inner periphery of the washer or annular plate 11, as shown in Figs. 2 and 4, and rods 17, attached to the jaws or arms, so as to move therewith, said rods being provided at their inner ends with pins 18, adapted when the jaws move outwardly to engage the notches 16 and lock the washer 11 and the ring 8, to which the washer is attached, as against movement independent of the tool. When the jaws or arms are pressed inwardly, the pins are moved out of engagement with the notches and the ring is free to rotate.

I am aware that tools for threading the necks of bottles have been constructed with internally-threaded jaws, movable toward

each other, for the purpose of inclosing the necks of bottles; but such jaws are liable, when closing around the neck, to catch a small portion of glass between their meeting edges and form a fin thereon, whereas in my improved tool the thread-forming portion being in the form of a ring, there is not the slightest liability of forming a fin.

I claim herein as my invention—

1. In a glass-shaping tool, the combination of an internally-threaded and rotatable ring and outwardly-movable fingers for pressing the glass against such ring, substantially as set forth.

2. In a glass-shaping tool, the combination of an internally-threaded and rotatable ring, outwardly-movable fingers for pressing the glass against such ring, and movable jaws arranged to bear upon the neck below the portion to be threaded, substantially as set forth.

3. In a glass-shaping tool, the combination of an internally-threaded and rotatable ring, outwardly-movable fingers for pressing the glass against such ring, and a lock for holding the ring as against rotation independent of the fingers, substantially as set forth.

4. In a glass-shaping tool, the combination of an internally-threaded and rotatable ring provided with an inwardly-projecting rim and outwardly-movable fingers for pressing the glass against such ring, substantially as set forth.

5. In a glass-shaping tool, the combination of movable jaws, a supporting-ring connected to said jaws, a forming-ring loosely mounted in the supporting-ring, a washer or annular plate attached to the forming ring and notched on its internal periphery, a pin for engaging the notches and operated by one of the jaws, and movable fingers operated by the jaws, substantially as set forth.

In testimony whereof I have hereunto set my hand.

THOMAS T. MCCOY.

Witnesses:

R. H. WHITTLESEY,
DARWIN S. WOLCOTT.