E. A. HAGAMAN.

FORM OF ARTIFICIAL TOOTH AND MEANS OR METHOD OF ANCHORING SAME INTO POSITION IN THE MOUTH.

APPLICATION FILED NOV. 21, 1919.

1,382,830. Patented June 28, 1921.

Fig. 1.

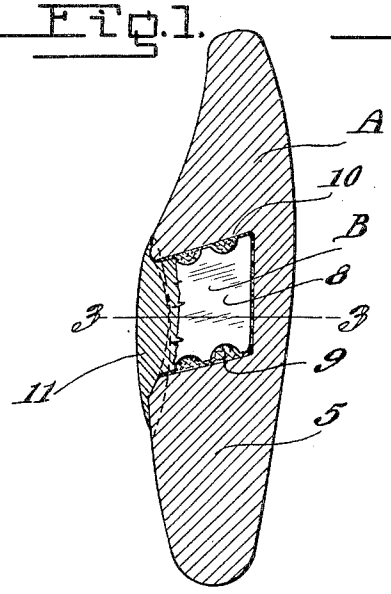


Fig. 2.

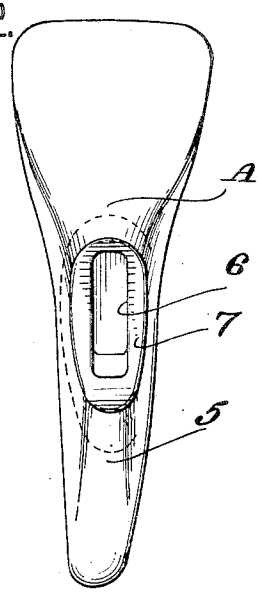


Fig. 3.

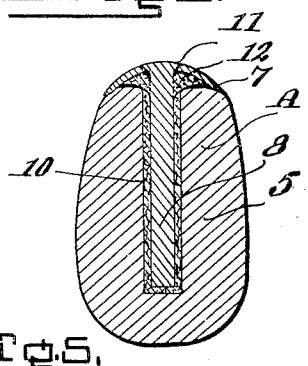


Fig. 4.

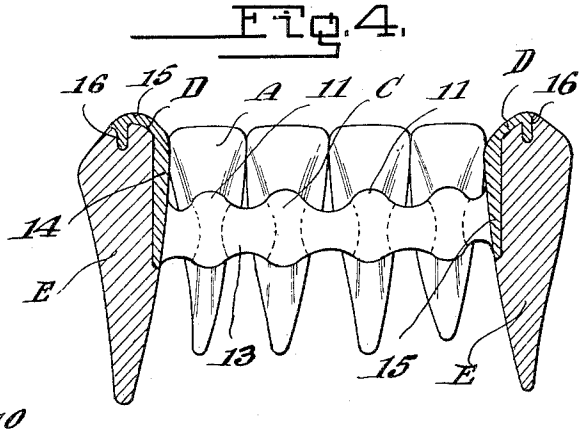
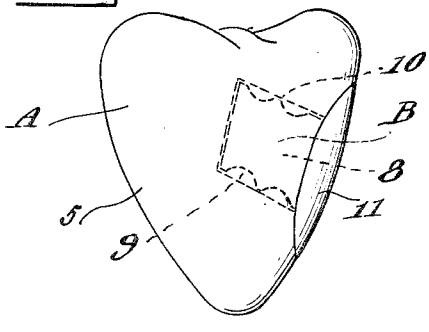


Fig. 5.



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UNITED STATES PATENT OFFICE.

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FORM OF ARTIFICIAL TOOTH AND MEANS OR METHOD OF ANCHORING SAME INTO POSITION IN THE MOUTH.

1,382,830. Specification of Letters Patent. Patented June 28, 1921.

Application filed November 21, 1919. Serial No. 339,612.

To all whom it may concern:

Be it known that I, EDWIN A. HAGAMAN, a citizen of the United States, residing at Madelia, in the county of Watonwan and State of Minnesota, have invented certain new and useful Improvements in Forms of Artificial Teeth and Means or Methods of Anchoring Same into Position in the Mouth, of which the following is a specification.

This invention relates to artificial teeth, and the primary object of the invention is the provision of an improved porcelain tooth and means for anchoring the same in position in the mouth.

Another object of the invention is the provision of an all porcelain tooth for bridge work which will eliminate the contacting of gold or other metals with the tissues of the mouth, thereby keeping the mouth and teeth in a clean and sanitary condition.

A further object of the invention is the provision of an improved means for anchoring artificial teeth used in bridge work which will eliminate the display of gold and permit the ready replacement of a tooth when the same becomes broken or cracked.

A still further object of the invention is the provision of improved bridge work for dentistry which will be durable and efficient in use, easy and simple to manufacture, and which can be constructed at a minimum cost.

Other objects of the invention will appear in the following detailed description taken in connection with the accompanying drawings forming a part of this specification, and in which drawings:

Figure 1 is a vertical longitudinal section through an incisor tooth showing the anchoring means in position.

Fig. 2 is an inside view of one of the artificial teeth ready to receive the anchoring means.

Fig. 3 is a detail transverse horizontal section taken on the line 3—3 of Fig. 1, and

Fig. 4 is an elevation showing an inside view of the bridge work supporting four lower incisor teeth and showing the same connected to the supporting teeth, which are shown in section.

Fig. 5 is a vertical longitudinal section through a bicuspid tooth showing the anchoring means attached thereto.

Referring to the drawings, in detail, wherein similar reference characters indicate corresponding parts throughout the several views, the letter A indicates an artificial tooth, B the anchor therefor, C the connecting backing, and D the inlay carried by the natural teeth E.

The artificial teeth A are constructed of an all porcelain body 5 and the same are to be made in any size, shape or shade, so that the same may match the adjoining natural teeth with which they are to be connected.

The inner face of the body 5 of each tooth A is provided with an inwardly extending and upwardly inclined rectangular recess or socket 6, which is adapted to receive the anchor B which will be hereinafter more fully described. Around the outer edges of the walls of the sockets 6, the inner face of the body 5 is provided with a concaved depression 7, for a purpose which will hereinafter more fully appear.

The anchor B includes a flat substantially rectangular plate 8 formed of a strong metal, and the same has the upper and lower edges thereof notched or serrated as at 9. A binding cement 10 of the ordinary or any preferred type used in binding is placed in the socket 6, when the plate 8 is to be placed in position, and the cement engages in the recesses 9 in the plate 8 and around the walls of the sockets, which normally holds the plate in the socket against accidental displacement. The forward end of the plate 8 protrudes slightly beyond the inner face of the body 5 of the tooth A and has secured thereto a relatively thin plate 11, which is formed of gold, platinum, or the like, and is fitted over the concaved depression formed in the outer face of the body 5 and forms the backing C. The plate 8 is first placed in the deep slot or socket 6 after the tooth has been ground over and fitted in its place in the bridge model (not shown) and the thin gold plate 11 is forced over the projecting end of the plate 8 which cuts through the same. The end of the plate is then burnished or swaged in place. The plates 8 and 11 are then removed from the porcelain tooth and soldered together. When the required number of teeth are fitted in place, and the backing consisting of the plates 8 and 11 made in this way, the several backings are waxed together and invested in fine clay or other investing material, and the same are soldered together. The solder is rounded so as to fully fill the concaved depression 7 in the porcelain tooth 5 as at 12. This concavity provides for a supporting frame work near the center of

the tooth so that the same can stand the force that is directed against the porcelain tooth in the act of mastication and form a smooth appearance so as to eliminate a bulky projection on the inner surface of the tooth.

The metal backings of the teeth may be made by casting instead of soldering. In this method the wax is forced against the plate 8 while in position in the tooth and the wax carved to proper shape and contour. The plate 8 is then invested in suitable investing material and is then cast in the usual way. The cast of gold going about the notched end of the plate forming a strong attachment. One or more backings may be cast at one time.

After the porcelain teeth have been ground to proper length and size, the same may be given a final glossy finish by baking in an electric oven, and the same are then cemented in position on their backing. The finished teeth may then be cemented in place in the mouth.

The plate 11 is formed relatively small so that the same cannot be seen by an observer and prevent the same from engaging the tissues of the mouth.

As shown in Fig. 4 of the drawings, the bridge work is shown supporting the lower incisor teeth and the outer teeth having their backings soldered or otherwise secured to gold inlays 16 carried by the natural teeth E. The gold inlays D may be of any size or shape to conform to the configuration of a tooth and as shown include the outer faces 15 and anchoring members 16. Crowns instead of inlays may be used for attachment to natural teeth when found desirable.

In Fig. 5 is illustrated a bicuspid tooth, and the same is anchored in position in the same manner as described above.

The different portions of the device may be assembled and made to conform to the exact configuration of the missing teeth in the mouth by any other means well known and employed in the dentistry art.

From the foregoing description it can be seen that an improved means is provided for anchoring artificial teeth in the mouth which will eliminate the usual delicate and costly work involved, and which is so constructed that the gold or other metal will not be visible, and which will permit a solid porcelain tooth to be used.

When more than one artificial tooth is to be supplied, the same may be fused or secured together so as to eliminate crevices between the teeth and thus prevent food or the like from lodging and collecting between the same.

Changes in details may be made without departing from the spirit or scope of my invention, but;

I claim:

1. An artificial tooth including a solid body, a longitudinally extending plate anchored in said body, and an attaching plate carried by the outer end of the first mentioned plate having a less length and width than the length and width of the solid body of the tooth.

2. An artificial tooth including a solid body having an inwardly extending recess formed in its inner face, a plate secured in said recess, an outer plate disposed substantially at the transverse center of the body and having a width less than the height of the body secured to the first mentioned plate and arranged to overlie the recess and means for securing the last mentioned plate to natural teeth.

3. An artificial tooth including a solid porcelain body having an inwardly extending recess formed therein, an anchor plate extending longitudinally of the tooth and fitted in said recess, the upper and lower edges of the plate being notched, a binding section in said recess, the outer face of the tooth having an arcuate depression therein communicating with said recess, an attaching plate pressed over the anchor plate and solder carried by said plate and rounded and fitted in said concaved depression.

4. An artificial tooth including a solid porcelain body having an inwardly inclined recess formed in its inner face terminating short of the upper and lower edges thereof, a flat rectangular plate fitted in said recess, said recess being positioned intermediate the ends, and side faces of the body, and an attaching plate carried by the outer end of the plate.

5. In a bridge work structure, a plurality of artificial teeth having inwardly extending recesses formed in the inner faces thereof intermediate their ends and side faces, anchored plates fitted in said recesses and extending beyond the outer face thereof, an outer plate secured to the outer end of each anchor plate, the ends of the outer plates being soldered together.

6. The combination with spaced natural teeth having metallic inlays therein, of a bridge work structure including a plurality of teeth having sockets formed in the inner faces thereof intermediate their ends and side faces, longitudinally extending anchor plates secured in the sockets, and a transversely extending plate secured to the outer ends of the first mentioned plates and the metallic inlays carried by the natural teeth.

EDWIN A. HAGAMAN.