R. M. WITHYCOMBE.

ARTIFICIAL TOOTH.

APPLICATION FILED SEPT. 24, 1915.

1,193,329. Patented Aug. 1, 1916.

Fig. 1.

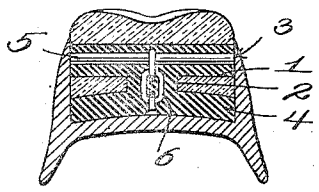


Fig. 2.

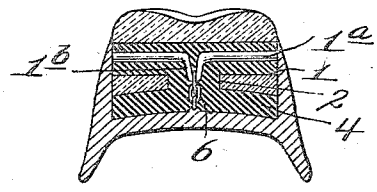


Fig. 3.

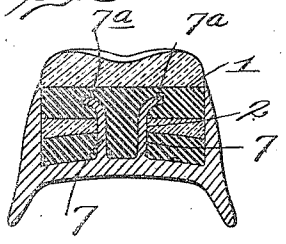


Fig. 4.

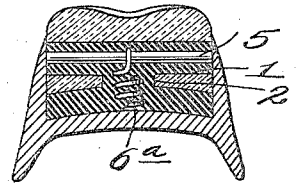
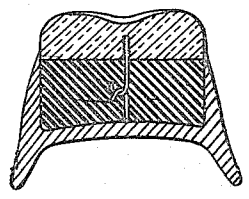


Fig. 5.



Witnesses.
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ARTIFICIAL TOOTH.

1,193,329. Specification of Letters Patent. Patented Aug. 1, 1916.

Application filed September 24, 1915. Serial No. 52,418.

To all whom it may concern:

Be it known that I, ROBERT MORSE WITHYCOMBE, a subject of the King of Great Britain, residing at Sydney, New South Wales, Commonwealth of Australia, have invented certain new and useful Improvements in Artificial Teeth, of which the following is a specification.

This invention relates to improvements in artificial teeth, proposing, more particularly, an improvement on the construction shown in my prior Patent No. 1,105,476 of July 28, 1914.

The features of the invention are concerned with the fixing of the teeth in their sockets and with the provision of a resilient cushion against which the tooth rests whereby the teeth will yield slightly in the act of mastication in substantially the same manner that a natural tooth works in its alveolar pocket.

The objects of the invention, briefly stated, are to provide an internally arranged means for anchoring the tooth in its socket whereby the appearance of the tooth is improved and the tooth is held with greater security; and to provide an anchorage means which, while applicable to teeth of all kinds and forms, is especially adapted to diatoric teeth in that its application thereto involves the utilization of the diatoric openings and the internal bore with which said teeth are provided.

Embodiments of the invention are illustrated in the accompanying drawings wherein the invention is shown in Figures 1 to 4 in its application to diatoric teeth and Fig. 1 is a sectional view showing one form of anchorage means. Fig. 2 is a sectional view showing another form of anchorage means. Fig. 3 is a sectional view showing a third form of anchorage means. Fig. 4 is a sectional view showing a fourth form of anchorage means. Fig. 5 is a sectional view showing the application of the invention to a tooth of special shape wherein the anchorage means is embedded in the tooth at the time that the latter is made.

Similar characters of reference designate corresponding parts throughout the several views.

Diatoric teeth are provided with a diatoric opening 1 some distance below their occlusal surface which extends transversely or in the direction of the minor axes thereof, which said opening at its center communicates with a centrally arranged bore 2 of enlarged diameter extending to the under face of the tooth, the opening 1 and the bore 2 conjointly providing a T-shaped cavity which is usually filled with the rubber of the plate or with retaining cement, the material thus filling the said cavity keying the tooth in position.

According to the present invention, an internal anchorage means, generally designated as 3, is interposed between the tooth and the base of the socket in which the tooth is fitted and securely fixes the tooth against displacement from the said socket, the "socket" being either the seat or opening in the plate which receives the tooth or the collar which receives the tooth in crown and bridge work. A cushioning medium 4 of soft vulcanized rubber is interposed between the under face of the tooth and the base of the socket.

An essential characteristic of the anchorage means 3 is that, although securely fixing the tooth against displacement from its socket, it permits of a slight yielding of the tooth in the act of mastication for the purposes fully set forth in my prior patent herein referred to. Several forms of anchorage means having these characteristics are available and the different forms shown in the drawings are to be regarded merely as examples.

Where the special shape of the tooth prevents it from being made in diatoric form, the anchorage means may be readily attached to the tooth by having a portion of its length secured therein, as shown in Fig. 5. A similar procedure may be followed in teeth whose shape admits of their being made in diatoric form but where the use of the present invention makes the diatoric openings unnecessary.

Figs. 1 to 4 of the drawings show the invention in its application to ordinary diatoric teeth. According to Fig. 1, the anchorage means 3 consists of a pin or bar 5 which is inserted through the diatoric opening 1 and a chain 6 which extends through the bore 2 and has its inner end connected to the bar 5. The outer end of the chain is fixedly secured by solder or otherwise to the base of the socket in which the tooth works. After the chain has been connected to the base of the socket in the manner stated, vellum rubber is introduced into the socket between the base thereof and the inner face

of the tooth, and, upon vulcanization, completely fills the bore 2 and the opening 1, thereby establishing a secure bond between the tooth and its anchorage means. Since this rubber, when vulcanized, has resilient properties, the resultant cushion 4 answers the requirements of the rubber cushion described in my prior patent herein referred to. This rubber may be introduced into the socket in any suitable manner, but it is preferably introduced through an opening in the base of the socket and the opening is sealed in any suitable manner after the rubber has been introduced. According to Fig. 2, a bar 1^a is arranged in the diatoric opening and is provided with a central V-shaped portion 1^b which extends into or through the bore 2 and to which the inner end of the chain is connected. In other respects, the construction shown in Fig. 2 is similar to that of Fig. 1. According to Fig. 3, the socket in which the tooth works has its base provided with inwardly projecting prongs 7 having out-turned extremities 7^a. The prongs 7 extend through the bore 2 and its angular extremities 7^a project into the opening 1. The construction shown in Fig. 4 is similar to the construction shown in Fig. 1 except that a spiral spring 6^a is substituted for the chain 6.

From the foregoing description it will be seen that the present invention provides for the secure retention of the tooth in its socket without the aid of the groove or apron around the base of the tooth into which the collar which forms the wall of the socket is burnished, as in the existing practice. It will also be apparent that where a dentist or a dental supply house has on hand a supply of diatoric teeth, the invention may be readily applied to these existing teeth without any changes in the latter, by the adoption of any of the forms of construction herein disclosed, or other forms falling within the scope of the invention and of the appended claims.

In all forms of the invention the anchorage means, whether incorporated in a tooth during the making thereof, as in Fig. 5, or whether applied to a diatoric tooth, in the manner described, is secured in the tooth, and by virtue of this relation, the tooth is not only fixed with security in its socket, but the avoidance of sepsis is promoted.

Having fully described my invention, I claim—

1. An artificial tooth structure comprising a socketed tooth supporting member, a tooth fitted therein, an anchorage means arranged internally of said socket and secured in the tooth, the means connecting a wall of the socket and the tooth to prevent displacement of the tooth from said socket, and permitting a slight yielding of the tooth, and a yielding cushion arranged within said socket, at the bottom thereof, the tooth having its base disposed directly against said cushion.

2. An artificial tooth structure comprising a socketed tooth supporting member, a tooth fitted therein, a yieldable anchorage means arranged internally of said socket and secured in the tooth, the means connecting a wall of the socket and the tooth to prevent displacement of the tooth from said socket, and a yielding cushion arranged within said socket, at the bottom thereof, the tooth having its base disposed directly against said cushion.

3. An artificial tooth structure comprising a socketed tooth supporting member, a diatoric tooth fitted therein and having a transverse opening below its occlusal face and a central bore extending from said opening to its inner face, an anchorage means arranged internally of said socket and comprising connected parts disposed in said opening and in said bore, the anchorage means being connected to a wall of said socket and preventing displacement of the tooth from the socket while permitting a slight yielding of the tooth, and a yielding cushion arranged within said socket at the bottom thereof, the material of said cushion filling said opening and said bore, the tooth having its base disposed directly against said cushion.

4. An artificial tooth structure comprising a socketed tooth supporting member, a diatoric tooth fitted therein and having a transverse opening below its occlusal face and a central bore extending from said opening to its inner face, an anchorage means arranged internally of said socket and comprising a bar in said opening and a part of yielding construction in said bore connected to said bar and to the base of the socket and a yielding cushion arranged wholly within said socket at the bottom thereof, the material of said cushion filling said opening and said bore, the tooth having its base disposed directly against said cushion.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT MORSE WITHYCOMBE.

Witnesses:
ROSE M. SEFTON,
JOHN S. POWERS.