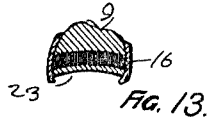
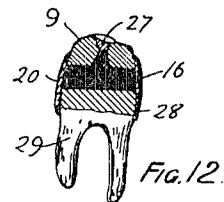
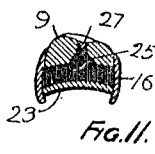
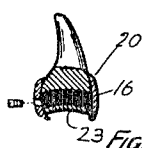
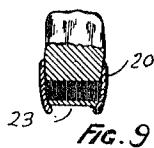
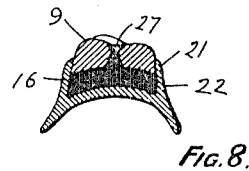
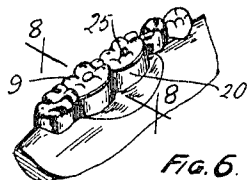
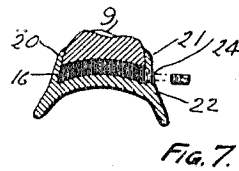
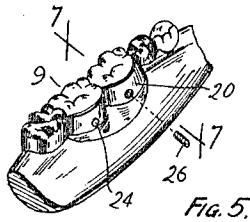
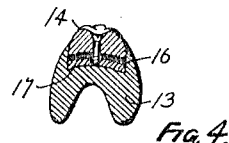
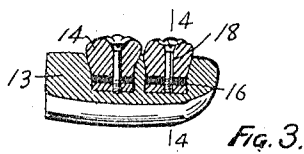
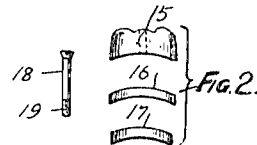
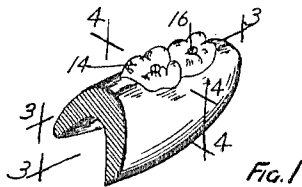


R. M. WITHYCOMBE.
ARTIFICIAL TOOTH.
APPLICATION FILED OCT. 15, 1913.

1,105,476.

Patented July 28, 1914.



Witnesses:

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UNITED STATES PATENT OFFICE.

ROBERT MORSE WITHYCOMBE, OF SYDNEY, NEW SOUTH WALES, AUSTRALIA.

ARTIFICIAL TOOTH.

1,105,476.

Specification of Letters Patent.

Patented July 28, 1914.

Application filed October 15, 1913. Serial No. 795,332.

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, in the State of New South Wales, Commonwealth of Australia, have invented certain new and useful Improvements in and Relating to Artificial Teeth, of which the following is a specification.

This invention has reference to improvements in artificial teeth, and to the fixing of same either on a dental plate or on the roots of natural teeth.

It has been estimated that on an average 100 to 250 pounds pressure is exerted by the human jaw in the mastication of food, and this pressure is the chief reason why many persons are unable to use artificial teeth especially in the lower jaw.

The principal object of the invention is to provide an improved tooth structure which will slightly yield in the act of mastication in substantially the same manner as a natural tooth works in its alveolar pocket, this being obtained by a specially-arranged cushion of soft rubber, placed at the base of the artificial tooth, (which expression includes a "crown") between the latter and the metal or vulcanite plate, or the top of the natural root.

In carrying out the invention in its preferred form, the tooth is fitted in a collar in such a way as to have a limited range of movement vertically therein leaving its occlusal surface protruding, and at the base of the tooth in a recess or cavity formed by the extended sides of the collar is placed soft vulcanizing rubber. If desired, a metal or other bottom may be attached to the collar to insure separation of the hard rubber or metal plate from the soft rubber, the shape of the collar and tooth insuring its retention in said plate. The tooth, with the collar attached is then placed in position and vulcanized into the plate, the soft rubber still retaining its resiliency. In the case of a root, the extended sides of the metal collar are rigidly secured around it, as in crown work.

The rubber may be inserted into the cavity through an orifice or opening in the side of the collar, or through the masticating face of the tooth, which orifice is subsequently closed by a metal or other plug or porcelain cement, and in some cases, where practicable, the rubber may be inserted after vulcaniza-

tion or attachment of the collar to the dental plate or root, in which event the rubber need not have soft vulcanizing properties, provided it is resilient. But in order that the invention may be clearly comprehended, reference will be made to the accompanying drawings, wherein:—

Figure 1 is a perspective view illustrating one form of my invention applied to a dental plate. Fig. 2 is a view illustrating the component parts of one of the artificial teeth in elevation. Fig. 3 is a section on the line 3—3, Fig. 1. Fig. 4 is a section on the line 4—4, Fig. 3. The above figures relate more particularly to gold or vulcanite work. Fig. 5 is a perspective view of a modification in which a collar is used, in this instance, applied to bridge work. Fig. 6 is a similar view illustrating a different method of inserting the resilient material. Fig. 7 is a section on the line 7—7, Fig. 5, and Fig. 8 is a section on the line 8—8, Fig. 6. Figs. 9, 10, 11, 12 and 13 are sectional elevations of artificial teeth with collars, Fig. 12 illustrating an artificial tooth or crown on a natural root instead of on a plate.

13 is a dental plate, 14 a porcelain or other artificial tooth having a hole 15.

16 is a layer or cushion of soft rubber, the resiliency of which is not appreciably affected by heat.

17 is a metal plate which may be employed in some cases and 18 a securing pin having the thread 19. The metal plate 17, when employed, is first vulcanized or otherwise rigidly secured in the plate 13. The soft rubber 16 is placed over it and then the tooth 14, the parts being held together by the pin 18 which takes into the plate 17. The plate 17 may, however, be dispensed with, and the end of the pin rigidly screwed directly into the plate.

In the form shown in Figs. 5 to 13, 9 is the tooth and 20 a collar, preferably of metal, the sides 21 of which converge upwardly in close conformity with the tooth. The lower or inner side portions 22 preferably retain a bottom piece 23 in position, but in bridge work this bottom piece is preferably integral with the collar.

In the forms illustrated in Figs. 5 to 13, the resilient material 16 may be placed in position prior to securing the lower end of the collar in the vulcanite or dental plate, as in Figs. 9, 10, 11 and 13, or it may be inserted subsequently in dough-like par-

articles through lateral orifices as 24, as in Figs. 5 and 7, or through vertical orifices 25, as in Figs. 6 and 8, such orifices being closable by metal pins 26 or porcelain cement 27. In some cases the artificial tooth may be retained in position by a securing pin 18 and a collar 20.

In Fig. 12, the lower end 28 of the collar is permanently secured to the root 29 of a natural tooth, the resilient material being previously placed in position, or subsequently through orifices 24 or 25, which are afterward closed.

It is to be observed that in each of the several forms above described, the rubber cushion is disposed wholly within the socket provided for it in or by the tooth-supporting member, and is entirely concealed by the base of the tooth, and in this connection it may be stated that the term "supporting member" is intended to cover both the plate 13 and the collar 20, irrespective of the nature of the part to which such member itself is attached, the "socket" referred to being, in consequence, either the seat or opening in the said plate, which receives the tooth, or the interior of the collar. By reason of this particular disposition of the cushion, no portion thereof is exposed, but, on the contrary, the side wall of the socket conforms closely to the shape of that of the tooth, so that the entry of secretions into the socket is prevented, with resultant avoidance of sepsis. For the same reason, moreover, the rubber is prevented from bulging outwardly, during mastication, and the tooth itself is securely held in place, under ordinary conditions, while still being allowed to yield or move slightly.

It will be evident that in cases where a pin 18 is used, the individual teeth may be fitted on the dental plate after vulcanization, thereby avoiding their exposure to high temperature and enabling them to be detached, to permit substitution of new yielding material or other teeth without re-vulcanization.

I would have it understood that I do not restrict myself to any particular method of placing the resilient rubber in position, as it may be varied according to the nature of the work and the structure of the natural teeth of the patient.

Having thus described my invention, what

I claim as new and desire to protect by Letters Patent, is:—

1. An artificial tooth structure comprising a socketed tooth-supporting member; a yielding cushion arranged wholly within said socket, at the bottom thereof; and a tooth fitted in said socket and having its base disposed directly against and completely concealing said cushion, whereby a portion of the pressure of mastication is taken up by the cushion.

2. An artificial tooth structure comprising a tooth-supporting collar; a yielding cushion disposed wholly within said collar, at the bottom thereof; and a tooth fitted in said collar and having its base disposed directly against and completely concealing said cushion, whereby a portion of the pressure of mastication is taken up by the cushion.

3. An artificial tooth structure comprising a tooth-supporting collar; a yielding cushion made of dough-like particles of flexible rubber disposed wholly within said collar, at the bottom thereof; a tooth fitted in said collar and having its base disposed directly against and completely concealing said cushion, whereby a portion of the pressure of mastication is taken up by the cushion, said collar and tooth constituting companion parts, one of which is provided with an orifice for the passage of the rubber particles therethrough; and a closure disposed in said orifice.

4. An artificial tooth structure comprising a tooth-supporting collar; a yielding cushion made of dough-like particles of flexible rubber disposed wholly within said collar, at the bottom thereof; a tooth fitted in said collar and having its base disposed directly against and completely concealing said cushion, whereby a portion of the pressure of mastication is taken up by the cushion, said tooth being provided with a vertical orifice for the passage of the rubber particles therethrough; and a closure disposed in said orifice.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

ROBERT MORSE WITHYCOMBE.

Witnesses:

CHARLES E. GRAHAM,
HENRY W. CLARKE.