

(No Model)

E. MULLER.

APPARATUS FOR FORMING GOLD CROWNS FOR TEETH.

No. 582,872.

Patented May 18, 1897.

FIG. 1.

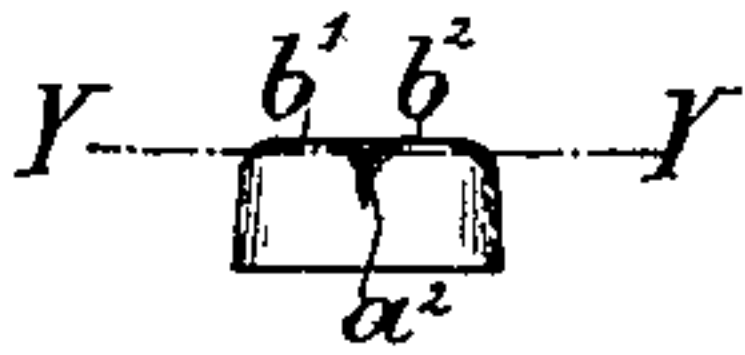


FIG. 2.

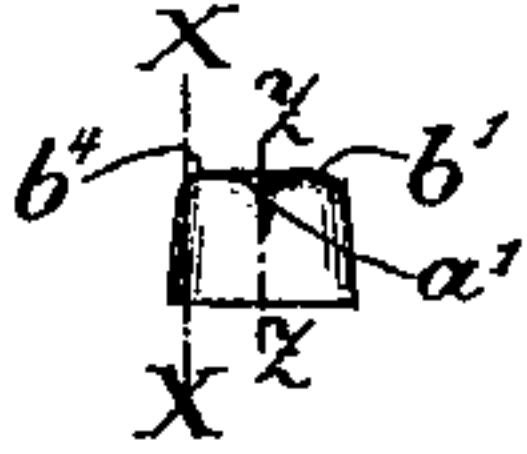


FIG. 4.

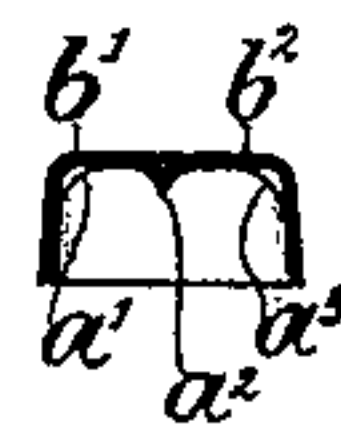


FIG. 6.

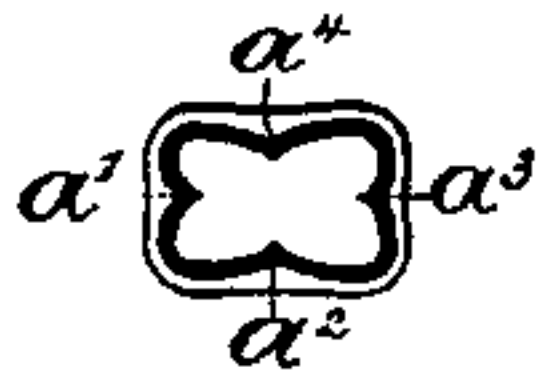


FIG. 3.

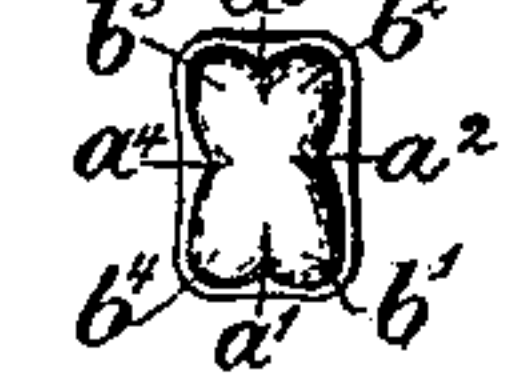


FIG. 5.

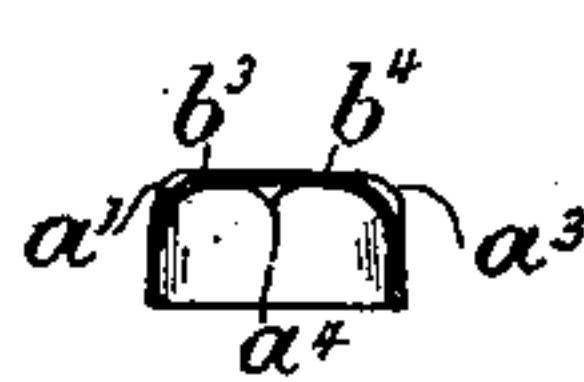


FIG. 7.

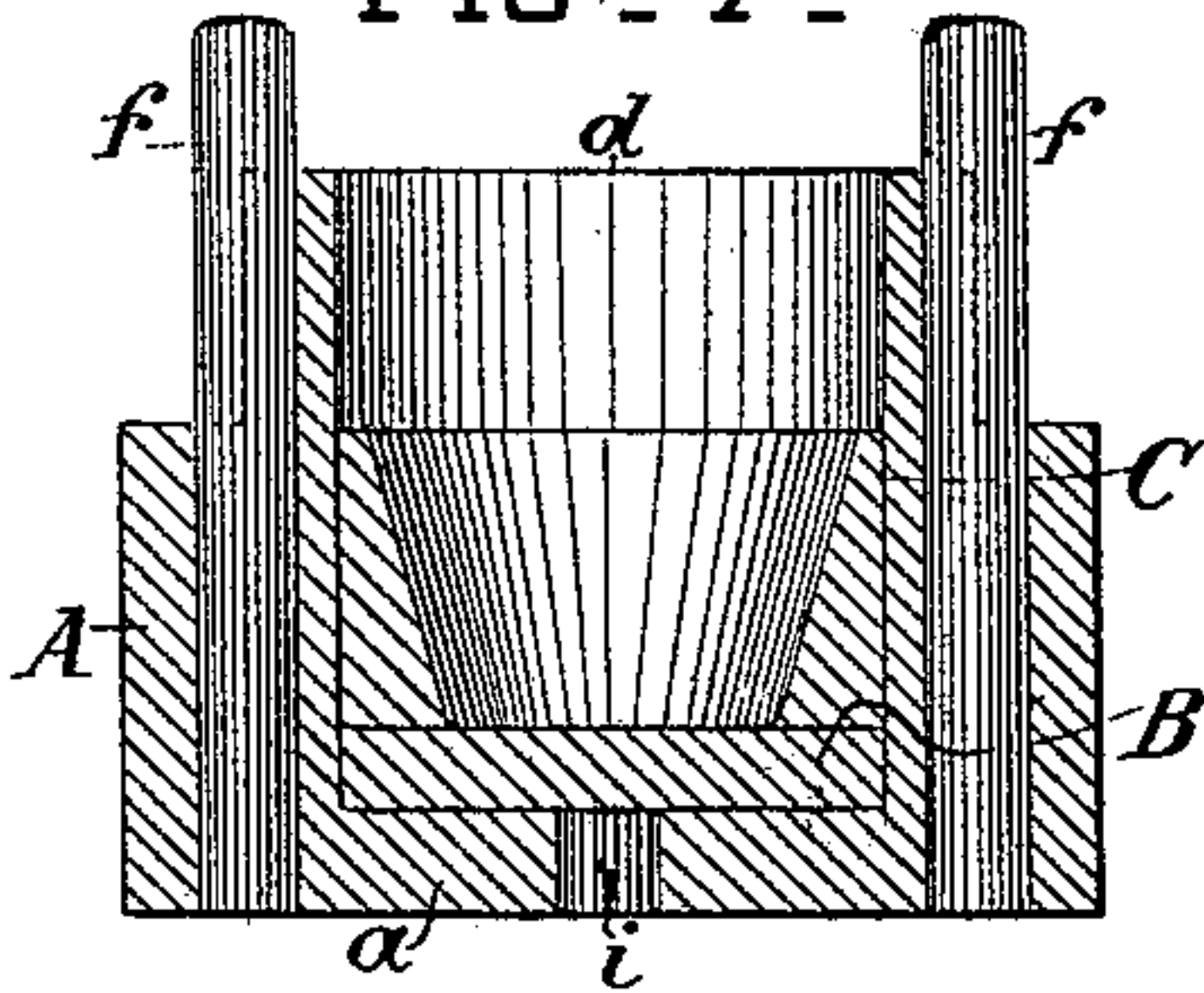


FIG. 8.

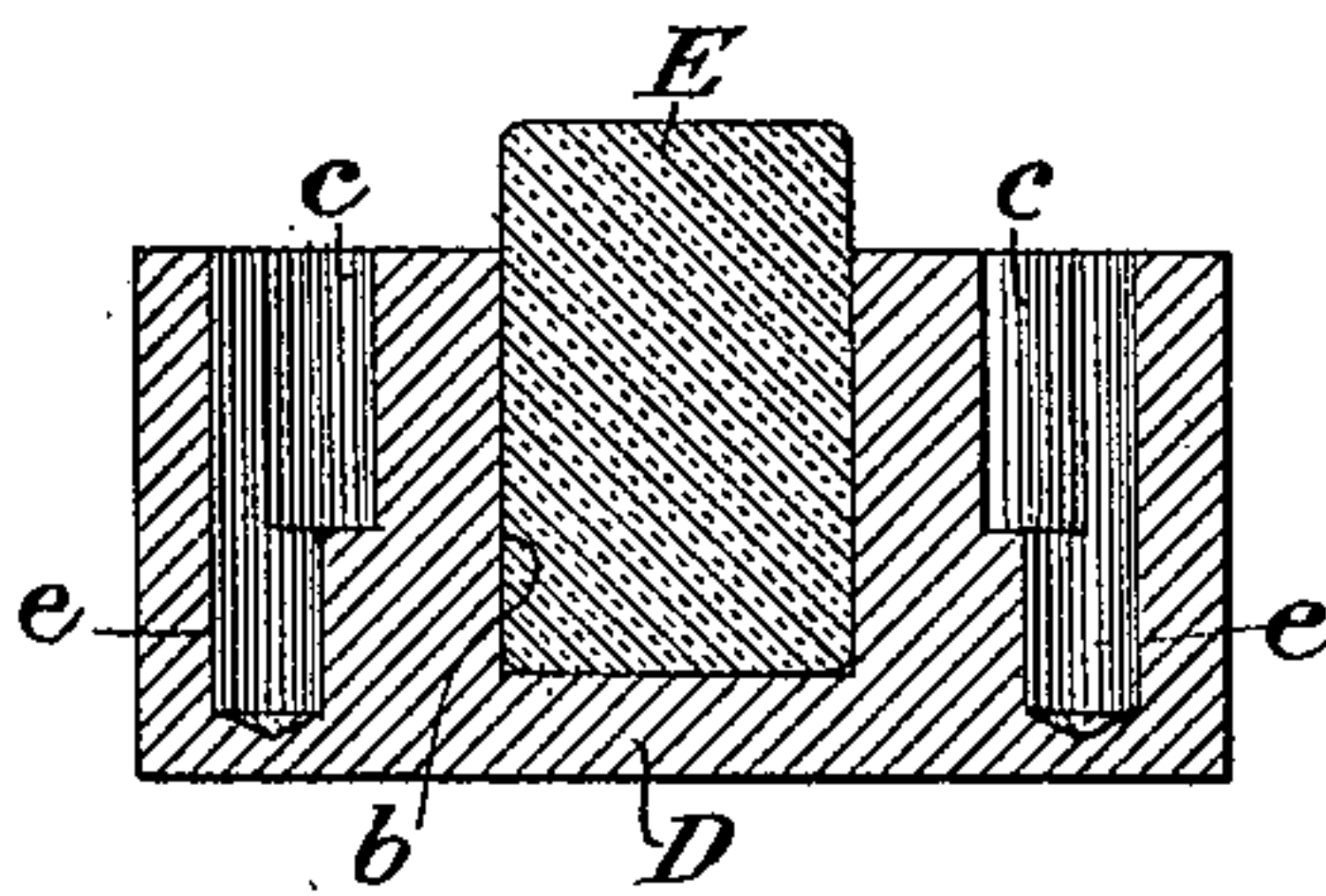


FIG. 9.

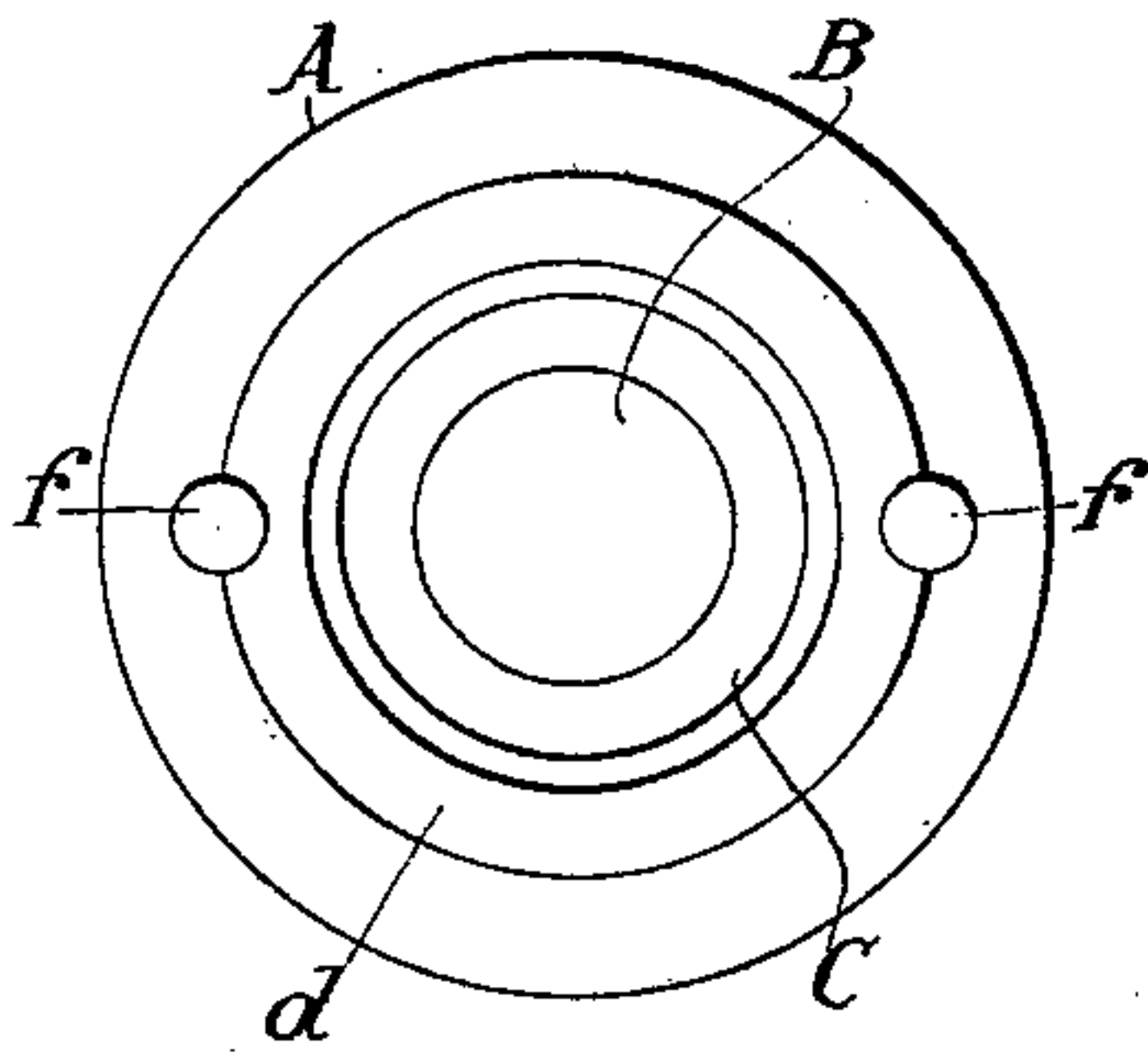


FIG. 10.

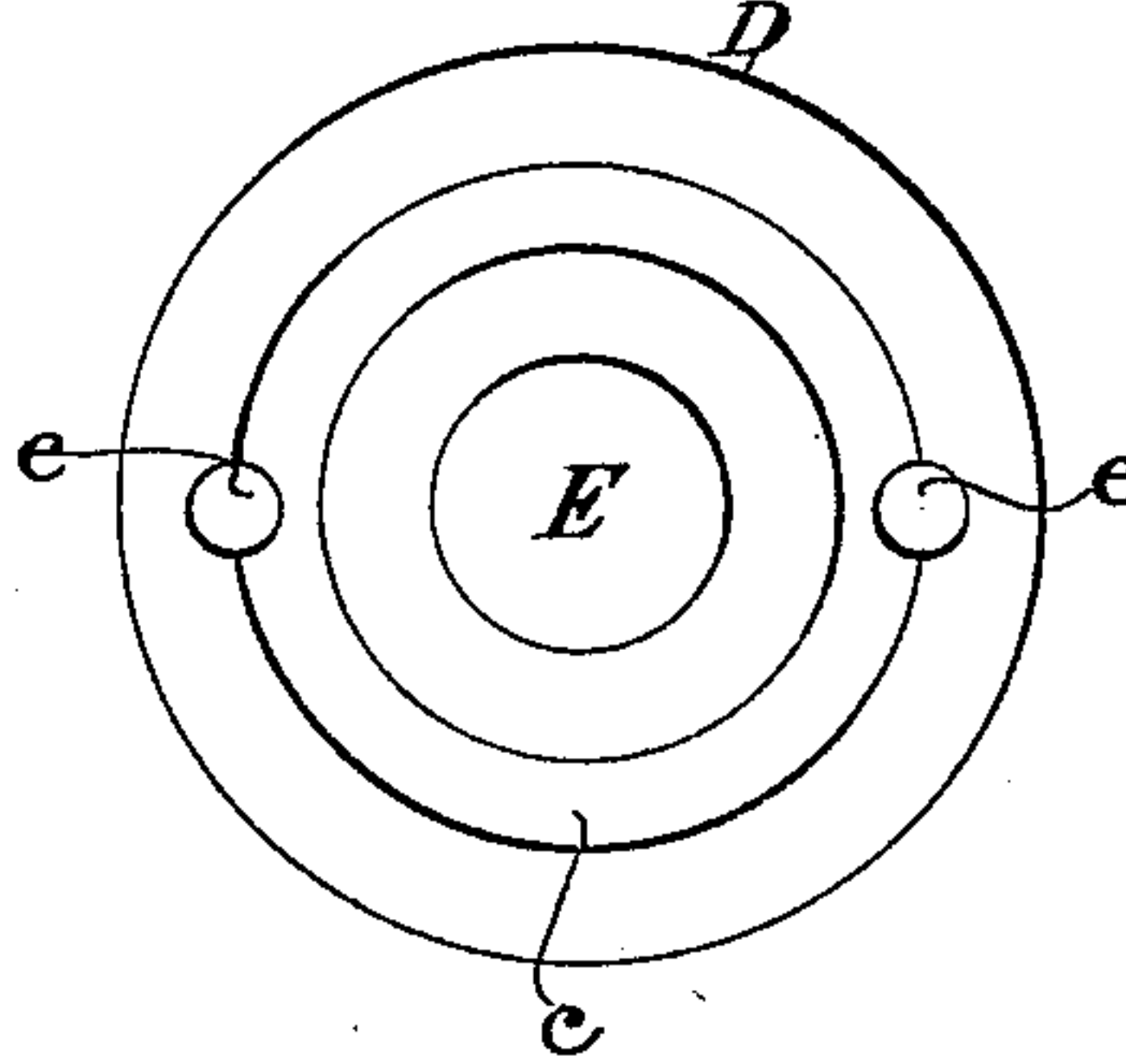
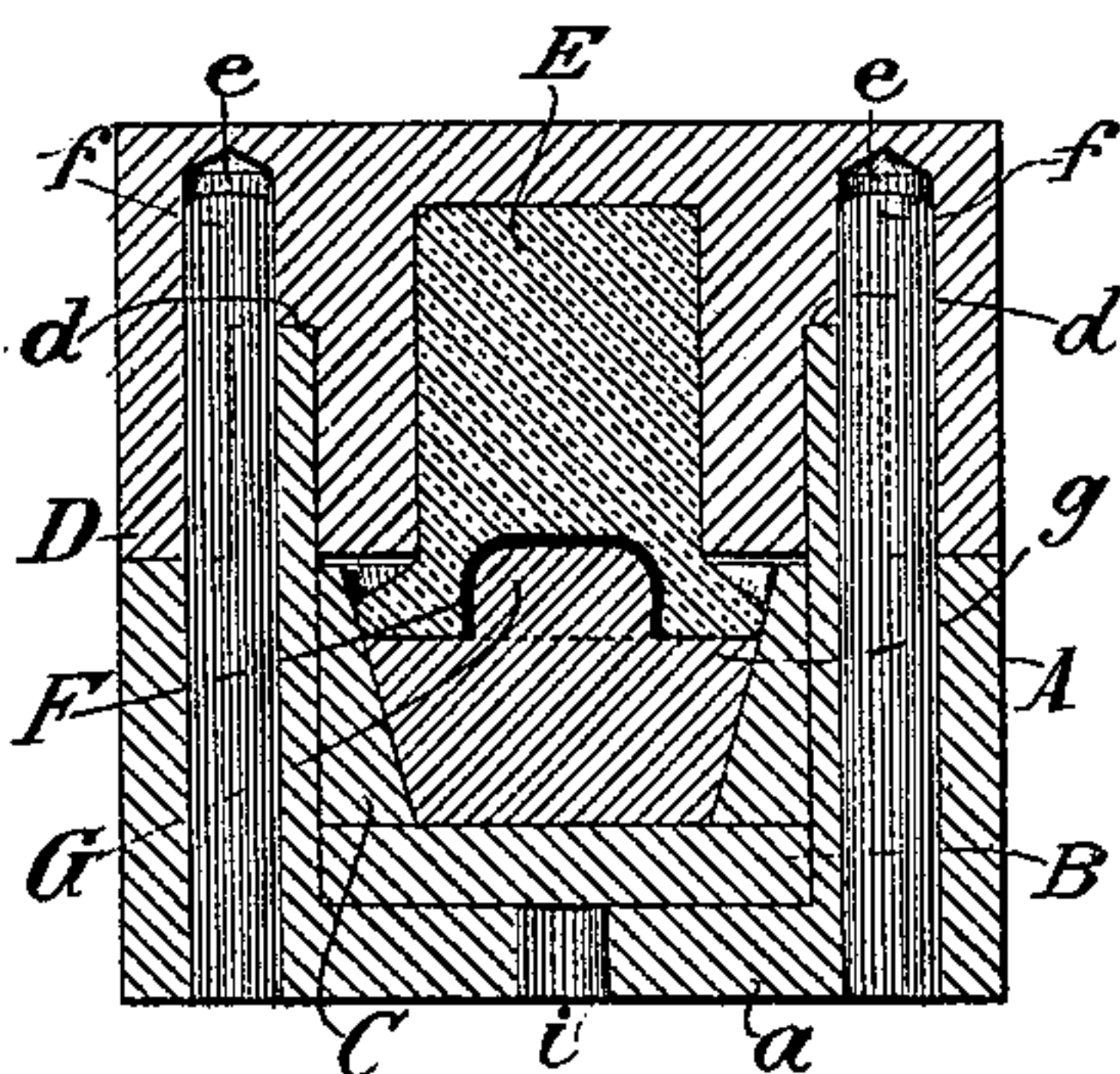


FIG. 11.



Witnesses:

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TO THEOPHIL DILL-RICHARD, OF LIESTHAL, SWITZERLAND.

APPARATUS FOR FORMING GOLD CROWNS FOR TEETH.

SPECIFICATION forming part of Letters Patent No. 582,872, dated May 18, 1897.

Application filed December 17, 1895. Serial No. 572,397. (No model.) Patented in Switzerland July 4, 1895, No. 10,493.

To all whom it may concern:

Be it known that I, EUGEN MÜLLER, dental surgeon, a citizen of the Swiss Republic, residing at Waedensweil, canton of Zurich, Switzerland, have invented certain new and useful Improvements in Apparatus for Forming Gold Crowns for Teeth, (which has been partly patented in Switzerland July 4, 1895, No. 10,493,) of which the following is a specification.

My invention relates to the production of entire gold crowns for teeth; and the invention resides in an apparatus employed for converting the preliminarily-stamped cap into the finished crown.

In carrying out my invention I first produce a cap or shell of gold, which may be stamped up from the metal somewhat in the manner that cartridge-shells are now stamped or formed from copper. This preliminarily-stamped cap has protuberances formed on it in the stamping which conform roughly to those on a tooth. This cap is placed over a mold or core made of easily-fusible metal and which has the proper configuration, and pressure is applied thereto through the intermediary of some soft or yielding material, as india-rubber, which embraces and covers the gold cap and acts, in conjunction with the core, to impart the proper contour or form to the finished crown. After the pressure is removed the core is removed from the gold crown by fusing it.

The drawings illustrate the form of the preliminarily-formed cap and the apparatus for molding and pressing it into the proper shape for the crown. Figures 1 to 6 represent the former, and Figs. 7 to 11 represent the latter.

Fig. 1 is a side view of the cap. Fig. 2 is an end view of the same. Fig. 3 is a plan view of the same. Fig. 4 is a section on line $x x$ in Fig. 2. Fig. 5 is a section on line $z z$ in Fig. 2. Fig. 6 is a horizontal section on line $Y Y$ in Fig. 1. Fig. 7 is a vertical mid-section of the base portion of the molding and pressing apparatus detached. Fig. 8 is a similar section of the upper portion or follower of the said apparatus. Fig. 9 is a plan view of the base portion seen in Fig. 7, and Fig. 10 is a similar view of the follower seen in Fig. 8. Fig. 11 is a sectional view of the

molding and pressing apparatus with the parts assembled in actual use.

The gold case or shell F (see Figs. 1 to 6) is in the form of a cap, in which four creases or furrows $a' a^2 a^3 a^4$ are formed, producing four rounded protuberances $b' b^2 b^3 b^4$, which gives to the top of the cap somewhat roughly the form or contour of the surface of a tooth. This form will be varied, of course, according to the kind of crowns to be produced, and the shell may have from two to five of such protuberances. The stamping mechanism employed for producing such work from ductile metals is too well known to require description here.

In order to produce a finished gold crown from the cap or shell F , I employ the apparatus illustrated in Figs. 7 to 11, which I will describe.

A is the box-like base of the apparatus, provided with an elevated rim d and guide-pins or dowels f . In the bottom of the box is a plate B , on which rests a conical ring C . The ring C receives the conical base g of the core or mold G , which is made from some easily-fusible metal, as Babbitt metal, for example.

D is the cover of the box A . It is furnished with a central socket b , into which is fitted a plug or piece E , of india-rubber, preferably soft vulcanized rubber, an annular recess c , which receives the rim d on the box A , and holes e to receive the guide-pins f on the box.

In using the apparatus the shell or cap F is placed on the mold or core G , (see Fig. 11,) the cover D placed on the box, and pressure applied on the cover. This may be done with any ordinary press. The effect is to force the rubber E down over and about the shell F and compel the latter to take the exact form of the core G , the ductibility of the gold and the yielding but elastic character of the rubber permitting the gold to be pressed up to the surface of the core at all points.

After the pressing operation the cover D is removed, the ring C , together with the core G , lifted out, and the core-base g detached from the ring C . The metal of the core G is now melted out of the finished gold crown, when the latter will be ready for use.

The conical form of the ring C permits the base g of the core to be readily detached from

it, and if the ring C sticks fast in the box a pin may be inserted at an aperture *i* in the bottom of the box and be driven against the loose plate B which supports the ring.

- 5 The shell F, provided with protuberances, as shown in Figs. 1 to 6, may be made and sold as an article of manufacture.

Having thus described my invention, I claim—

- 10 1. An apparatus for forming a tooth-crown from a roughly-shaped shell of gold, comprising as its essentials a core of readily-fusible material, as specified, a holder for said core, a cover for said holder, and a piece, E, of rubber carried by said cover and adapted to be
15 pressed down upon the shell on the core, substantially as and for the purposes set forth.

- 20 2. An apparatus for forming a tooth-crown from a roughly-shaped shell of gold, comprising the box-like base and its cover, the conical ring in said base, the readily-fusible core

having a conical base to fit into said ring, and the rubber plug carried by said cover, substantially as and for the purposes set forth.

3. In an apparatus for forming a tooth- 25 crown from a roughly-shaped shell F, of gold, the combination of the box-like base A, provided with guide-pins, the plate B in said box, the ring C, supported on said plate, the core or mold G, having a base *g* which fits 30 into the ring C, the cover D, provided with holes to receive the guide-pins on the base A, and the block of rubber E, secured to the said cover, substantially as set forth.

In witness whereof I have hereunto signed 35 my name in the presence of two subscribing witnesses.

EUGEN MÜLLER.

Witnesses:

H. LABHART,

ALFRED GYSL.