

No. 646,848.

Patented Apr. 3, 1900.

P. LINDEMEYR.

TOOL FOR FORMING BOTTLE NECKS.

(Application filed Jan. 21, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

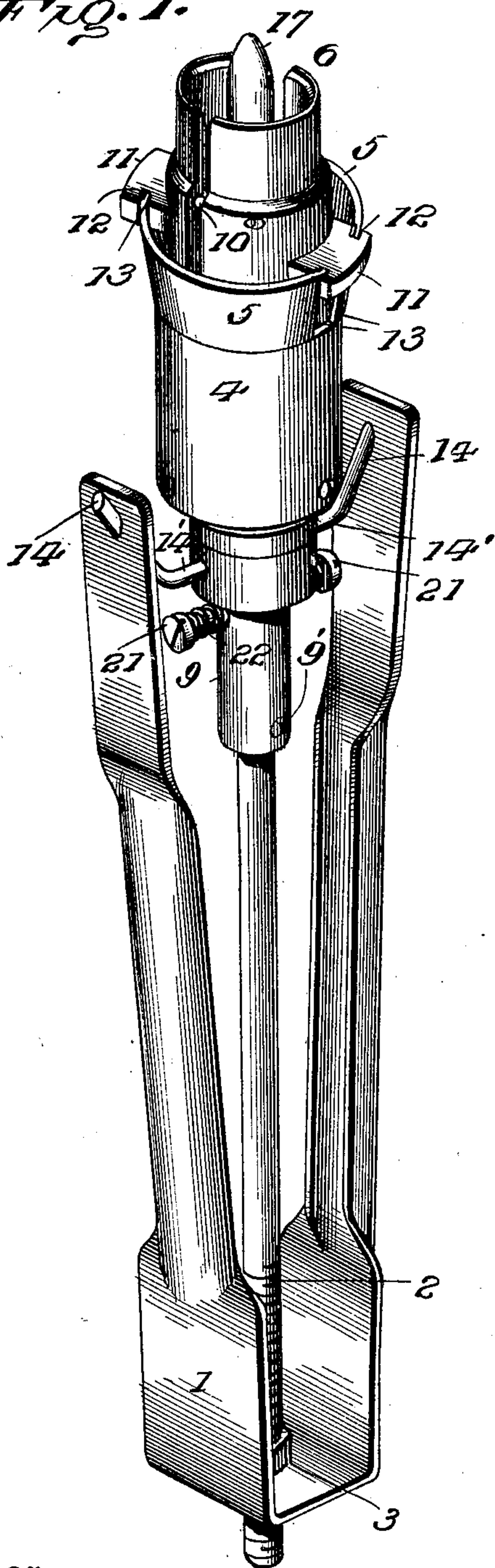
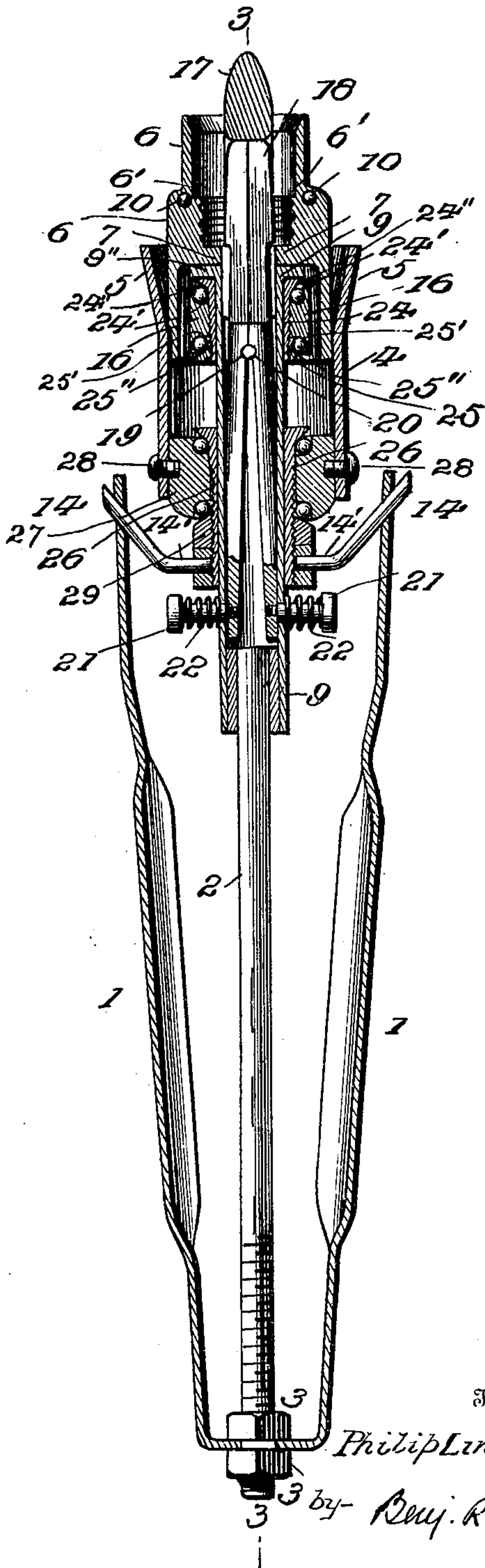


Fig. 2.



Witnesses

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2 Sheets—Sheet 2.

Fig. 3.

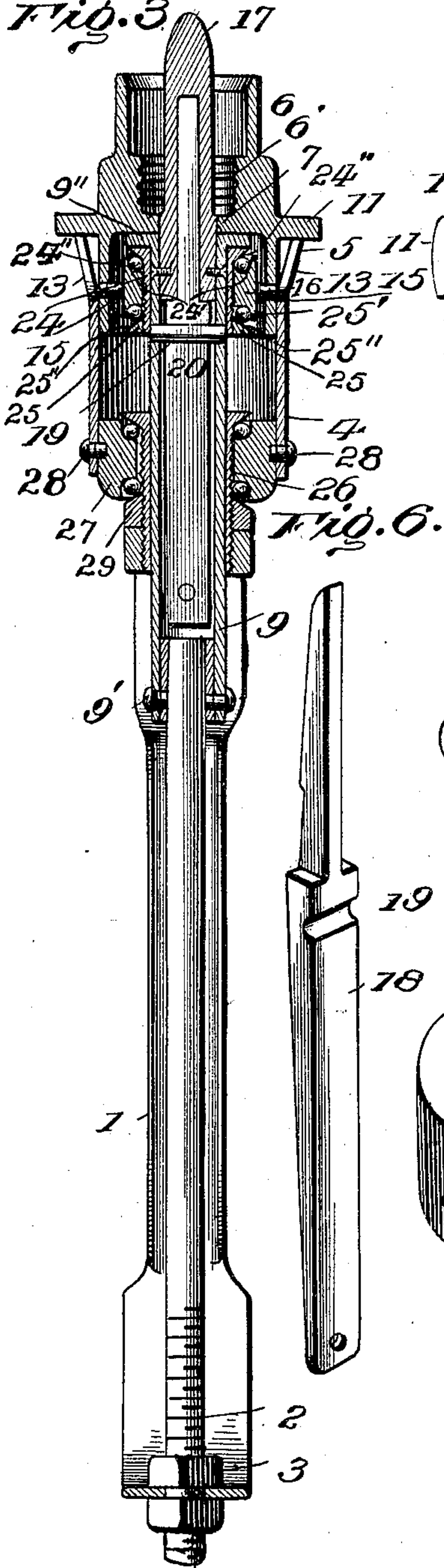


Fig. 5.

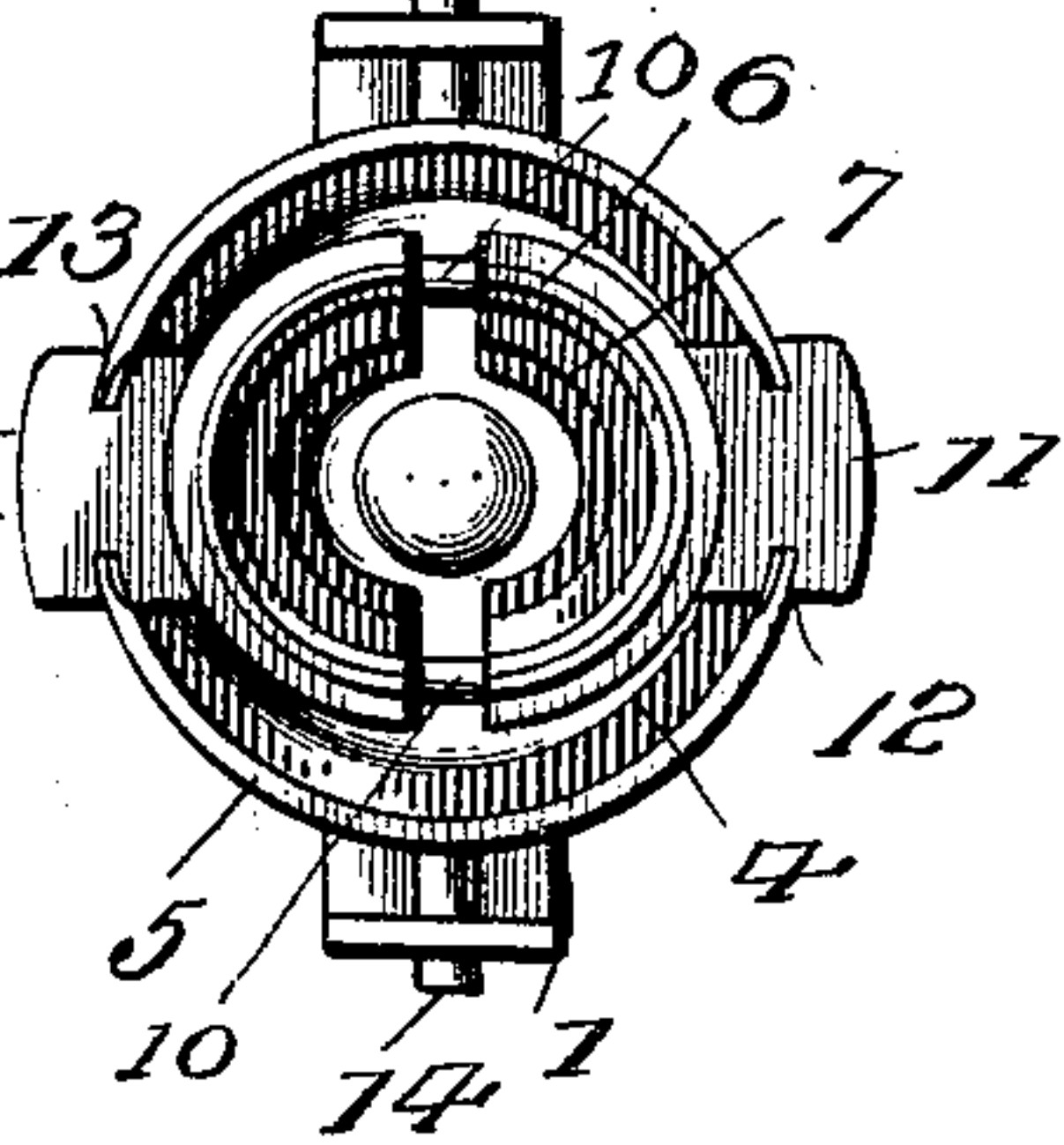


Fig. 6.

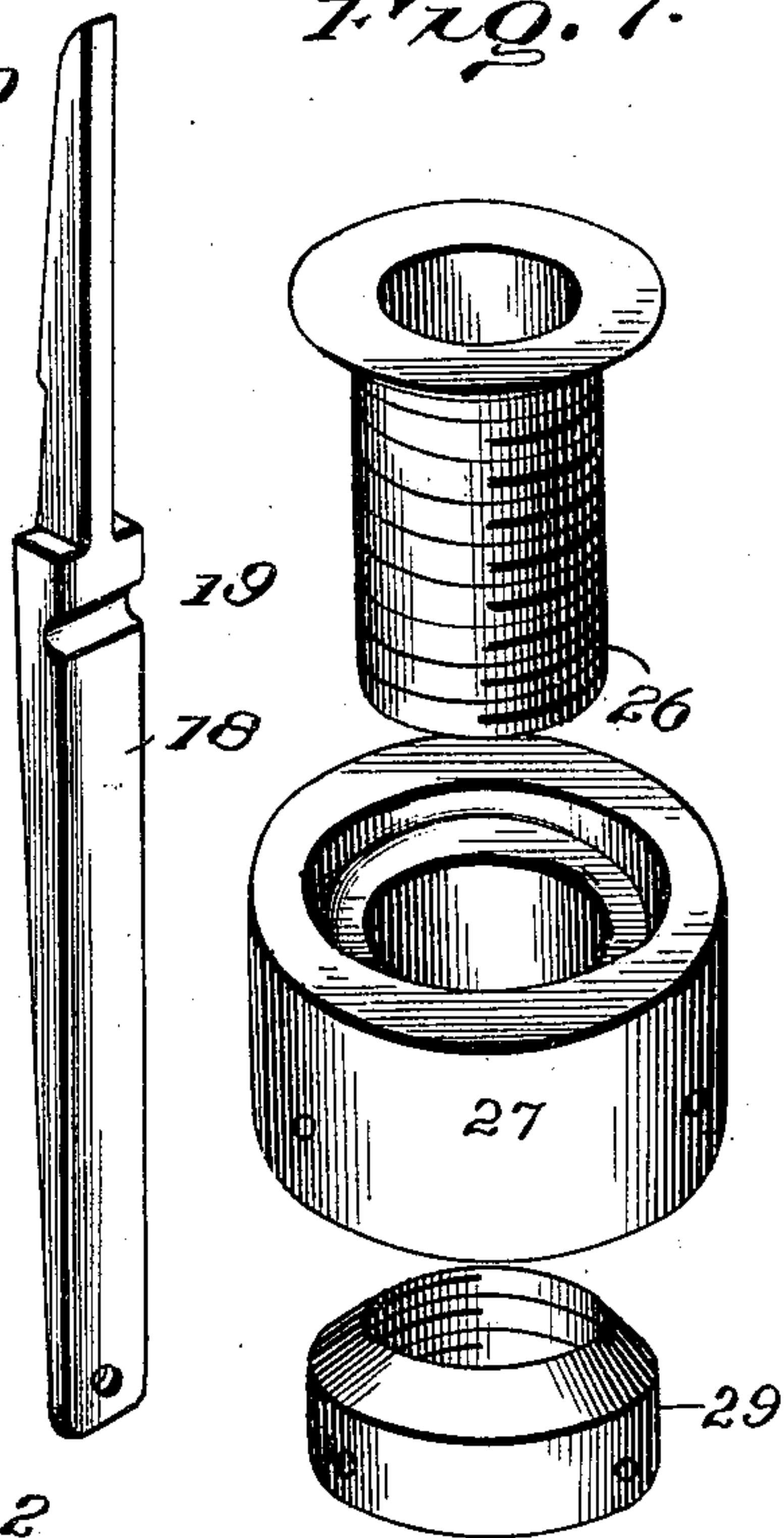
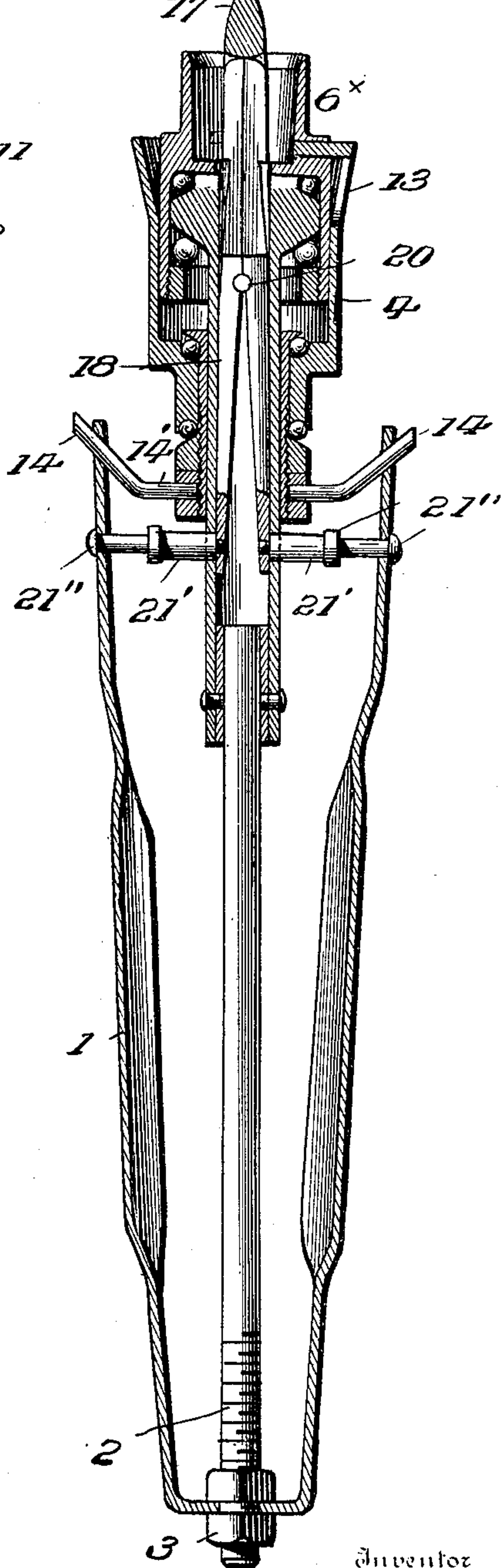


Fig. 7.

Fig. 4.



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UNITED STATES PATENT OFFICE.

PHILIP LINDEMEYR, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE
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TOOL FOR FORMING BOTTLE-NECKS.

SPECIFICATION forming part of Letters Patent No. 646,848, dated April 3, 1900.

Application filed January 21, 1899. Serial No. 702,966. (No model.)

To all whom it may concern:

Be it known that I, PHILIP LINDEMEYR, a resident of Baltimore city, in the State of Maryland, have invented certain new and useful
5 Improvements in Tools for Forming Bottle-Necks and the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable
10 others skilled in the art to which it pertains to make and use the same.

The invention relates to tools for forming bottle-necks and the like; and it has for its object to increase the capacities and efficiency of such tools.

15 The invention consists in the construction herein described and pointed out.

In the accompanying drawings, Figure 1 is a perspective view of the tool. Fig. 2 is a longitudinal vertical section of the same. Fig.
20 3 is a section on line 3 3 of Fig. 2. Fig. 4 is a longitudinal section of a tool embodying modified details. Fig. 5 is a plan of a sectional mold and its casing, showing the mold-sections expanded. Fig. 6 is a perspective of
25 one member of an expander. Fig. 7 is a perspective of the parts of the ball-housings shown separated.

Referring to the drawings, 1 denotes a spring-bow adjustably held upon a rod 2 by
30 nuts 3.

4 denotes a casing for the bottle-neck mold. The lower end of this casing is movably supported upon a tube 9, secured to the upper end of rod 2, as by screws 9'. Said casing is
35 enlarged or flared at its upper end, as at 5, for a purpose hereinafter described.

6 indicates a neck-mold comprising two longitudinal sections having cooperating semi-circular ledges 7, constituting the bottom of
40 the mold. The mold is mediately supported by the bow and the necessary intermediate cooperating devices.

6' indicates partial cooperating screw-threads in each mold-section adapted in operation to produce screw-threads on the bot-
45 tle-neck.

Although screw-threads are shown and described herein, it must be understood that the forming of grooves, indentations, or the like
50 are within the capacity of the tool, suitably modified for the purpose, and that such modi-

fications and others known to skilled mechanics are within the scope of the invention and claims.

The mold-sections are loosely connected by
55 parallel pins 10, arranged at right angles to the molds, whereby said sections are guided and permitted to move to and from each other in lines parallel to said plane.

11 denotes lugs fixed to the mold-sections
60 and provided with slots 12, adapted to receive the edges 13 of notches formed in the flared end 5 of the casing, the construction being such that an endwise movement of the casing produces a transverse movement of the mold-
65 sections in parallel lines.

The casing is moved by compressing the bow, which loosely engages the fingers 14, mediately connected to the casing, supported to slide lengthwise the tool. As the bow is
70 compressed the casing is pushed forward by means of the forwardly-inclined parts of fingers 14 and its flared end pushed through the lugs 11, with the effect to close the sections in manner to make the partial screw-threads
75 and partial ledges continuous and cooperating with their fellows.

The tube 9, fixed to rod 2 by pins 9', as stated, has a flange 9'' contiguous the mold-bottom consisting of the ledges 7. The flange
80 9'' stops the backward movement of the mold lengthwise the tool. The mold is further fixed against lengthwise movement by pins 15, which enter sockets in the housing-ring 16. The mold-bottom is held adjacent the flange
85 9'' in manner to avoid friction when the mold is rotated; but the play between the flange and mold-bottom is preferably very small in order that the flange may promptly stop the mold and partially relieve the pins 15 when
90 the casing 4 is retracted by the expanding bow.

17 denotes a plug fixed in the tube 9. Its free end is suitably formed to enter the mouth
95 of a reheated bottle-neck.

An expanding throat-former comprises two
members 18, each having a groove 19 to embrace a pivot 20, and they are held in engagement therewith by tube 9, as shown. Said pivot is supported in tube 9. The outer
100 ends of the members of the throat-expanding former are situated in a slot in the plug 17

and can be moved about the pivot 20, with the effect to move their outer ends in and out of said slot, as required to expand and form the bottle-throat—that is, the interior of its neck—and force the glass into the screw-threads or like indentations. This movement of the throat-former is effected by the bow immediately after it has closed the mold-sections and by an additional compression of the bow, which causes its limbs to engage the transversely-movable pins 21, connected to the inner ends of the expander members 18, with the effect to close said inner ends and open their opposite ends, as above noted.

22 indicates returning-springs.

14' denotes portions of the casing-moving fingers, which portions are arranged at right angles to the axis of the tool to avoid moving the casing lengthwise during the operation of opening and closing the expander, and it is to be understood that the bow members are contiguous these portions 14' during the throat-forming operation.

In Fig. 4 is shown a modification adapted to positively move the expander members in both directions. The pins 21' pass through the bow members, and each is provided with collars or heads 21'', one on each side of a bow member, whereby whether the bow is being opened or closed the expander members are positively moved at suitable times.

As shown in Fig. 4, the expander can be applied to a tool having a circumferentially-integral neck-mold and transversely-movable sections 6^x, which latter construction forms no part of the present improvement.

Referring again to the ball-bearing comprising the housing-ring 16, said ring has two exterior bearing-faces 24' and 25' cooperating with oppositely-situated faces 24'' and 25'', formed, respectively, on a sleeve 24 and a cone 25, secured on said sleeve. This device facilitates the rotation of the mold about the plug 17 and tube 9. 27 denotes a similar housing-ring for antifriction-balls, situated between the mold-casing 4 and the tube 9. The other parts of the housing are formed and arranged as shown and are similar to those described in connection with ring 16.

Either housing is such that the tool can be taken apart for cleaning or other purposes without releasing the balls, and, if desired, the entire housings can be detached without freeing the balls.

The lower housing just referred to comprises a ring 27 and a cone 29 and sleeve 26.

28 denotes screws, securing together the mold-casing 4 and ring 27.

In operation, the bottle being removed from the glory-hole of the reheating-furnace by means of the snap, its semifluid neck is pressed upon the plug and into the mold, which, being closed on the neck, forms screw-threads or other indentations thereon and also the bottle-lip, which is perfected by the rotation of the bottle and mold upon the fixed mold-bottom.

Having thus described my invention, what I claim is—

1. In a tool for forming bottle-necks, the neck-mold sections adapted to form the neck, means for guiding them to and from each other in right lines, a spring-bow, and devices intermediate the bow and sections to open and close said sections by the bow.

2. In a tool for forming bottle-necks, the neck-mold sections having dies fixed thereto to form screw-threads or the like, means for guiding them to and from each other in right lines, a spring-bow, and devices intermediate the bow and sections to open and close said sections by the bow, said devices comprising a casing operatively connected with each section and moved by the bow.

3. In a tool for forming bottle-necks, the neck-mold sections adapted to form the neck, said sections being loosely connected by parallel pins, means for guiding them to and from each other in right lines, a spring-bow and devices intermediate the bow and sections whereby they are opened and closed by said bow.

4. In a tool for forming bottle-necks, a neck-mold, a throat-expander to form the neck interior comprising pivoted members and a bow operatively connected to the expander members, said connection comprising pins situated in the path of the bow members and connected to and carried by the expander members whereby said members are directly opened.

5. In a tool for forming bottle-necks, a neck-mold, a throat-expander to form the neck interior comprising pivoted members, a tube containing the expander members, a pivot fixed in the tube, said members being individually held on the pivot by the tube, and a bow operatively connected to the expander members.

6. In a tool for forming bottle-necks, a mold, a mold-support having a tube, and a ball-bearing situated between the tube and mold and comprising a housing separable from the tube and mold without freeing the balls.

7. In a tool for forming bottle-necks, a mold, a casing operatively connected to the mold, a bow, fingers medially connected to the casing and loosely connected to the bow, and a throat-expander having pivoted members, said fingers having inclined portions to move the mold-casing longitudinally and straight portions to permit compression of the bow, while the casing is at rest, to independently operate the expander.

8. In a tool for forming bottle-necks, an expander, a rotatable sectional mold, means for moving the sections transversely of the tool, and the tube 9 having a flange 9'' adjacent the mold and a ball-bearing between the mold and tube.

9. In a tool for forming bottle-necks, a rotatable sectional mold, means for moving the sections transversely of the tool, the tube 9

having a flange adjacent the mold, and pins
10 to guide the mold-sections in right lines.

10. In a tool for forming bottle-necks, a
mold-support, a rotatable sectional mold,
5 means for moving the sections transversely
of the tool and the tube 9 having a transverse
flange and a ball-bearing between the mold
and tube.

In testimony whereof I have signed this
specification in the presence of two subscrib- 10
ing witnesses.

PHILIP LINDEMEYR.

Witnesses:

G. W. BALLOCH,
D. W. GOULD.