

No. 659,206.

Patented Oct. 9, 1900.

J. P. CARMICHAEL.

PROCESS OF AND ATTACHMENT FOR BUILDING UP BROKEN OR DECAYED TEETH.

(Application filed June 9, 1899.)

(No Model.)

Fig. 1.

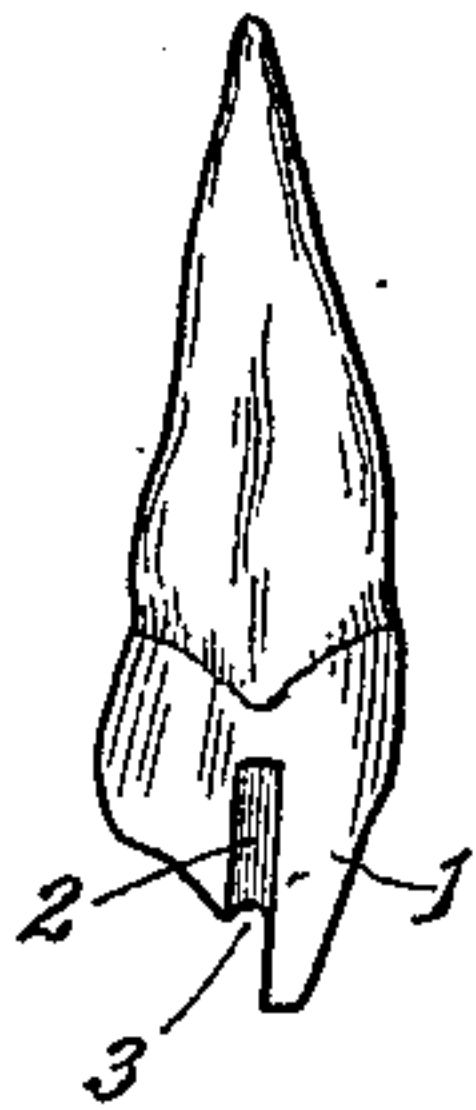


Fig. 2.

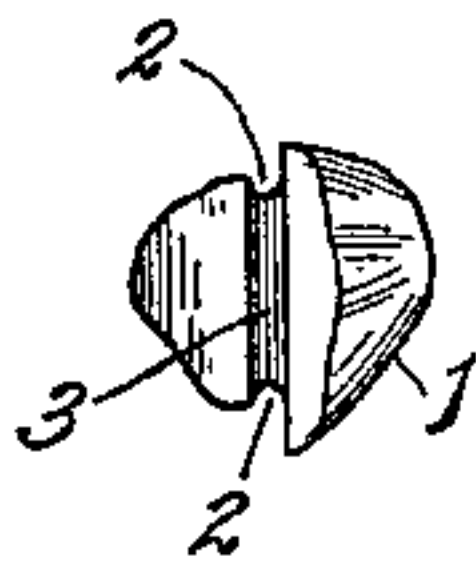


Fig. 3.

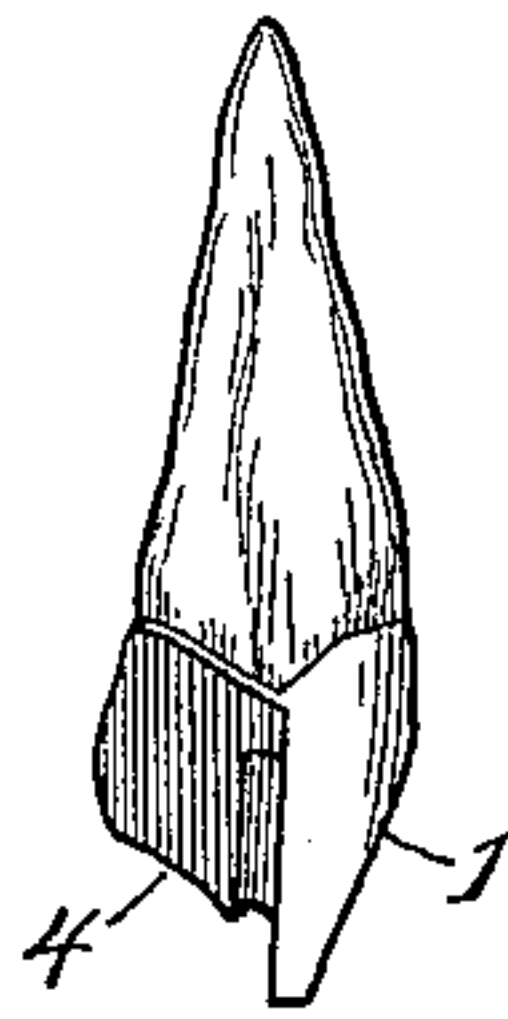


Fig. 5.

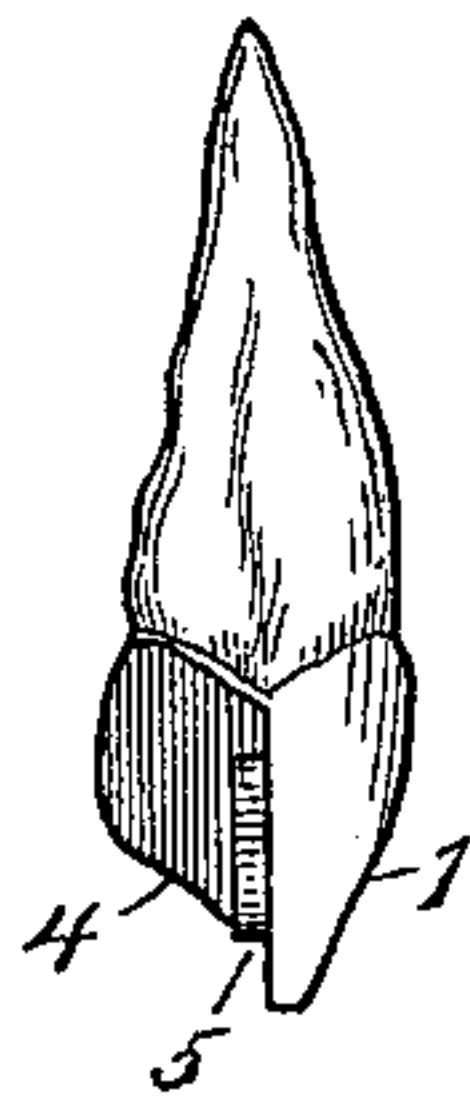


Fig. 4.

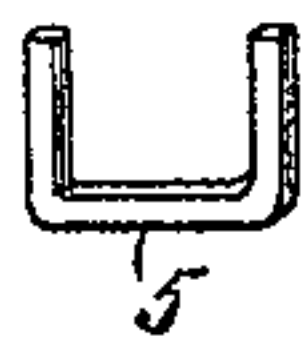


Fig. 8.

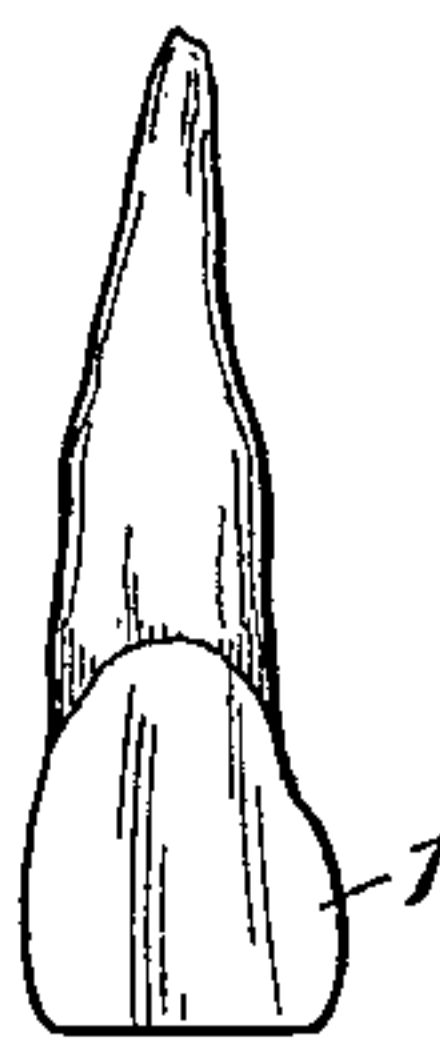


Fig. 6.

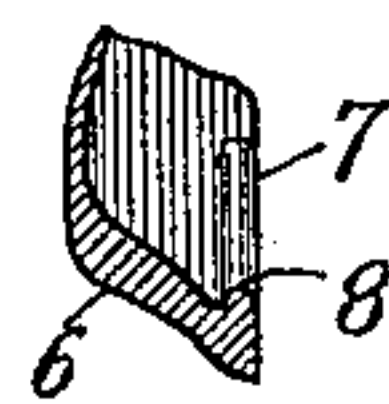


Fig. 7.

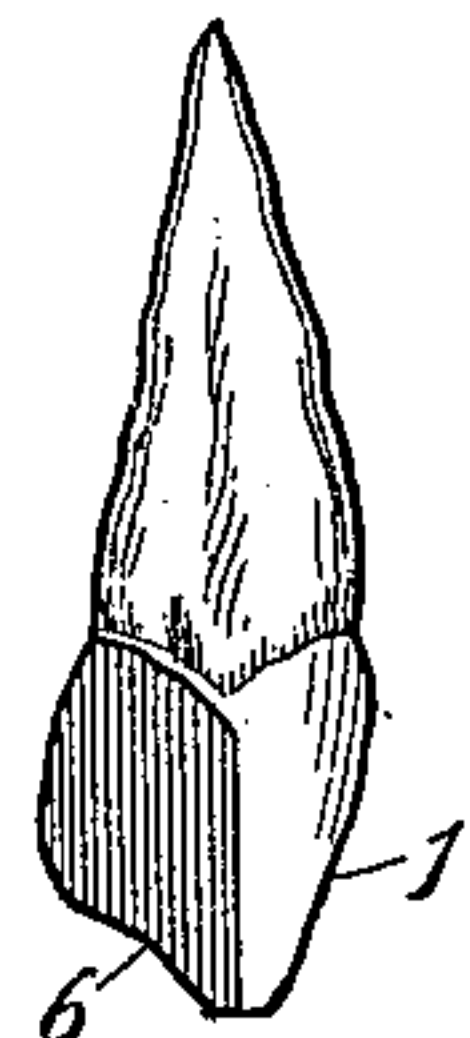


Fig. 9.

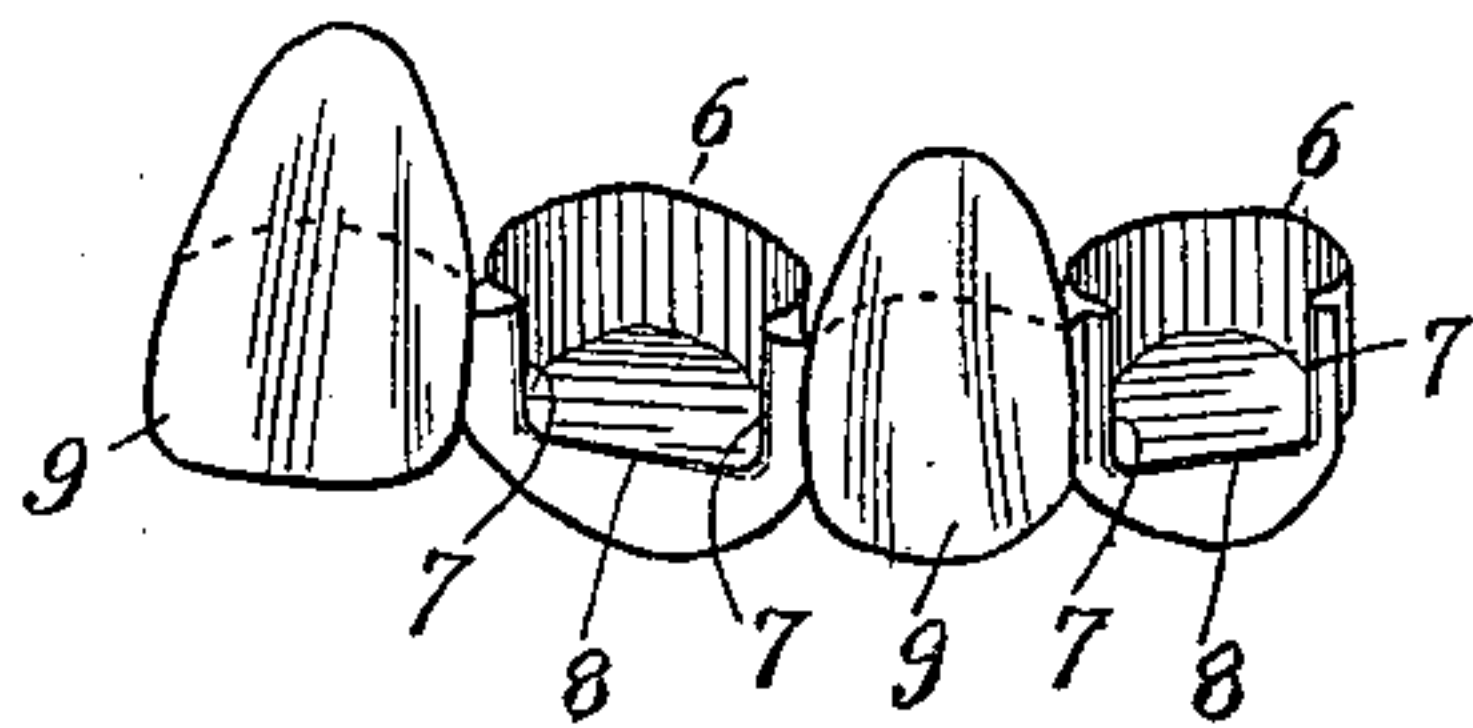


Fig. 11.

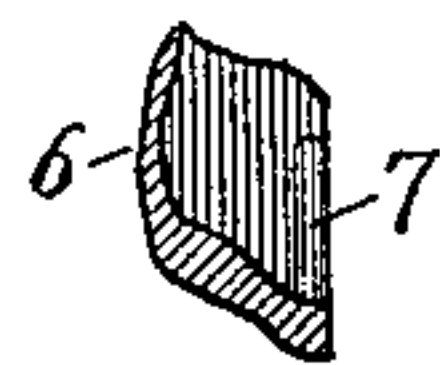
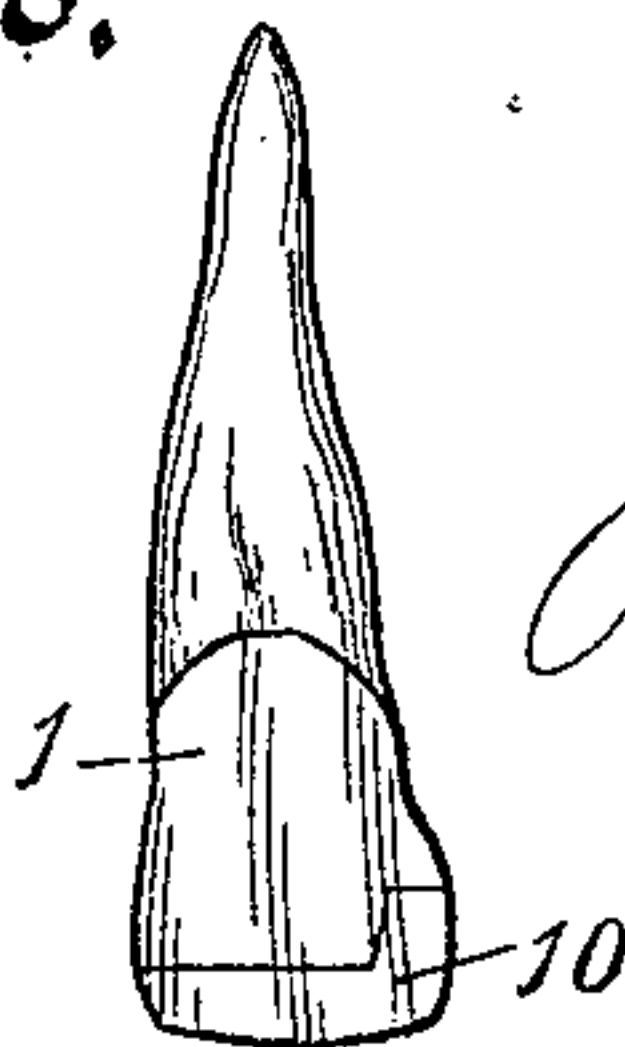


Fig. 10.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN PETER CARMICHAEL, OF MILWAUKEE, WISCONSIN.

PROCESS OF AND ATTACHMENT FOR BUILDING UP BROKEN OR DECAYED TEETH.

SPECIFICATION forming part of Letters Patent No. 659,206, dated October 9, 1900.

Application filed June 9, 1899. Serial No. 719,994. (No model.)

To all whom it may concern:

Be it known that I, JOHN PETER CARMICHAEL, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in a Process of Forming an Attachment for and Connecting the Same to a Natural Tooth; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has relation to improvements in a process of forming an attachment for and connecting the same to a natural tooth.

The primary object of the invention is to provide an improved process and construction wherein provision is made for forming an attachment and connecting the same to a natural tooth, the said attachment being so molded and shaped to the part of the tooth to be covered and so fitted in the grooves of said tooth that it is mechanically held firm in position upon the tooth and is adapted for building up any broken or decayed portion of the tooth or is adapted to be connected with bridge-teeth, plates, regulating appliances, fillings, inlays, &c.

With the above primary object in view the invention consists of the process and its several steps or their equivalents and the attachment, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a lateral elevation of a tooth, showing the bottom groove and one of the side grooves. Fig. 2 is an end view of Fig. 1. Fig. 3 is a view similar to Fig. 1, but showing a metal base pressed into the grooves and also covering the inner portion of the crown of the tooth. Fig. 4 is a detail view of the wire staple. Fig. 5 is a view similar to Fig. 3, but showing the staple passed into the grooves and engaging the base. Fig. 6 is a vertical sectional view of the complete fastener before contouring and stiffening with alloy-gold. Fig. 7 is a view of a tooth with fastener complete and cemented in position thereto. Fig. 8 is a front view of Fig. 7. Fig. 9 is a view of two fasteners complete and in connection with two bridge-teeth. Fig. 10 is a front view of a tooth, showing an inlay of porcelain or other desirable material which is supported by the fastener; and Fig. 11 is a detail view of a

modified form of fastener in which the rib 8 is omitted.

Referring to the drawings, the numeral 1 indicates the crown of a natural tooth. In order to prepare this tooth to adapt it for my improved process and attachment, I cut, grind, or drill one or more grooves running at parallel lines across the cutting edge of the tooth and up opposite sides of said tooth for a desired distance. The grooves in opposite sides of the crown of a tooth are indicated by the numerals 2 2 and the connecting bottom groove by the numeral 3. The grooves 2 2 and 3 are of sufficient depth to receive and retain a base 4, of metal or other suitable material, preferably a thin sheet of gold. This thin sheet is shaped to the back of the tooth and pressed into the grooves, as shown in Fig. 3. The portions of the base which are pressed into the side grooves form two side ribs 7, and the portion of the base which is pressed into the bottom groove forms a bottom rib 8. This metallic base, it will be understood, is merely first applied to the tooth long enough to permit it to be shaped to the portion of the tooth to which it is applied and after being so shaped is removed from the tooth and then serves as a pattern form for the making of the complete attachment, said complete attachment being constructed by applying melted alloy-gold or soldering thereto and allowing it to harden. Fig. 6 shows a vertical section of the complete attachment so constructed. Before the metallic base is removed, however, for the purpose of forming the complete attachment it is advisably held firmly to a tooth during the operation of shaping and contouring the pattern by means of a wire staple 5. (Shown in detail in Fig. 4 and also shown properly applied to the base in Fig. 5.) This staple is designed to be removed with the base, so as to stiffen said base and compel it to retain its shape. The staple, however, is not absolutely necessary, as the base could be removed from the tooth without the staple and said base stiffened by placing pieces of clasp metal to control the soldering in effecting a uniform thickness.

When the complete attachment is made in the manner above pointed out, it is applied to the tooth and cemented thereto. In Fig.

7 the complete attachment is shown as applied to the tooth, and this particular illustration of the application of the invention shows the back of the tooth built up and also the bottom of the cutting edge of the tooth built up flush with the lower projecting front prong of the crown.

In Fig. 9 I show the application of my invention for bridgework. In this figure two of the complete attachments are shown, and between these two attachments is secured an artificial bridge-tooth 9 by means of a metallic strap extending from one attachment to the other and shown by dotted lines in said Fig. 9. One of the attachments is also provided with a projecting strap, (also shown by dotted lines in Fig. 9,) and to this strap is secured another artificial-bridge tooth 9. In applying the bridge shown in Fig. 9 the attachments are made to fit the natural tooth and secured thereto in any desirable manner, and the artificial teeth fill up spaces where the natural teeth have been drawn.

In Fig. 10 I show a front face view of a tooth in which an inlay of porcelain or other suitable material is supported by my attachment. In this application of the invention I preferably use a double sheet of the material 4, which when brought forwardly over the end of the tooth forms a receptacle for an inlay or filling material. By this arrangement no metal is exposed to view on the face of the tooth, but the porcelain or other inlay will be visible across the front face of the tooth and laterally at one side. In this application of the invention the attachment is of such shape as to form a retainer for the inlay or other suitable filling material, and in this particular application of the invention it is also very desirable to use the staple 5, allowing one end of said staple to project into the cavity of the tooth to serve as a retainer for the porcelain or other inlaying material. While the particular U-shaped form of the staple is preferable, yet merely pins could be placed in the cavities and covered by the alloy-covering.

In the construction of my attachment it is not absolutely necessary that the transverse connecting-rib 8 should be employed in order to hold the metallic base, as well as the attachment subsequently made therefrom, to the tooth. I have therefore in Fig. 11 illustrated the attachment with this connecting-rib 8 omitted.

It is also not absolutely necessary that the attachment should be provided with the back piece shown in the several figures of the drawings, as the attachment could merely be provided with a transverse portion adapted to fit across the end of the natural tooth and also provided with side ribs adapted to fit and engage side grooves in the tooth and successful results obtained.

From the foregoing description it will be seen that the base 4 is so molded and shaped to the part of the tooth to be covered and so fitted to the grooves of said tooth that it is

mechanically held firm in position upon the tooth to which it has been fitted ready to be connected with bridge-teeth, plates, regulating appliances, fillings, inlays, &c. When the attachment is adjusted as described, it fits the tooth so closely that when cemented in position it will preserve the part of the tooth which it covers, excluding all moisture, &c., and thereby preventing decay.

By my improved attachment I am able to provide a very strong and serviceable fastening which can be applied to many purposes in dentistry, and thus do away with the placing of gold bands about the teeth and covering the teeth with gold caps, which is not only considered in bad taste, but is also regarded injurious to the teeth and gums.

What I claim as my invention is—

1. A process of forming an attachment for and connecting the same to a natural tooth, which consists in cutting, grinding, or drilling one or more grooves in a natural tooth; shaping and fitting a base of suitable material to the tooth, and to the groove or grooves in said tooth, and thereby conforming the base to the shape of the portion of the tooth to which it is applied, and also forming a rib or ribs in the base; removing the base from the tooth; next stiffening and building up the base with a suitable material; and finally applying the complete attachment to the tooth and cementing or otherwise securing said attachment to the tooth.

2. A process of forming an attachment for and connecting the same to a natural tooth, which consists in cutting, grinding, or drilling grooves in a natural tooth; shaping and fitting a base of suitable material to the tooth and to the grooves in said tooth, and thereby conforming the base to the shape of the portion of the tooth to which it is applied, and also forming ribs in the base by pressing said base into the grooves; applying a staple to the base during the operation of shaping and contouring; removing the base, together with the staple from the tooth; next stiffening and building up the base with a suitable material; and finally applying the complete attachment to the tooth, and cementing or otherwise securing said attachment to the tooth.

3. An attachment for natural teeth, consisting of a base or inner portion of suitable material provided with a transverse portion adapted to fit across the end of a natural tooth, and also provided with side ribs adapted to engage and fit side grooves or corrugations in said tooth, an outer portion covering the base or inner portion, and a U-shaped retaining device disposed between the inner and outer portions, and adapted to engage the side grooves or corrugations of the tooth.

4. An attachment for natural teeth, consisting of a base or inner portion and an outer portion covering the inner portion, the said attachment provided with a back member, a bottom member, and side members, the back member fitting around the back of the tooth,

the bottom member fitting across the end of the tooth, and the side members fitting the approximate side edges of the tooth, said bottom member provided with a transverse rib adapted to fit a transverse groove in the end of the tooth, and the side members provided with vertical ribs adapted to fit vertical grooves in the approximate side edges of the tooth.

10 5. An attachment for natural teeth, consisting of a base or inner portion shaped to fit the natural tooth, and provided with a rib or ribs adapted to fit a groove or grooves formed in said tooth, and an outer portion
15 covering the base or inner portion.

6. The combination with a natural tooth having a groove or grooves in its outer lateral side edge or edges, of an attachment conform-

ing and fitted to irregular, broken or decayed portions of the tooth and provided with a rib 20 or ribs fitting in the groove or grooves of the tooth, said attachment adapted to act as a connecting medium for bridge-teeth, plates, and the like, or as a means for building up the irregular, broken or decayed portion of 25 the tooth, or as a retainer for fillings, inlays, and the like.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wis- 30 consin, in the presence of two witnesses.

JOHN PETER CARMICHAEL.

Witnesses:

JAMES A. SHERIDAN,
GUSTAV WOLLAEGUP.