(No Model.)

# L. S. SKIFF.

## DEVICE FOR FORMING SEAMLESS TOOTH CROWNS.

No. 590,442. Patented Sept. 21, 1897.

*Fig. 1.*

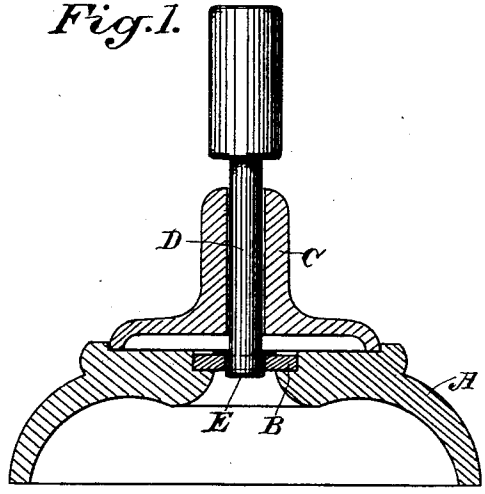



*Fig. 2.*



*Fig. 3.*

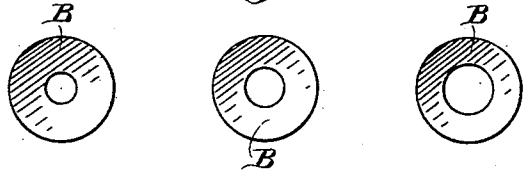



*Fig. 6.*




*Fig. 4.*

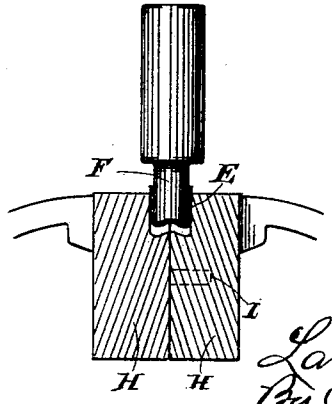
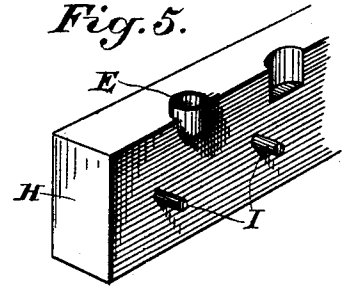



*Fig. 5.*

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# UNITED STATES PATENT OFFICE.

LANSING S. SKIFF, OF SALEM, OREGON, ASSIGNOR TO JOSEPH F. TWIST, OF SAN FRANCISCO, CALIFORNIA.

## DEVICE FOR FORMING SEAMLESS TOOTH-CROWNS.

SPECIFICATION forming part of Letters Patent No. 590,442, dated September 21, 1897.

Application filed October 22, 1896. Serial No. 609,713. (No model.)

*To all whom it may concern:*

Be it known that I, LANSING S. SKIFF, a citizen of the United States, residing at Salem, county of Marion, State of Oregon, have invented an Improvement in Devices for Forming Seamless Tooth-Crowns; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device which is especially adapted for the formation of seamless tooth-crowns.

It consists of an apparatus whereby disks of metal are by successive operations brought to the proper size and cup shape and a means by which the cusps are formed upon each tooth-crown corresponding with those of the tooth where the crown is to be applied, and in certain details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of the preliminary apparatus. Fig. 2 is a complete cup. Fig. 3 are dies of different sizes. Fig. 4 represents the apparatus for finishing the crown. Fig. 5 is a view of one of the clamping-blocks. Fig. 6 represents the crown finished.

In carrying out my invention I employ any suitable form of apparatus by which disks of metal may be gradually formed into the proper cup shapes, having a diameter to suit the particular tooth for which the crown is to be made, these teeth being either cuspid, bicuspid, or molars.

In the present case I have shown a base or stand A, which may be of any suitable or convenient form, having a central chambered opening adapted to receive disks B, which are placed therein. Above this chamber is a guide C, having a central hole through it which is adapted to receive the shank D of the mandrel. This shank is of a diameter sufficiently smaller than the opening in the disk B so that it will pass through the opening. The disk E, from which the tooth-crown is to be formed, being then laid upon the die or disk B, fitting in a countersunk depression which surrounds the central hole, the mandrel is then introduced through the guide C and driven down by a blow with a suitable mallet, thus forcing the center of the metal disk E down through the opening in the die B and correspondingly turning up the edges thereof. The first operation only slightly turns up the edges and makes a cup of considerable diameter. In completing the operation I use as many of these dies or disks B as may be necessary, as from one to twenty, each successive one being a little smaller than the previous one, and the guides and mandrels D corresponding the cup will be reduced and the sides elongated a little by each successive operation until the cup has been reduced to the proper size to form the crown for the particular tooth for which it is designed.

F is another punch or mandrel, which may be made of any suitable metal, and it has formed or engraved upon its lower end the cusps corresponding with the particular tooth for which the crown is designed. This punch may be made by taking an impression of the natural tooth, then making a cast of it, then mounting the cast so as to form a pattern from which a mold is formed, and the punch or mandrel is then cast in brass or other suitable metal.

H H are blocks of hard wood, which are fitted together with pins I or other means for retaining them in their proper relative position, and these being placed together a hole is bored in endwise—that is, in the line of the grain—so that one half of the hole occupies each of the blocks. This hole is made of a size to receive the particular tooth-crown to be operated on and its corresponding mandrel having the cusps formed upon the lower end. The hole having been bored to the desired depth, the mandrel having the cusps upon its lower end is driven in, so that the form of the cusps will be indented in the bottom of the hole and will correspond exactly with those upon the end of the mandrel. The cup which has been formed and which is eventually to form the tooth-crown is now introduced into the hole, the lower end, which up to this time has been a simple plain surface, resting upon the cusp-indentations which have been made by the mandrel previous to the introduction of the cup. The mandrel is now introduced into the cup, and by blows of a mallet the bottom of the cup is compressed between the cusp formations in the wood beneath and those in the end of the mandrel, thus giving

the crown the proper surface and completing it for use.

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

An apparatus for the formation of seamless tooth-crowns consisting of a mandrel having a facsimile of the natural tooth formed on its end, a die formed in the line of the grain and plane of the meeting faces of two united wooden blocks, the bottom of the die pressed into exact conformity with the facsimile of the tooth at the end of the mandrel, and means for guiding and clamping the die-blocks together as set forth.

In witness whereof I have hereunto set my hand.

LANSING S. SKIFF.

Witnesses:
S. H. NOURSE,
JESSIE C. BRODIE.