

(No Model.)

C. M. RICHMOND.
ARTIFICIAL TOOTH CROWN.

No. 346,316.

Patented July 27, 1886.

Fig. 1.

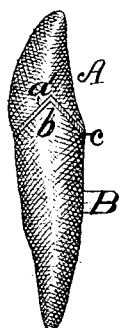


Fig. 2.

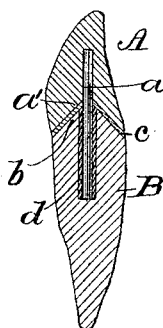
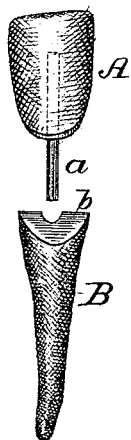


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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ARTIFICIAL TOOTH-CROWN.

SPECIFICATION forming part of Letters Patent No. 346,316, dated July 27, 1886.

Application filed September 12, 1885. Serial No. 176,932. (No model.)

To all whom it may concern:

Be it known that I, CASSIUS M. RICHMOND, of the city, county, and State of New York, have invented certain new and useful Improvements in Artificial Tooth-Crowns, of which the following is a specification.

My invention relates more especially to artificial tooth-crowns constructed and adapted for attachment to natural tooth-roots remaining in the mouth and denuded of their natural crowns.

The object of my improvements is to provide a very simple and effective artificial crown, which may be rapidly and comparatively cheaply manufactured and easily applied to the natural root, is very strong and durable, and capable of being nicely fitted with tight joints between the crown and root, and which enables a natural appearance to be given to the artificial structure; and the further object of my improvements is to provide an artificial tooth-crown that will allow a greater amount of the natural root and portion of the tooth to remain, thus giving a greater strength to anchor-post and prevent the tooth-crown from turning on the root from the biting-strain.

I attain the objects of my invention by constructing the artificial tooth-crown with a substantially V-shaped groove or recess in its base or end which is to be fitted upon the natural root, said V-shaped groove or recess being by preference a lateral one—that is, extending laterally across the base or end of the crown, or parallel to the lingual and labial surface thereof, instead of from the palatal to the labial or buccal surfaces, although the V-shaped recess may in some cases extend from the front to the back of the crown with good results. My improved crown also has a pin projecting from its base, which is to enter and be secured in a socket in the natural root to aid in securing the artificial crown in position.

In the accompanying drawings, which form a part of this specification, and which represent my improved crown as constructed in the best way now known to me for most applications to natural roots remaining in the mouth, Figure 1 is a view in elevation of my improved artificial crown, an incisor-crown

being illustrated. Fig. 2 is a longitudinal section through said crown as applied to a natural root, showing more particularly the manner of fitting the crown and root together, with an interposed packing to insure a tight joint; and Fig. 3 is a front view of said crown.

The artificial crown A is preferably, but not necessarily, an all-porcelain one—that is to say, it is preferably made of the material known in the art as “porcelain,” a material which long experience has demonstrated to be of great value in the manufacture of artificial teeth and crowns. A pin, *a*, projects from the base or end of the crown, which is to be applied to the root, and said pin is fitted to enter a socket or opening prepared in the end of the root for its reception. Said pin *a*, if the crown is of porcelain or similar material, is baked in the crown during the process of manufacture, so as to be rigidly and firmly united thereto. This pin may be round, square, or of any other suitable shape in cross-section, and should project from the end of the crown sufficiently far to enter the socket in the root and form a secure connection, or aid in forming a secure connection, between the root and crown.

My improved crown may of course be made of materials, or combinations of materials, other than porcelain, and the pin may be secured in or to the crown in other ways than by baking. This is to be governed according to circumstances, and to the materials which are employed in the manufacture of the crown.

The base cervical end or neck of the crown, which fits the end of the natural root B, which has been denuded of its crown, is provided with a substantially V-shaped groove or recess, *a'*, to fit the correspondingly shaped end *b* of the root B, as clearly illustrated in the drawings. This V-shaped groove or recess *a'* is preferably lateral, extending from side to side of the crown, to fit the correspondingly-shaped ridge *b* of the end of the root B; but in some cases the V-shaped groove or recess may extend from the front to the back of the crown, or, in other words, from the palatal to the labial or buccal surfaces thereof, the root in such case, of course, having a correspondingly-shaped end, with the ridge of an in-

verted-V form extending from front to back of the end of the root.

By means of the V-shaped recess in the crown to fit the correspondingly-shaped end of the natural root, and the pin projecting from the crown into the socket or opening in said root, and by the aid of a suitable cement, *d*, in the opening of the root, into which said pin is embedded, (the cement hardening after the operation is completed in the usual manner of applying artificial crowns,) a very effective tooth is secured, nearly, if not quite, equal to a wholly natural perfect tooth.

The crown may be comparatively cheaply manufactured, and therefore may be put upon the market at greatly reduced prices, and is very strong and durable when applied. Its construction also enables it to be applied with the exercise of comparatively little skill on the part of the operator—a very great desideratum in work of this kind. So, also, the operation of applying the crown is greatly facilitated.

In applying my improved crown to the end of a natural root, I prefer to insure perfectly-tight joints by means of a thin packing, *e*, of some suitable material, such as the properly-prepared gutta percha much in use by dentists for similar purposes. Of course any suitable packing or cement, of which there are many kinds in use by dentists, may be employed in place of the gutta-percha; but that material is preferable, while any of the usual preferred or suitable cements may be employed to aid in anchoring or securing the pin *a* of the artificial crown in the root-socket, different kinds of such cements being in common use among dentists for anchoring or securing the pins of other forms of artificial crowns to natural roots.

It is proper for me to say that I am aware that V-shaped recesses or grooves have been made in the ends of artificial teeth, and I do not of course claim such an invention, broadly, as my own. For instance, in Ahren's Patent No. 8,091, of May 13, 1851, there is a socket in the end of a plate-tooth of tapering form, to fit a pin connected with the artificial plate or base to which the tooth is to be fastened. In Hall's Patent No. 200,284, of February 12, 1878, there is also shown a plate-tooth with a V shaped groove running across its base and terminating at its lower end or apex in an enlargement of the recess, so as to form an interlocking or undercut recess, into which the celluloid or rubber to form the plate of the artificial denture enters or is made to flow prior to being baked or vulcanized into a hard plate. This undercut or enlarged

groove weakens the tooth, but is necessary to 60 Hall's invention. Neither the Ahren nor the Hall plate-teeth have a projecting pin forming a part of the crown, as in my invention, nor are the grooves plain V shaped grooves, such as I show, and to which my invention is 65 limited. In C. P. Grout's Patent No. 319,236, of June 2, 1885, there is shown an artificial crown having a cup-shaped metal band at its base, the recess or socket of which, it would seem from the drawings, (but is not so described in the patent,) has a V shape to fit a correspondingly-shaped end of the tooth-root. In Grout's patent there is simply shown, if shown at all, a cup-recess of V form. There is no V-groove extending from side to side of 70 the crown, which is a necessary or essential element or feature of my improved crown, to adapt it to be readily fitted to the tooth-root and to provide for the ready escape of the surplus cement between the crown and the root ends. If there is too much cement in the cup or socket of the Grout crown when applied to the end of the root, it cannot escape, but will be banked up between the crown and the root end and prevent a firm, secure, and durable 85 connection. In my form of crown the V-groove extends entirely across the base of the crown and permits the free escape of the cement out of the groove at both sides in pressing it to place on the end of the root. 90

As far as I am aware I am the first to attain the many advantages flowing from a crown organized as shown and described by me, all the individual elements of which, except the plain V-groove, are old. 95

I have thus described my improvements sufficiently in detail (and I have also distinguished them from the prior state of the art, so as to point out exactly wherein my improvements consist) to enable those skilled in 100 the art to make and use my improved crown, and I conclude by stating my claim of invention, for which I desire the protection of Letters Patent, as follows:

An artificial tooth-crown for application to 105 natural tooth-roots in the mouth, having a simple V-shaped basal groove extending from side to side entirely across the base of the crown, and provided with a rigid pin projecting from said base across said groove, so as to enter a seat for said pin in the tooth-root, substantially as described. 110

In testimony whereof I have hereunto subscribed my name.

CASSIUS M. RICHMOND.

Witnesses:

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E. BETTELHEIM.