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PATENTED JAN. 8, 1907.

A. W. HUTCHINS.
IMPLEMENT FOR FORMING LIPS ON GLASS BLOWN BOTTLES.

APPLICATION FILED NOV. 8, 1906.

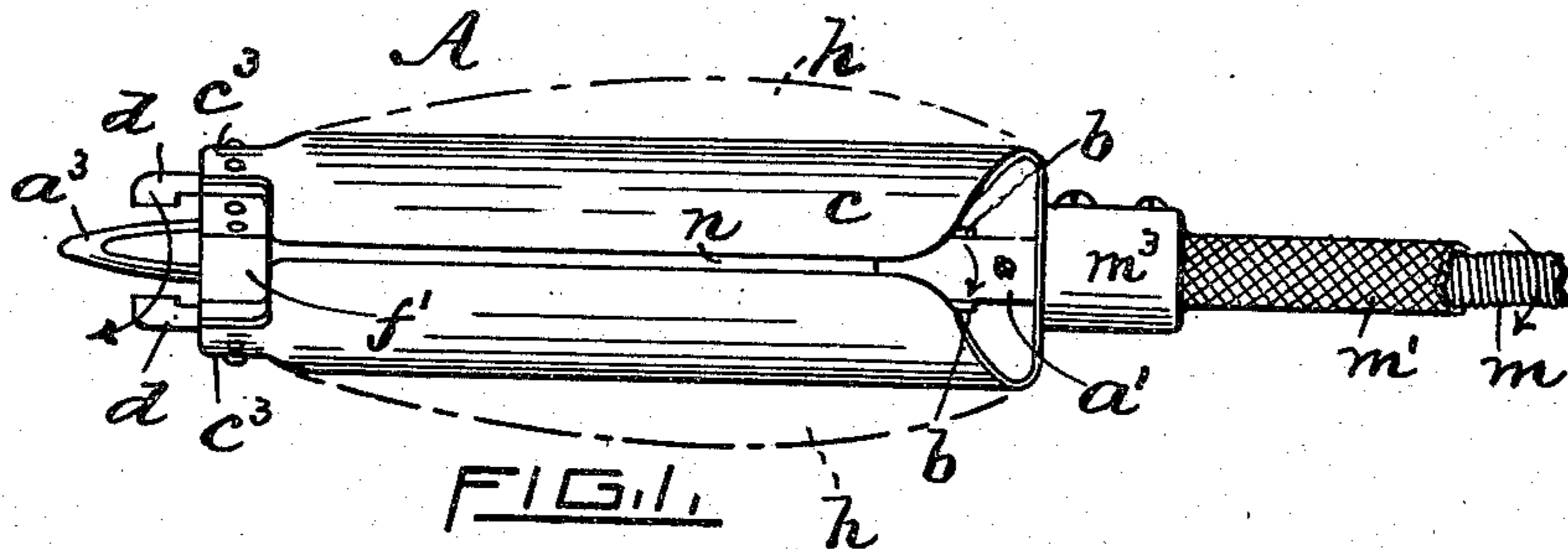


FIG. 1.

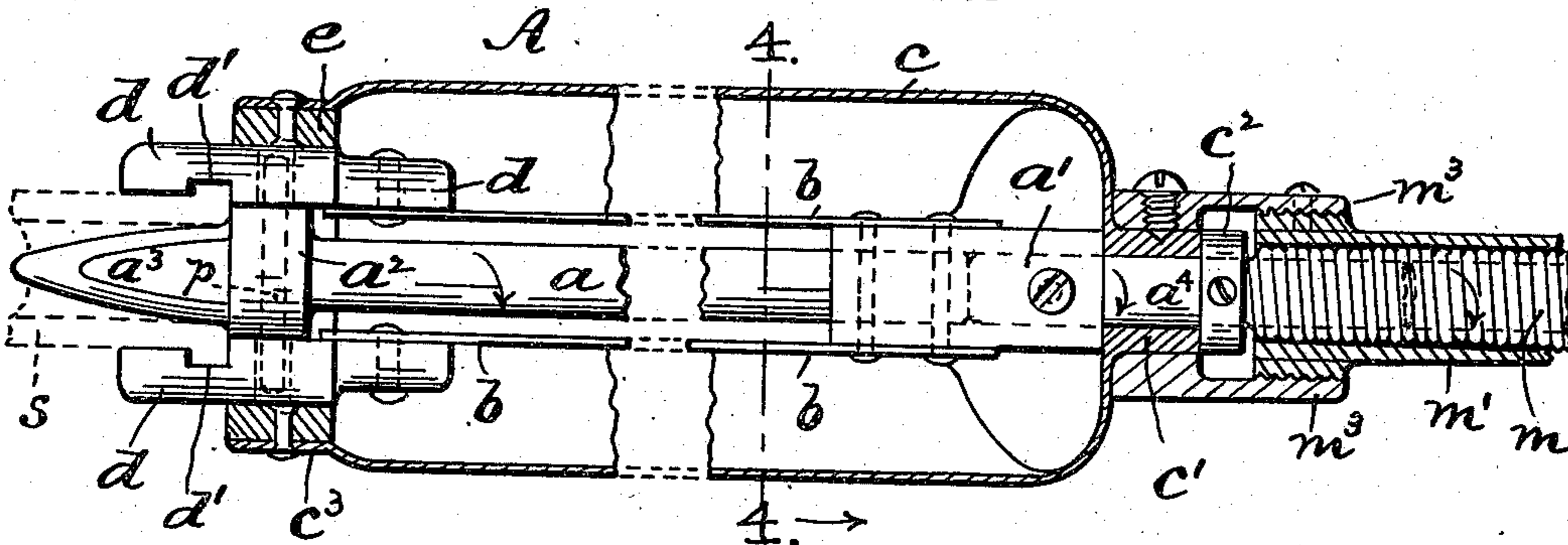


FIG. 2.

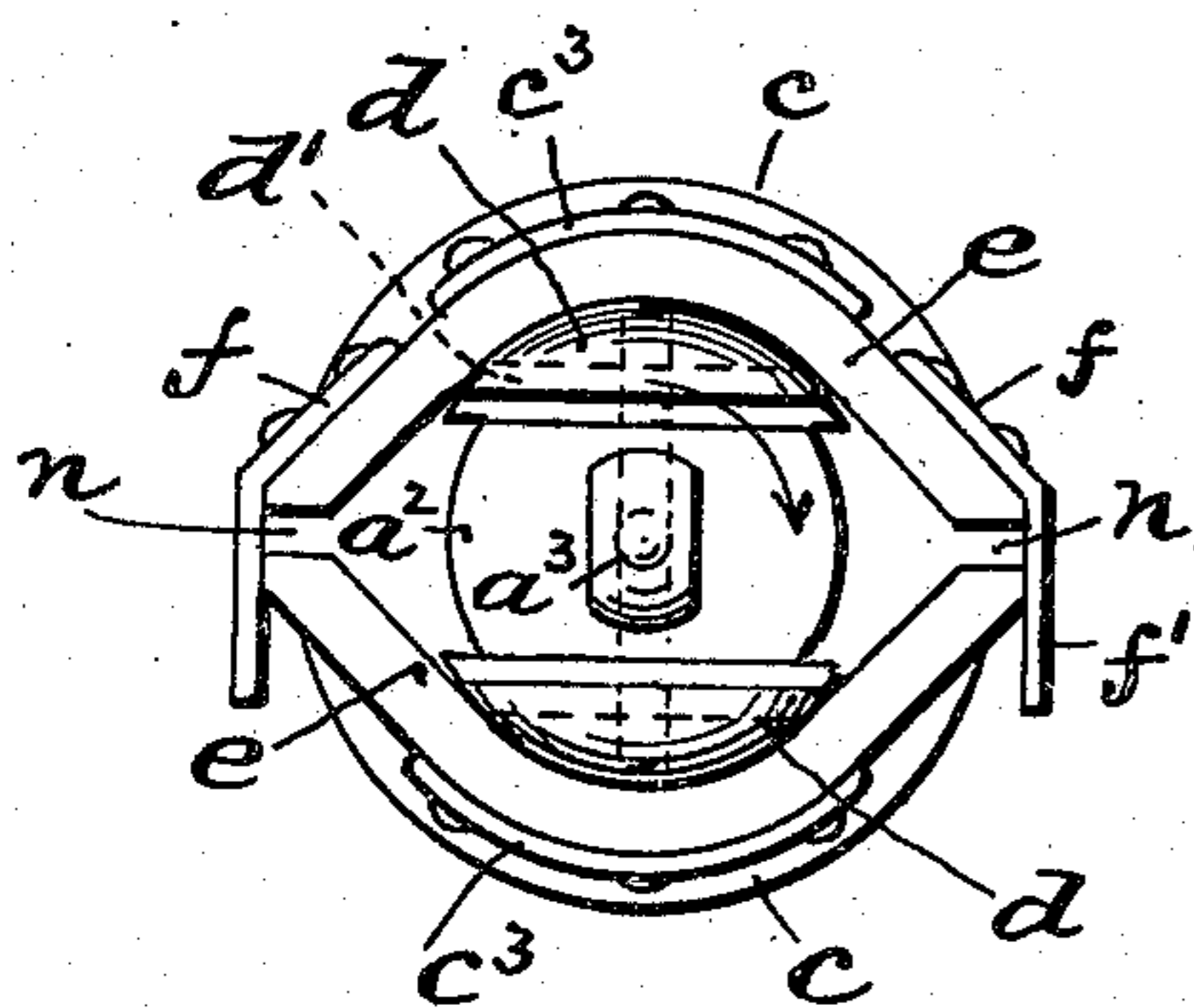


FIG. 3.

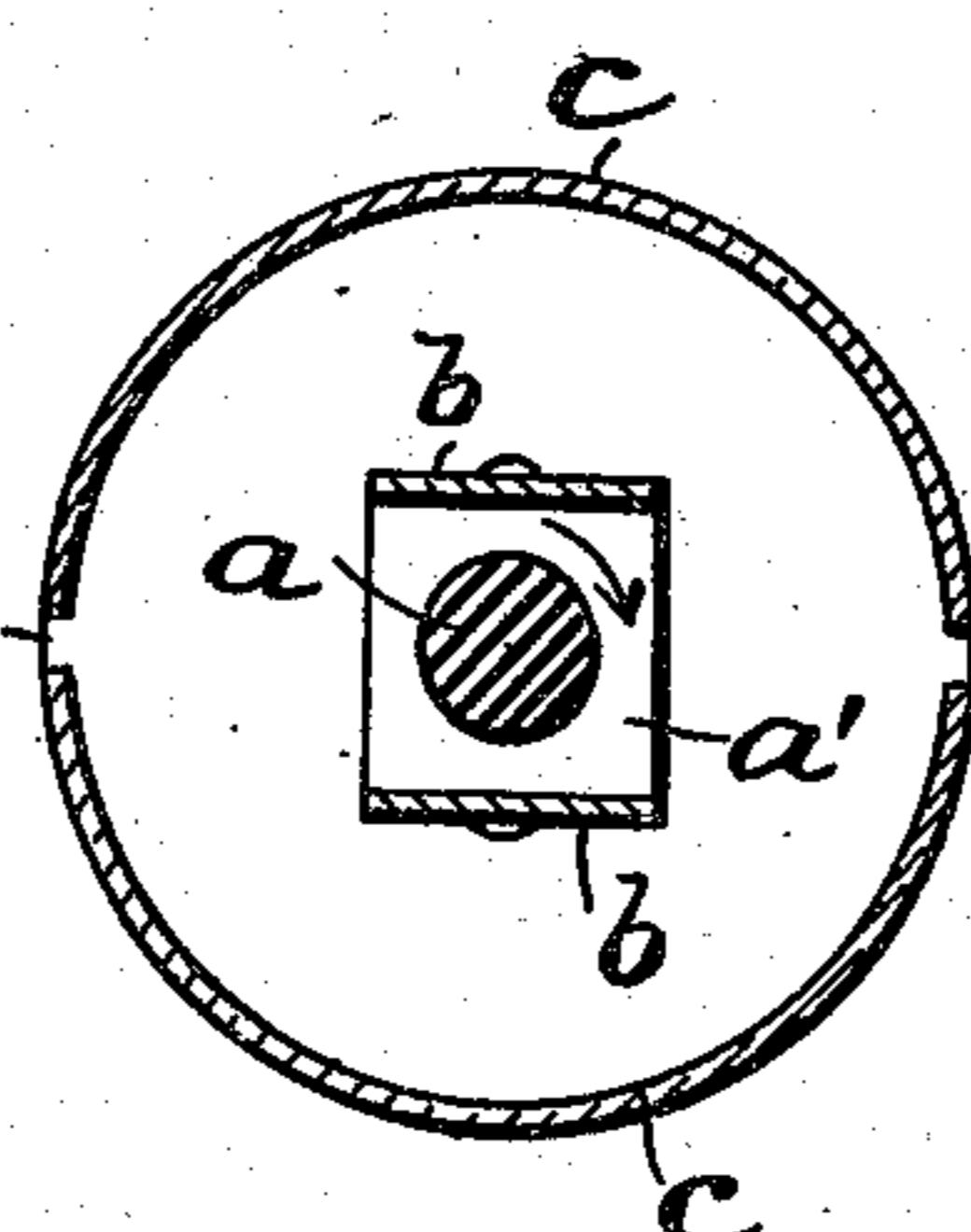


FIG. 4.

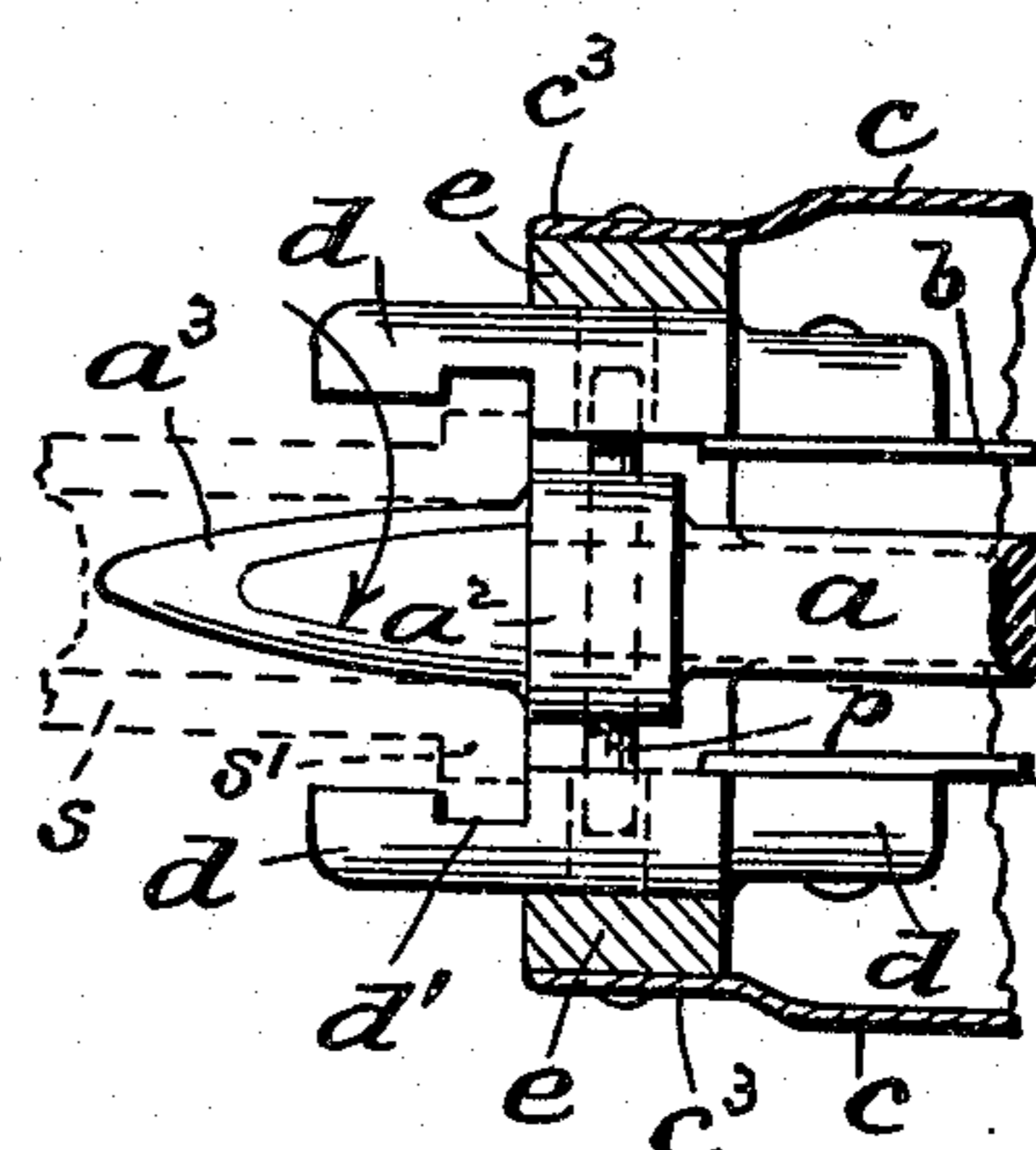


FIG. 5.

WITNESSES.

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IMPLEMENT FOR FORMING LIPS ON GLASS BLOWN BOTTLES.

No. 840,565.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed November 8, 1906. Serial No. 342,487.

To all whom it may concern:

Be it known that I, ARTHUR W. HUTCHINS, a citizen of the United States of America, and a resident of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Implements for Forming Lips on Glass Blown Bottles, of which the following is a specification.

My invention relates to improvements in means for finishing the necks of glass blown bottles; and it consists, essentially, in the combination, with a pair of oppositely-disposed yieldingly-mounted revoluble lip-forming jaws, of a relatively stationary holder or handle member supporting said jaws, the holder at the same time capable of being manually expanded and contracted in a lateral direction, so as to impart a corresponding movement to the revolving jaws, as in opening and closing them.

In glass blown bottles as usually made the finishing operation—that is, the final formation of the stopper-carrying portion of the neck and including the peripheral lip or collar—consists in reheating the neck portion of the bottle and subjecting it while revolving to the action of a manually-held tool to form the lip.

The object I have in view is to provide the operator or attendant with improved means through the medium of which the neck end of bottles may be finished with greater facility and rapidity, thereby correspondingly reducing the cost of the bottles or output, the necks thus finished also being more accurately formed and uniform in size.

In the accompanying sheet of drawings, Figure 1 represents a side elevation of my improved tool for finishing the necks of glass blown bottles, the device being shown in the normally closed or contracted position. Fig. 2 is a corresponding longitudinal central sectional view in partial elevation and in enlarged scale, the finished neck portion of the bottle being indicated by dotted lines between the closed jaws. Fig. 3 represents a front end view of the device corresponding with Figs. 1 and 2. Fig. 4 is a transverse sectional view taken on line 4-4 of Fig. 2; and Fig. 5 is a side elevation, in partial section, showing the front portion of the shaping-jaws normally open or expanded. In this position the work may be readily positioned between the jaws and as readily removed therefrom after being acted upon by them.

The dotted lines indicate the just-finished bottle-neck.

A in the drawings designates my improved bottle-finishing tool or implement complete. A central shaft or spindle member *a* extends longitudinally of the device and is adapted to be rotated in any suitable or well-known manner. As drawn, the shaft is represented as secured to a square coupling *a'*. A shorter shaft *a⁴*, in alinement with and forming a continuation of shaft *a*, is also secured to the coupling. The shaft member *a⁴* extends through the rear end of the tool and is rigidly secured preferably to a revoluble flexible shaft, as *m*, the latter being inclosed in a non-revoluble flexible tube or casing *m'* in any suitable way. To the front end of the latter is secured an annular connection *m³*, in turn removably secured to the bearing or hub *c'* of the slightly-resilient relatively stationary handle or casing member *c*, soon to be described. An inclosed collar *c²* is fixed to the shaft *a⁴* and bears against the rear end of said hub for maintaining the several parts in the normal operative relation. The said shaft *a* is provided at or near its front end with an integral or fixed rectangular-shaped collar *a²*, from which extends an elongated central stem or guide *a³*, the latter when in use being inserted in the neck of the bottle and constituting a support therefor. To the said shaft-coupling *a'* is fixed a pair of oppositely-disposed parallel longitudinally-extending slightly-resilient thin flat arms *b b*, having two jaw or lip forming members proper, *d d*, rigidly secured to the front ends thereof. The inner or lower face of each of said jaws *d* is represented as being flat and adapted to normally bear against the adjacent side of said collar *a²*, thereby limiting the movement of the jaws toward each other. The outer or peripheral surface of the jaws is turned off true, thus adapting them to revolve freely in the normally stationary holder or bearing members *e*, secured to the front end of the said resilient handle or casing *c*. The revoluble jaws extend in front beyond the collar *a²*, each having a suitably-shaped transverse groove or die *d'* therein, its form cross-sectionally producing a correspondingly-shaped lip on the end of the properly-heated neck portion of the bottle. In order to lessen the torsion upon the said arms *b*, connected with the jaws, the collar *a²* has a pin *p* fixed therein and extending diametrically therethrough into holes formed in the

jaws. By means of this arrangement the rotary movements of the shaft are transmitted through said pin and members *b* to the jaws, thereby rotating the latter in unison with the shaft. The said handle or casing *c* is, as drawn, made from thin sheet metal bent transversely to a substantially cylindrical form, the adjacent longitudinal edges, front and rear being separated, so as to form narrow openings *n n*, (see Figs. 1 and 4,) thereby rendering the handle somewhat yielding or resilient in a lateral direction. The front end portion of each half of the handle is extended at *c*³ and has rigidly secured thereto a section or member of the comparatively short holder *e*, the latter being bored or adapted to receive and form a bearing for the revoluble jaws *d*. (See Figs. 1 and 3.)

The bearing members *e* (see Fig. 3) are not semicircular in form, as the two sides or end portions of each extend in divergent directions or tangentially from the bored part, the two halves of the bearing being separated by a space *n*, the latter also being practically a continuation of the casing's openings *n*. It will be seen, referring to Fig. 3, that the members *e* are supported or guided in a lateral direction, being the major axis, by means of short bent straps *f*, secured, say, to the upper member of the bearing and extending downwardly past and in frictional contact with the respective outer ends of the fellow bearing member, as represented at *f'*. (See also Fig. 3.)

It may be added that in practice the casing *c* is liable to become hot by reason of heat conducted from the glass to the metal members. This may be eliminated or overcome, if desired, by the use of suitably-shaped handhold members *h*, of asbestos or other analogous material possessing heat-resisting properties, as indicated at *h* in Fig. 1 by dotted lines.

The following describes the manner of using the device forming the subject of my present invention: The attendant or workman holding the implement A lightly in his hand (the casing and the previously-selected jaws mounted therein meanwhile being in the normally expanded or open position, Fig. 5) first inserts the central end stem or guide *a*³ into the properly-heated and unfinished open end portion of the neck of the suitably-supported bottle until arrested by the collar *a*². He next closes his hand snugly around the casing, thereby correspondingly closing the latter until the jaw members firmly bear against the adjacent flat sides of the said collar, the corresponding position of the several parts being shown in Figs. 2 and 3. The action of the grooved or die part *d'* of the continuously rapidly revolving jaws upon the contiguous part of the heated glass quickly converts the end of the neck *s* of the

bottle into an integral annular lip *s'*, its form cross-sectionally being the counterpart of said groove. Upon relaxing the manual pressure upon the casing the resiliency of the latter, together with that of the arms *b*, connected to the jaws, automatically returns the members to the normal open position, (shown in Fig. 5,) followed by removing the now finished bottle from the implement, thus completing the operation.

By means of my invention the necks of bottles may be finished with much greater facility, rapidity, and uniformity as compared with devices heretofore employed for the purpose. By using a continuously-revoluble flexible driving-shaft, as *m*, the attendant is enabled to easily and readily adapt or position the device with respect to the bottle to be operated upon instead of carrying the bottle to the tool, thereby materially increasing the output.

What I claim, and desire to secure by United States Letters Patent, is—

1. As an improved article of manufacture, a tool or implement for finishing the necks of glass blown bottles, the same comprising a revoluble shaft or member having its front end provided with an extension adapted to be inserted in and form a support for the heated neck of the bottle; self-opening jaws revoluble in unison with said shaft having a lip-forming groove or die therein, and a relatively stationary laterally-yielding handle having said shaft and jaw members revolvably mounted therein, constructed and arranged so that upon compressing the handle the revolving jaws are closed onto the bottle's neck, the said die portion at the same time producing a lip thereon.

2. In a glass-working tool or implement of the character described, the combination with a mechanically-revoluble center spindle and laterally-separated yieldingly-mounted lip-forming jaws revoluble by and in unison with the spindle, of a relatively stationary resilient handle member having said spindle and jaws mounted and supported therein, arranged so that the jaws may be closed and opened at will to a limited extent by a corresponding movement of the operator's hand upon the handle.

3. The combination with a manually-controlled portable tool or implement of the character described provided with suitably-mounted radially-movable and revoluble lip-forming jaws, of flexible driving means operatively connected with the tool so that the said jaws are adapted to be continuously rotated while the device is held in any position.

4. In a device or tool of the character described, the combination with a revoluble center spindle and self-opening lip-forming jaws having said spindle located therebetween and revoluble in unison with it, of a relatively stationary self-opening casing or

5 handle having a bearing in its front end portion in which said jaws revolve, and connecting means for transmitting power from any suitable source to rotate said spindle and jaw members.

10 5. The combination with a pair of yieldingly-mounted oppositely-disposed revoluble lip-forming jaws and a revoluble central spindle or shaft located between and operatively connected therewith, of a relatively stationary resilient casing supporting said spindle and jaws and at the same time forming a handle or holder adapted to be held in the hand of the operator or attendant.

6. In a tool or implement of the character described, a center spindle, suitably-mounted laterally-separated lip-forming jaws arranged relatively to said spindle, and means for revolving said members in unison, in combination with relatively stationary manually-controlled means for closing and opening said revolving jaws. 15 20

Signed at Providence, Rhode Island, this 7th day of November, 1906.

ARTHUR W. HUTCHINS.

Witnesses:

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