

(No Model.)

G. EVANS.

MANUFACTURE OF ARTIFICIAL TOOTH CROWNS.

No. 373,347.

Patented Nov. 15, 1887.

Fig. 1.



Fig. 2.

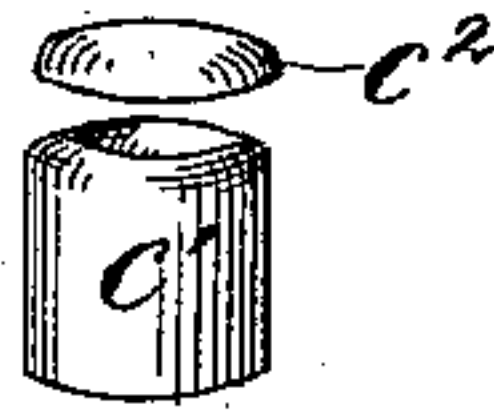


Fig. 3.



Fig. 4.

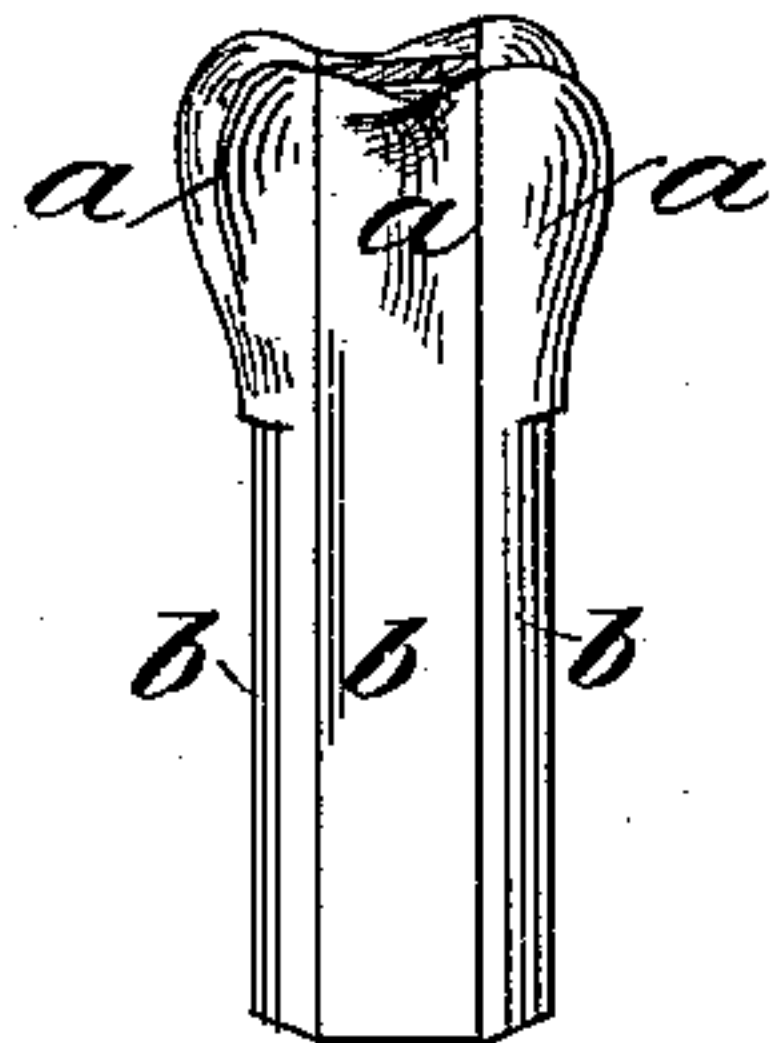


Fig. 7.

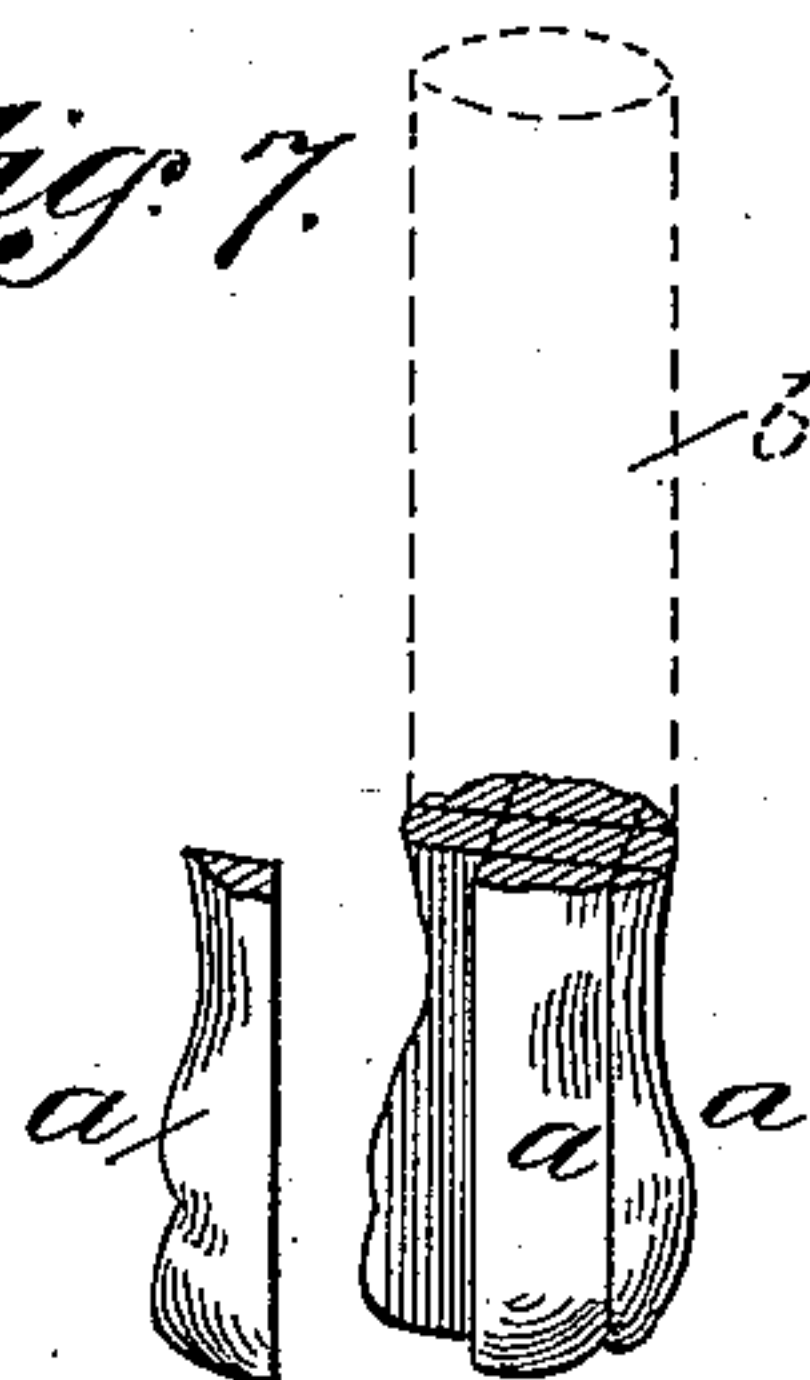


Fig. 5.

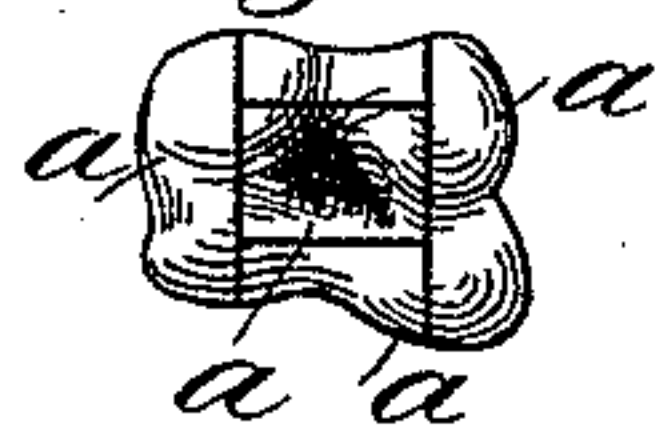
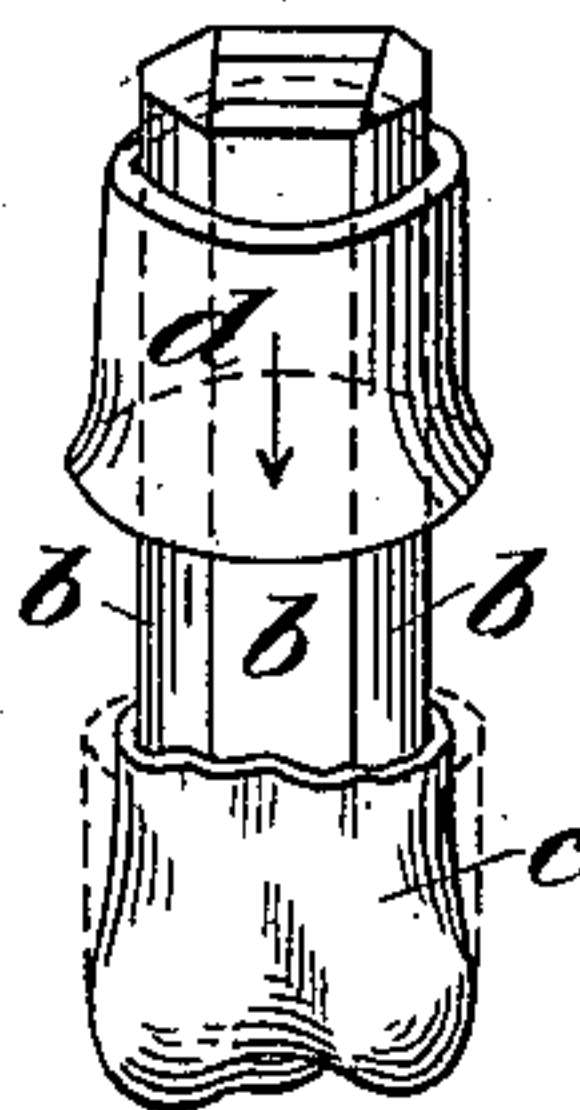


Fig. 6.



Fig. 8.



WITNESSES:

Augustus Creveling
W. W. Weston

INVENTOR

George Evans

BY

Chas. M. Forbes
ATTORNEY

UNITED STATES PATENT OFFICE

GEORGE EVANS, OF NEW YORK, N. Y.

MANUFACTURE OF ARTIFICIAL TOOTH-CROWNS.

SPECIFICATION forming part of Letters Patent No. 373,347, dated November 15, 1887.

Application filed December 27, 1886. Serial No. 222,634. (No model.)

To all whom it may concern:

Be it known that I, GEORGE EVANS, a citizen of the United States, residing at the city, county, and State of New York, have invented certain new and useful Improvements in the Manufacture of Artificial Tooth-Crowns, of which the following is a specification, reference being made to the accompanying drawings, forming a part of the same.

10 This invention relates to artificial metallic crowns made from a blank of metal into a form corresponding to that of a natural tooth to be covered or substituted; and in order that others skilled in the art to which my invention appertains may understand and use the same I will proceed to describe its construction, explain its operation, and set forth in the appended claims its novel characteristics.

Referring to the drawings, Figure 1 represents a section of a metallic crown-blank of a single piece; Fig. 2, an exterior view of the same composed of two pieces; Fig. 3, an exterior view of a contoured molar-tooth crown made by the improved method herein described; Fig. 4, a side view of a sectional mandrel; Fig. 5, an end view of the same; Fig. 6, an end view of a separate mandrel; Fig. 7, a perspective view of a partially-disconnected mandrel; and Fig. 8, a perspective view of a mandrel, crown, and crown-shaping device.

The present invention has for its object to produce an artificial crown contoured so as to present a grinding-surface and sides corresponding precisely with those which individually characterize an original tooth—a result which corresponds to that which I have described in an application filed December 9, 1886, No. 221,086, but which is obtained by a different means, as herein set forth.

40 From the tooth to be crowned an accurate impression is taken by applying to its surface a plastic material—such, for instance, as “plaster-of-paris”—and afterward dividing the same, so as to remove it in parts from the tooth without disturbing the impression therein corresponding to the irregularities of said tooth. This mold being now placed together and allowed to harden is used as a cavity in which to cast a mandrel of easily-fusible alloy, 50 or other material of suitable stability when hardened. The mandrel thus produced is now

divided into several convenient parts or sections, *a*—such as are represented by Figs. 4 to 7, inclusive—one of which sections is shown detached in Fig. 7; or they may be thus separately cast by interposing suitable partitions in the mold preparatory to casting.

The sections *a* are held in proper relation when assembled together by means of a suitable clamping device, or by the hand applied to their extended portions or shanks *b*. Into the cup-shaped cap or blank *c*, Fig. 1, of platinum, gold, or other suitable thin malleable metal, or component parts *c'* *c''*, of a similar blank, Fig. 2, to be soldered into one piece, are now introduced the crown ends of the several sections composing the sectional mandrel, preferably the exterior sections first and the central one having parallel or wedging sides last, the exterior of said mandrel being thus expanded into the blank; or should the tooth be narrow, as in the instance of a bicuspid tooth, the mandrel may be forced into the blank after being assembled, or the mandrel may be made solid. The crown is now formed by exterior application of a suitable burnishing-tool working the metal into the recesses and irregularities peculiar to the surface of the mandrel, whereby a contoured shape—such as represented by Fig. 3—is produced. The sectional mandrel is after completion of the blank dropped out in pieces, the central piece or pieces being removed first, which is obviously necessary, in order to avoid disturbance of the contoured sides of the crown which converge variously toward its reduced aperture.

The crown-shaping device, Fig. 8, consists of a sleeve, *d*, of metal, which, being bell-mouth shaped at its lower end, will, when placed over the mandrel-shank *b* and forced toward the blank *c*, contract the aperture of the same against the diverging sides of the mandrel from the shape shown by dotted lines approximately into the contoured shape, facilitating thereby the subsequent operation of burnishing.

I claim as my invention—

1. A sectional mandrel for forming a hollow metallic tooth-crown, said mandrel having a contour corresponding to that of an original tooth to be fitted or replaced and composed of separable sections so divided as to permit the

removal of the same subsequent to the forming process herein described.

2. In a device for forming metallic tooth-
crowns, the combination, with a sectional man-
5 drel having diverging acting surfaces, as
shown, of a compressing-sleeve having corre-
sponding converging acting surfaces for com-

pressing the open end of said metallic tooth-
crowns, substantially as described, upon said
mandrel.

GEORGE EVANS.

Witnesses:

CHAS. W. FORBES,

AUGUSTUS CREVELING.