No. 726,644. PATENTED APR. 28, 1903.

J. R. COMINS.

SEAMLESS GOLD CROWN FOR TEETH.

APPLICATION FILED JAN. 19, 1903.

NO MODEL.

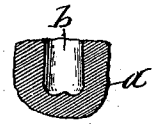


Fig. 1

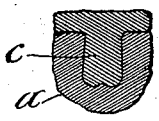


Fig. 2



Fig. 3

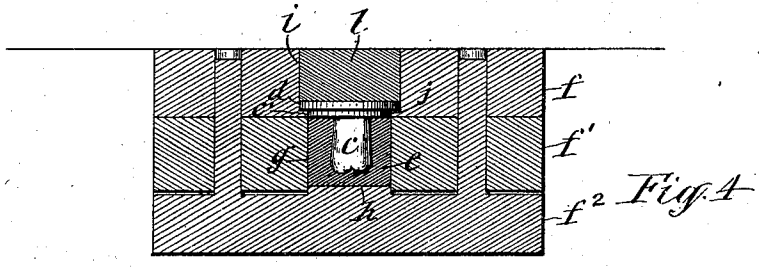


Fig. 4

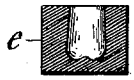


Fig. 5

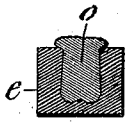


Fig. 6



Fig. 7

WITNESSES:

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UNITED STATES PATENT OFFICE.

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SEAMLESS GOLD CROWN FOR TEETH.

SPECIFICATION forming part of Letters Patent No. 726,644, dated April 28, 1903.

Application filed January 19, 1903. Serial No. 139,546. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. COMINS, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in the Manufacture of Seamless Gold Crowns for Teeth, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The object of this invention is to manufacture seamless metallic tooth-crowns in an expeditious, inexpensive, and at the same time perfect manner; and to that end the invention consists in the improved method of producing said tooth-crowns, as hereinafter described, and summed up in the annexed claims.

To enable others skilled in the art to which my invention pertains to more readily avail themselves of my invention, I have illustrated in the annexed drawings the successive steps of my process.

In the said drawings, Figure 1 is a transverse section of a plaster-of-paris matrix formed by an impression of the tooth to be crowned. Fig. 2 is a transverse section of said matrix with the hard-metal casting formed therein. Fig. 3 is a side view of said casting prepared to be used in forming the rubber or analogous elastic mold. Fig. 4 is a transverse section of said mold. Fig. 5 is a detached transverse sectional view of the mold. Fig. 6 is a transverse section of said mold with the easily-fusible pattern formed therein, and Fig. 7 shows said pattern with the crown-metal swaged thereon.

I practicing my invention I proceed as follows, to wit: I form a matrix (represented at *a* in the drawings) from plaster-of-paris by pressing said plaster onto the natural tooth, so as to obtain therefrom a perfect impression *b* in said matrix. I then pour into said matrix melted hard metal, and thus form from said metal a perfect pattern *c* or facsimile of the tooth. I then remove said pattern from the matrix and by means of a suitable tool trim and face the stub end of the pattern, so as to form it with a broad horizontal web *c'* and with a circumferential flange *d* on said web, as shown in Fig. 3 of the drawings. I next form around and directly on said pattern a mold *e*, of rubber or other suitable elastic material, by forming a flask of three metallic plates *f*, *f'*, and f^2, placed one upon the other, as represented in Fig. 4 of the drawings. The central plate *f'* is formed with an aperture *g*, extending vertically through the plate and of the diameter of the mold *e* to be formed. The bottom plate f^2 is formed with a protuberant portion *h*, which is of nearly the same diameter as the aperture *g* to allow said protuberance to be forced into the aperture by pressure applied to the bottom plate. The top plate *f* is provided with a vertical aperture *i*, which is concentric with the aperture *g* and somewhat larger in diameter than the aperture *g* and formed with a rim *j* adjacent to the aperture *g*. Through the aperture *i* is inserted the aforesaid prepared hard-metal pattern *c* in such a manner as to cause the said pattern to be sustained in the center of the aperture *g* by means of the flange *d*, resting on the rim *j*.

In forming the elastic mold *e* the pattern *c* is removed from its aforesaid position and the rubber or analogous material is introduced into the aperture *g* through the aperture *i*. Then the pattern *c* is inserted through said aperture *i* and forced into the elastic material in the aperture *g* until the flange *d* is brought to rest on the rim *j*. In this position the pattern *c* is subsequently confined by a plug or suitable filling *l*, inserted into the aperture *i* and made to press onto the top of the web *c'*. To insure a perfect impression of the pattern *c* in the rubber and at the same time vulcanize said rubber, the bottom plate f^2 is to be heated to the requisite temperature and subjected to upward pressure by any suitable means. After the said mold has been completed the plug *l* is removed from the aperture *i* and the pattern *c* withdrawn from the mold. I then pour into said mold melted metal which is fusible by heat below 212° Fahrenheit, and thus form from said metal a facsimile *o* of the natural tooth. I then remove said facsimile from the mold and swage the gold or crown-metal *n* onto the facsimile *o*, as illustrated in Fig. 7 of the drawings. After this is accomplished I subject said facsimile to a sufficient heat below

212° Fahrenheit to fuse the metal thereof and allow it to be effectually eliminated from the crown-metal *n*. The crown thus formed is subsequently fastened to the tooth in any suitable and well-known manner.

What I claim as my invention is—

1. The improved method of manufacturing tooth-crowns, by forming a facsimile of the natural tooth from metal fusible by heat below 212° Fahrenheit, then swaging the crown-metal upon said facsimile, and then fusing the metal of the facsimile and eliminating it from the crown-metal as set forth.

2. The method of manufacturing tooth-crowns, by forming a matrix from an impression of the tooth, then forming in said matrix a tooth-pattern of cast hard metal, then forming an elastic mold around said pattern, then casting in said mold a facsimile composed of a metal fusible by heat below 212° Fahrenheit, then swaging the crown-metal upon said facsimile, and then fusing the metal of the facsimile and eliminating it from the crown-metal as set forth.

JOHN R. COMINS. [L. S.]

Witnesses:
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