

NO MODEL.

FIG. 1.

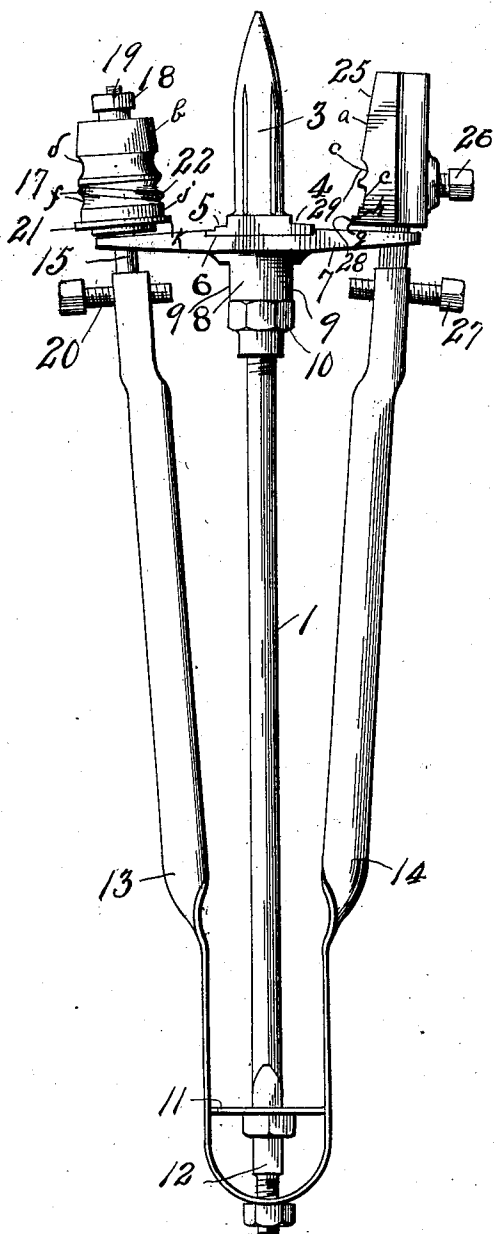
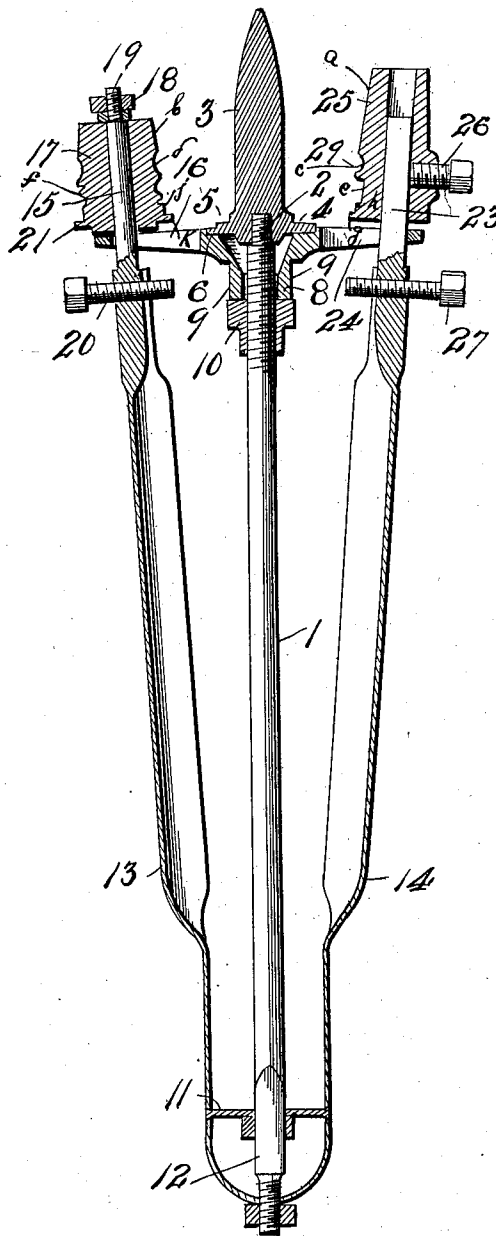


FIG. 2.



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No. 744,681.

C. A. ERGO.
TOOL.

PATENTED NOV. 17, 1903.

APPLICATION FILED MAY 26, 1903.

2 SHEETS—SHEET 2.

NO MODEL.

FIG. 3.

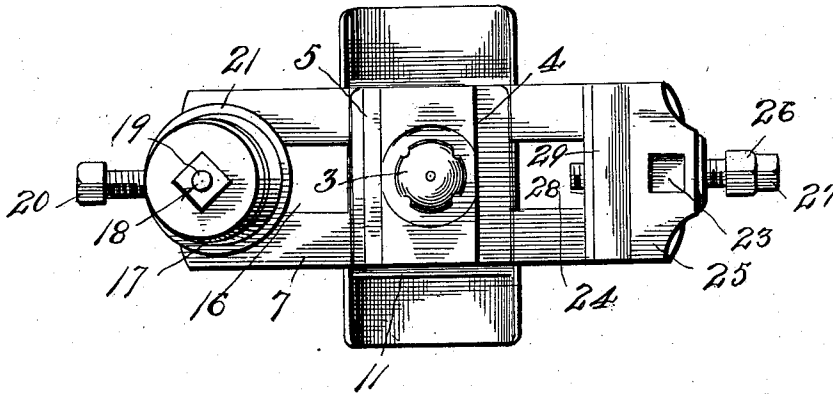


FIG. 6.

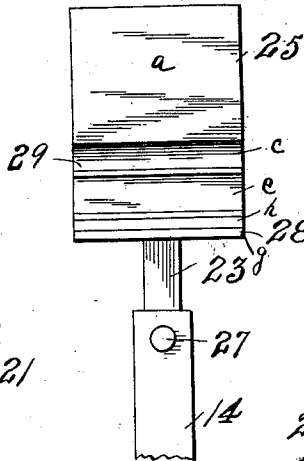


FIG. 4.

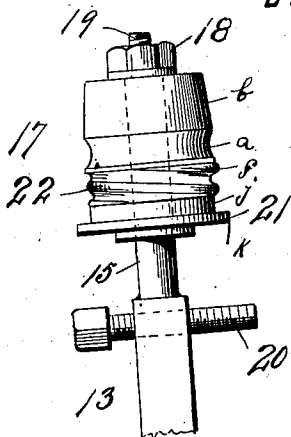
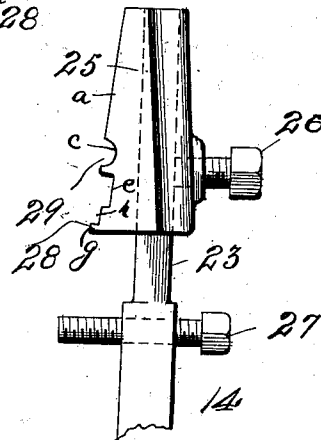


FIG. 5.



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UNITED STATES PATENT OFFICE.

CARL A. ERGO, OF TERRE HAUTE, INDIANA.

TOOL.

SPECIFICATION forming part of Letters Patent No. 744,681, dated November 17, 1903.

Application filed May 26, 1903. Serial No. 153,858. (No model.)

To all whom it may concern:

Be it known that I, CARL A. ERGO, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Tools, of which the following is a specification.

This invention relates to improvements in tools, and has special reference to a tool for forming threads on the necks of bottles and finishing the end of the neck, so as to avoid the grinding thereof.

Another object of my invention is the provision of a simple, durable, and inexpensive construction of tool for this purpose which is provided with a stationary finishing device and a rotatable thread-forming device, said device being adapted to finish the exterior of the end of the neck of the bottle, this operation being the last one performed, as the bottles when completed after this operation need no grinding, the details of construction by which these advantages are accomplished being of a novel design.

In the accompanying drawings, Figure 1 is a side elevation of a complete tool having the threading attachment and finishing attachment secured in place. Fig. 2 is a sectional view through the entire tool, showing the connections of the threading and finishing parts. Fig. 3 is an end view of the tool with the jaws spread apart. Fig. 4 is a detailed view of the upper end of the arm carrying the thread-forming attachment; and Figs. 5 and 6 are similar views of the opposite arm, carrying the finishing attachment.

Referring to the drawings, the numeral 1 designates the central rod, which is screw-threaded at 2, so as to receive the core or point 3, which is provided at its base upon one side with the single shoulder 4 and upon the opposite side with the double shoulder 5, said base resting within a recess 6 in the plate 7, said plate 7 being provided with the lug or boss 8, provided with opposite flat surfaces 9. This plate is locked against the core upon the threaded end of the rod by means of the lock-nut 10. Carried near the opposite end of the rod is a separating disk or plate 11, to

which and to the extreme end 12 of the rod are secured the spring jaws or arms 13 and 14. The jaw 13 is provided at its top with the cylindrical portion or axle 15, which passes through the elongated slot 16 of the plate 7 and has rotatably journaled thereon the cylindrical threading spool or die 17, which is held from vertical movement thereon by means of the nut and washer 18, secured upon the upper screw-threaded end 19 of the jaw. This slot 16 is provided to guide the jaw 13 and at the same time limit the outward movement thereof. To limit the inward movement of this jaw, I provide an adjustable set-screw 20, which passes through the jaw below the plate 7, so as to have its inner end contact one of the flat surfaces 9 of the boss of the plate 7. The die 17 is provided with the lower circular flange 21, which is adapted to contact the double-shouldered portion of the base 5, thus assisting in limiting the inward movement of the jaw, so that the neck of the bottle will not be compressed too strongly, but sufficiently to allow the threads 22, formed upon the die, to impress exterior threads upon the neck of the bottle. Formed integral with the other jaw, 14, is the rectangular end 23, which is formed to project through the elongated slot 24 of the plate 7 and carries removably thereon the non-rotatable finishing-die 25, which is held in place upon the squared portion by means of the set-screw 26. This elongated slot 24 is provided to guide the movement of the jaw 14 and at the same time limit the outward movement thereof. To limit the inward movement of this jaw, I provide a similar set-screw 27, which is adapted to abut the opposite flat surfaces 9 of the plate 7. The stationary die is provided upon its inner face with the projecting edge or flange 28, which is adapted to contact the single-shouldered portion of the base 4 and limit the inward movement of the die, so that the neck of the bottle will not be compressed too tightly and at the same time allow the die-face 29 to contact the exterior of the neck of the bottle and finish the same.

From the foregoing description, taken in connection with the drawings, it is evident

that I provide a tool for forming threads upon and finishing the necks of bottles which is the embodiment of simplicity, durability, and inexpensiveness and which is thoroughly efficient and practical in use.

The operation of my improved tool, briefly stated, is as follows: When the core is inserted in the mouth of the bottle, the smooth surface *a* of the stationary die holds the bottle in position and preserves its shape as taken from the mold, the smooth surface *b* of the rotary die assisting in this operation. The first depression *c* of the stationary die forms the raised band upon the neck of the bottle to make a perfect joint with the lower edge of the cap, which is adapted to be secured upon the bottle after the threads are formed thereon, a depression *d* of the rotary die being in line with the depression *c* of the stationary die and assisting in the same operation. The second depression *e* of the stationary die provides a space, so that the body of the stationary die will in no way interfere with the thread which is being formed upon the neck of the bottle by the thread-forming grooves or ridges *f* of the rotary die. The last-raised surface *g* and the depression *h* of the stationary die are for the purpose of making a uniform and smooth surface and finish upon the end of the bottle near to and adjoining the thread, while the last-raised surface *j* and the flange *k* of the rotary die assist the parts *g* and *h* of the stationary die in making a smooth and uniform surface and finish upon the end of the bottle. Thus it will be seen that in order to perfectly finish the end of the bottle the rotary die revolves several times, and the respective surfaces of both of the dies provide a band below the threads, which are adapted to be contacted by the removable cap, the screw-threads for the reception of the cap, and at the same time finish the extreme end of the neck of the bottle, thus finishing in one operation what generally requires two operations.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a tool of the character described, the combination of a rod provided with a threaded upper end, a plate carrying oppositely-extending arms surrounding said threaded end and provided with elongated openings in said arms, a lock-nut mounted upon the rod upon one side of the plate, a core or point secured upon the extreme end of the rod and adapted to assist the lock-nut in holding the plate in place, a pair of spring-jaws connected to the opposite end of the rod and provided with reduced ends projecting through said slots of the arms, a rotatable die mounted upon the end of one jaw, and a stationary die mounted upon the end of the other jaw.

2. In a tool of the character described, the combination of a rod provided with a threaded

upper end, a plate carrying oppositely-extending arms surrounding said threaded end and provided with elongated openings in said arms, a lock-nut mounted upon the rod upon one side of the plate, a core or point secured upon the extreme end of the rod and adapted to assist the lock-nut in holding the plate in place, a pair of spring-jaws connected to the opposite end of the rod and provided with reduced ends projecting through the said slots of the arms, a rotatable die mounted upon one of the jaws, a stationary die mounted upon the other, and adjustable stops for limiting the inward movement of said jaws carried by each jaw below the arms.

3. In a tool of the character described, the combination of a rod provided with a threaded upper end, a plate carrying oppositely-extending arms surrounding said threaded end and provided with elongated openings in said arms, a lock-nut mounted upon the rod upon one side of the plate, a core or point secured upon the extreme end of the rod and adapted to assist the lock-nut in holding the plate in place, a pair of spring-jaws connected to the opposite end of the rod and provided with reduced ends projecting through said slots of the arms, one of said jaws having a cylindrical end while the other jaw has a square end, a rotatable die mounted upon the cylindrical end of one of the jaws, and a stationary die adjustably mounted upon the square end of the other jaw.

4. In a tool of the character described, the combination of a rod provided with a threaded upper end, a plate carrying oppositely-extending arms surrounding said threaded end and provided with elongated openings in said arms, a lock-nut mounted upon the rod upon one side of the plate, a core or point secured upon the extreme end of the rod and adapted to assist the lock-nut in holding the plate in place, a pair of spring-jaws connected to the opposite end of the rod and provided with reduced ends projecting through said slots of the arms, one of said jaws having a cylindrical end while the other jaw has a square end, a rotatable die mounted upon the cylindrical end of one of the jaws, a stationary die adjustably mounted upon the square end of the other jaw, and adjustable stops for limiting the inward movement of said jaws mounted in the jaws below the arms.

5. In a tool of the character described, the combination of a rod, a core secured upon the extreme end of the rod, a plate carrying oppositely-extending arms mounted upon the rod below the core and provided with slots therethrough, a pair of spring-jaws connected to the opposite end of the rod and provided with reduced ends projecting through the slots of the arms, a rotatable die mounted upon the end of one jaw, and a stationary die mounted upon the end of the other jaw, said

rotary and stationary dies being provided with inclined surfaces of the same angle, curved depressions for forming a band upon the exterior of the neck of the bottle, a flange, and
5 a raised surface upon the other extreme end for finishing the extreme end of the mouth of the bottle, the rotary die being still further provided with threads for forming threads upon the exterior of the neck of the bottle, between the band and the extreme end. 10
In testimony whereof I affix my signature in presence of two witnesses.

CARL A. ERGO.

Witnesses:

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ELIZABETH MULLIKIN.