

C. E. TUTTLE.
ARTIFICIAL TOOTH.
APPLICATION FILED JAN. 18, 1918.

1,384,282.

Patented July 12, 1921.

Fig. 1.

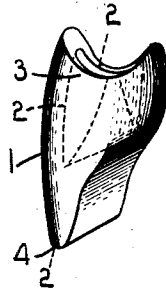


Fig. 3.

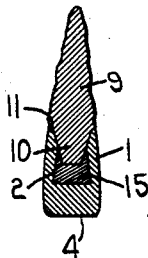


Fig. 4.

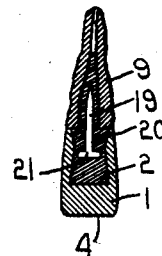


Fig. 2.

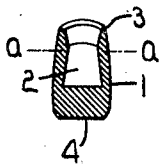


Fig. 5.

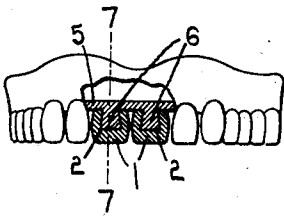


Fig. 6.

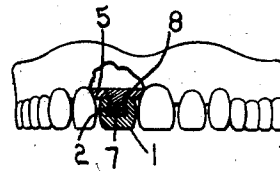


Fig. 7.

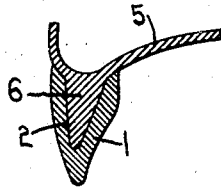


Fig. 8.

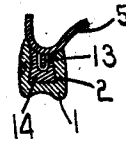
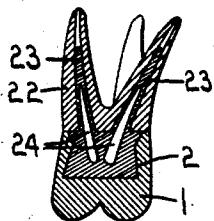


Fig. 9.



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UNITED STATES PATENT OFFICE.

CLARENCE E. TUTTLE, OF READVILLE, MASSACHUSETTS.

ARTIFICIAL TOOTH.

1,384,282.

Specification of Letters Patent. Patented July 12, 1921.

Application filed January 18, 1918. Serial No. 212,424.

To all whom it may concern:

Be it known that I, CLARENCE E. TUTTLE, a citizen of the United States, residing at Readville, county of Suffolk, State of Massachusetts, have invented an Improvement in Artificial Teeth, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to artificial teeth and has for its object to provide a novel artificial tooth which can be used equally well for plate work or for crowning a tooth stump, thus obviating the necessity for a dentist keeping in stock teeth of one kind for plate work and teeth of another kind for use in crowning or capping the stumps of natural teeth.

Another object of my invention is to provide a novel artificial tooth which can be attached to the plate or to a tooth stump without the use of pins. The method now commonly used for attaching artificial teeth to plates involves the use of metal pins which are usually of platinum but the present extremely high cost of platinum makes the use of such pins almost prohibitive. My invention does not require the use of such metallic pins.

Another object of my invention is to provide a novel artificial tooth which can be attached to a plate without carrying the material of the plate over or around the sides of the tooth and as a result in a plate having artificial teeth thereon which embody my invention, each of the artificial teeth is exposed to the same extent as the corresponding natural teeth of a person, so that when the plate is worn, the teeth have the same feel to the tongue of the wearer as natural teeth would have.

Other objects of my invention will be more fully hereinafter set forth.

In order to give an understanding of my invention I have illustrated in the drawings some selected embodiments thereof which will now be described, after which the novel features will be pointed out in the appended claim.

Figure 1 is a perspective view of a tooth embodying my invention;

Fig. 2 is a reduced sectional view thereof on the line 2—2, Fig. 1;

Figs. 3 and 4 show how the artificial tooth

may be applied to a stump of a natural tooth;

Fig. 5 is a view showing my improved tooth applied to a rubber plate;

Fig. 6 is a similar view showing my improved tooth applied to a metal plate;

Fig. 7 is an enlarged section on the line 7—7, Fig. 5;

Fig. 8 is a sectional view showing a different manner of securing my improved tooth to a metal plate;

Fig. 9 is a sectional view showing another way of applying my improved tooth to a tooth stump.

It will be understood, of course, that my invention may be embodied in an artificial tooth adapted for any location in the mouth and the exterior shape of the tooth will depend upon the particular location in the mouth.

I have shown in the drawings both a front tooth and a molar, but the invention is equally applicable to other teeth.

The front tooth illustrated is indicated at 1 and it is made of porcelain or any other suitable substance. It is formed with an interior cavity 2 which extends from the base 3 toward the end or tip 4, said cavity 2 having a progressively-increasing width from a point near the base to the bottom in at least one transverse direction. The base 3 of the tooth will preferably be shaped to fit firmly against the plate 5, the particular shape of the base being varied, of course, to suit the shape of the plate at different locations.

Figs. 5 and 7 show the tooth secured to a rubber plate 5. To secure the tooth in place the cavity 2 is filled with soft unvulcanized rubber and then the tooth is placed in proper position on the plate after the plate has been shaped, but before it has been vulcanized. If the plate is one having a full set of teeth thereon, then each of the teeth of the plate will be treated as above described, that is, the cavity of each tooth will be filled with the soft, unvulcanized rubber, and after the teeth have been properly positioned relative to each other on the plate, the plate is vulcanized in usual manner. The process of vulcanizing integrally unites the material 6 which fills the cavity 2 and the plate so that when the vulcanizing process is complete, the plate will have as integral portions thereof the anchoring pro-

jections 6 which fill the cavities of the teeth. Since these projections are of gradually-increasing width from a point near the base of the tooth to the bottom of the cavity in at least one transverse direction, each tooth will be firmly secured to the plate. This manner of securing the teeth to the plate obviates the necessity of making the plate so that the base or inside portions of the teeth will be covered by or embedded in the rubber, as is now the more or less common practice. The presence of such rubber on the outside of the teeth gives the teeth an unnatural feel to the tongue and an unsightly appearance.

With my invention the portion of the artificial tooth which is exposed from the plate is the same as that of the corresponding natural tooth so that when the plate is worn, the portions of the teeth with which the tongue contacts has the same feel to the tongue and the same appearance as natural teeth would have.

In securing my improved artificial tooth to a metal plate, as shown in Fig. 6, I propose to form the metal plate at the point where each tooth is to be secured with an aperture 8 with tapering walls so that it is larger at the inside of the plate than at the outside. The cavity 2 of each tooth is then filled with cement, unvulcanized rubber, or gutta percha, and the teeth are placed in position on the plate and at the same time the apertures 8 are filled with cement, rubber or gutta percha. When the cement or gutta percha sets, or the rubber is vulcanized, each tooth will be firmly secured to the plate 5 by the anchoring mass 7 of cement, vulcanized rubber or gutta percha.

In Fig. 8 I have shown a slightly different way of securing my improved tooth to a metal plate. The metal plate illustrated is formed with a projection or lug 13 which is adapted to occupy the cavity 2 of the tooth when the latter is in position. This lug will preferably have an aperture there-through and may be made by soldering a loop of wire to the plate, or in any other suitable way, provided it is formed with some sort of opening. The cavity 2 of the tooth will be filled with gutta percha 14 or some other suitable cementitious substance, and the tooth will then be placed in position on the plate 5 so that the projection 13 will enter the cavity 2 and become embedded in the cementitious substance 14. When said cementitious substance hardens, the tooth will be firmly anchored to the plate by reason of the fact that the anchoring material 14 is interlocked both with the projection and with the tooth.

In all of the embodiments of the invention above described the base of each tooth rests firmly against the plate so that the pressure on the tooth is transmitted directly

to the plate and the means by which each tooth is secured to the plate is situated entirely within the tooth and not exterior thereto.

The tooth above described can be used equally well as a cap or crown for the stump of a natural tooth. Such a use is shown in Fig. 3 wherein 9 indicates the natural tooth stump. To use my improved tooth in this way, the stump will first be prepared by trimming down the exposed portion thereof so as to form a shoulder 11. The small or outer end of the cavity 2 of the tooth is then enlarged so that said end will fit the part of the reduced portion 10 of the stump which is adjacent the shoulder 11, and the face 3 of the tooth is shaped to fit the shoulder 11. Suitable cement 15 is then introduced into the cavity 2 and the tooth is applied to the portion 10 of the stump, as shown in Fig. 3, and when the cement hardens, the tooth will be anchored to the stump. In order to use the tooth as the cap for a stump it is only necessary to enlarge the end of the cavity adjacent the face 3 to fit the stump. The enlarged lower end of the cavity which remains constitutes a space for receiving the cement and is thus an important feature of the invention where the device is used as shown in Fig. 3.

Fig. 3 illustrates my improved tooth as applied to a live stump; Fig. 4 shows how the tooth might be applied to a dead stump. The nerve cavity of the dead stump will be cleaned out and then an anchoring pin 19 may be placed therein and anchored in place by means of suitable cement 20. The anchoring pin 19 is shown as provided with a head 21 which projects beyond the stump so that when the tooth 1 is applied to the stump the head 21 will be entered into the cavity 2. The cementitious substance 20 fills the cavity 2 and thus anchors the tooth to the stump.

In capping or crowning some stumps of teeth, it is possible to apply the crown so that substantially the entire portion of the tooth which shows is the artificial tooth. Under other circumstances the stump may be of such shape that it may be necessary or desirable to use a portion only of the artificial tooth, such, for instance, as that below the dotted line *a* in Fig. 2, in which case the face 3 of the tooth may be ground off so as to reduce the artificial tooth to the desired size. Since the cavity 2 in the tooth is shaped so that its portion of largest cross-sectional area is at the bottom of the cavity, the tooth will still have a cavity larger at the bottom than at the top even though it is reduced in size to the portion below the dotted lines in Fig. 2, and this is an important feature of the invention.

In Fig. 9 I have shown a tooth embodying my invention used as a crown for the stump

of a molar tooth. The tooth stump is indicated at 22 and it is represented as a dead stump. The nerve cavities 23 of the stump are cleaned out and then anchoring pins 24 are cemented therein, these pins projecting beyond the face of the stump so that when the tooth 1 is applied the ends of the pin will enter the cavity 2 thereof. The cavity 2 will be filled with cement as above described, and when the cement hardens or sets, it will anchor the tooth to the pins 24 which in turn are secured to the stump so that the artificial tooth 1 is firmly held in place.

It will thus be seen that my improved tooth can be universally used for various kinds of dental work and that no pins are employed in attaching it to either the plate or the stump.

I claim:

As an article of manufacture an artificial tooth adapted to be used either for plate work or to crown a tooth stump, said arti-

ficial tooth having a base face which is concaved from the front to the back of the tooth and also having a flat bottom cavity situated within its body and extending from its base well toward the tip, said cavity having a progressively-decreasing cross-sectional area from said flat bottom to a point near the concaved base face of the tooth and having a progressively-increasing cross-sectional area from said point to the base face, said concaved base face being arranged to fit a plate when the tooth is used for plate work, said concaved base face being of a material which can be ground off when it is desired to provide a tooth suitable to crown a tooth stump, the cavity in the tooth being unobstructed and free from projections extending from its wall and adapted to receive a cementitious substance for cementing it in place.

In testimony whereof I have signed my name to this specification.

CLARENCE E. TUTTLE.