

(No Model.)

L. L. WHITE.

MOLD FOR SHAPING METALLIC TOOTH CROWNS.

No. 571,102.

Patented Nov. 10, 1896.

Fig. 1.

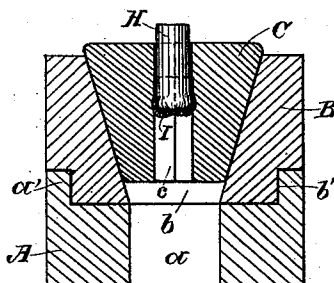


Fig. 2.

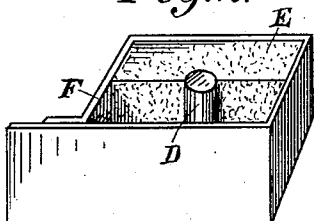


Fig. 3.

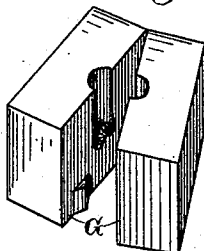


Fig. 4.



Fig. 5.

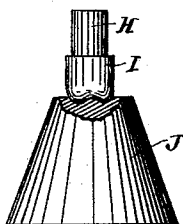


Fig. 6.



Witnesses,

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UNITED STATES PATENT OFFICE.

LOUIS LYNN WHITE, OF OAKLAND, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO WALTER F. LEWIS, OF SAME PLACE.

MOLD FOR SHAPING METALLIC TOOTH-CROWNS.

SPECIFICATION forming part of Letters Patent No. 571,102, dated November 10, 1896.

Application filed February 25, 1896. Serial No. 580,730. (No model.)

To all whom it may concern:

Be it known that I, LOUIS LYNN WHITE, a citizen of the United States, residing at Oakland, county of Alameda, State of California, have invented an Improvement in Molds for Shaping Metallic Tooth-Crowns; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of apparatus for making metallic seamless tooth-crowns; and it consists in a novel mold, which I shall hereinafter fully describe and claim, and the purpose of which is to reduce to final and perfect shape the metallic crown.

The object of the invention is to provide a means by which this final shaping of the tooth-crown shall be rendered accurate and easy of accomplishment.

Referring to the accompanying drawings, Figure 1 is a vertical section of my mold. Fig. 2 is a view showing the means for obtaining a plaster matrix from a plaster tooth. Fig. 3 is a view of the plaster matrix. Fig. 4 is a view of the metallic die formed in matrix, Fig. 3. Fig. 5 shows the swaging of the cap on the block J. Fig. 6 is a view of the completed or shaped crown.

The mold consists of a casing or shell formed of a base-section A, having a central hole *a* and an uprising peripheral flange *a'* and a top section B, having a central conical opening or hole *b*, the taper of which is from above downwardly, so that the wider part of the opening is at the top and the narrow below, and said section has on its bottom a circumferential rabbet *b'*, which is adapted to fit the flange *a'* of the lower section, so that the two sections fit accurately together and are flush peripherally and may be readily placed and removed. When together, the conical hole *b* of the upper section is alined with the central hole *a* of the lower section. A removable core C completes the mold. This is made of lead or other soft metal or alloy, said core being made conical and adapted to fit within the conical hole *b* of the upper section B of the mold, and said core having a central hole *c* and its body made readily separable into halves in any suitable manner. These parts constitute the mold; but in order to under-

stand their operation it will be necessary to recite briefly the steps of the operation prior to and leading up to the use of said mold. This description of the prior steps I deem it best to accompany with illustrations, whereby they may be readily understood.

A cast is first taken of the tooth to which the crown is to be applied. This cast I make in plaster in the usual manner, and from it, as a matrix, I make a plaster die D, representing the tooth. This die I then take and place it, as is shown, half embedded in a plastic material, such as putty E, in a frame F. The other half of this frame I then fill with plaster, the plaster die being previously varnished, so that I thus get in the plaster the impression of one half the die D. I then remove the putty and substitute in its place plaster, which will thus take the impression of the other half of the die D, and then, upon removing the plaster with its confined die from the frame and immersing them in hot water, so that the varnish will soften, I am able to separate the halves of the plaster cast thus formed, and thus obtain a cast or matrix such as represented by G. I now fill this cast (the plaster die or tooth D being removed) with a metallic alloy, and upon separating the cast I obtain the metallic die H, which represents the tooth to be crowned. Now I take a disk of gold and by means common in the art force it through successive holes of a die-plate, said holes having gradually-decreasing diameters, until I obtain a cup-shaped piece or cap, such as I, approximating in its interior capacity the exterior of the metallic die H. Then this cap I is fitted to the metallic die H and is swaged upon the top of a block of lead, such as J, in order to form the cusps, and it is further manipulated by mild hammering to reduce and round the edges of its grinding-surface. It is at this point that the use of my mold begins.

The central core C is placed within the conical hole *b* of the mold-section B, and the metallic die H, with the metallic cap I still fitted upon it, is inserted in the hole *c* of the core, and by the pressure and force of a hammer and hand-bar said die and cap are forced down into the core, and by this forcing and the

pressure of the core the cap is accurately molded or shaped to the metallic die over which it fits.

5 The lead core is sufficiently soft or yielding to provide the necessary pressure as the force is applied to bear the metallic die down into it. Being of a yielding nature, the metal of the core pressed downwardly before the entering die and cap finds relief in the hole of the
10 base-section. When the shaping is complete, the two sections A and B are separated and the core is removed from the upper section, and being, as before stated, readily separable it is divided, and the now perfectly-shaped
15 crown, with the die over which it fits, is removed and the crown is then taken from the die. The removal of the crown from the die is readily effected by means of heat, as the die is fusible at a much lower temperature than
20 the gold and is simply melted out. Whatever particles of baser metal still adhere to the gold are removed by treatment with nitric acid.

The core C may be made readily separable in various ways, and the way I deem practical is merely, after it is formed in a single
25 piece, to cut it apart and then hammer it together to a certain extent, so that while acting firmly as a single piece again it can be readily split. This mold insures accuracy and
30 precision in the shaping of the seamless metallic crown, and the operation can be readily carried out.

Having thus described my invention, what I claim as new, and desire to secure by Letters
35 Patent, is—

1. A mold for shaping seamless metallic tooth-crowns, consisting of a casing or shell and a core of soft metal seated in said shell

and having a receiving-hole for the metallic die and its fitted metallic cap to be shaped 40 into the crown.

2. A mold for shaping seamless metallic tooth-crowns, consisting of a casing or shell, and a core of soft metal readily separable into sections, and having a hole for the reception 45 of the metallic die and its fitted metallic cap to be shaped into the crown.

3. A mold for shaping metallic seamless tooth-crowns consisting of a casing or shell formed of a centrally-perforated lower section, an upper section removably fitted there- 50 to and having a conical hole, the lower end of which alines with the hole in the lower section, and a core of soft metal having a conical shape to fit in the conical hole of the upper section of the casing or shell, and a central 55 hole to receive the metallic die with its metallic cap to be shaped into the crown.

4. A mold for shaping metallic seamless tooth-crowns, consisting of a casing or shell 60 formed of a centrally-perforated lower section, an upper section fitted removably thereto and having a conical hole alining with the hole of the lower section, and a core of soft metal formed in readily-separable sections 65 and fitting in the conical hole of the upper section of the casing or shell, said core having a hole to receive the metallic die with its metallic cap to be shaped into the crown.

In witness whereof I have hereunto set my 70 hand.

LOUIS LYNN WHITE.

Witnesses:

RUSSELL H. COOL,
WALTER F. LEWIS.