

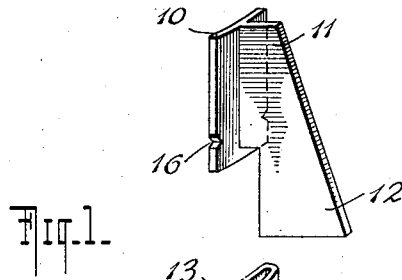
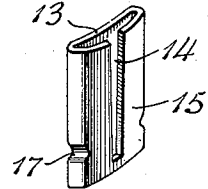
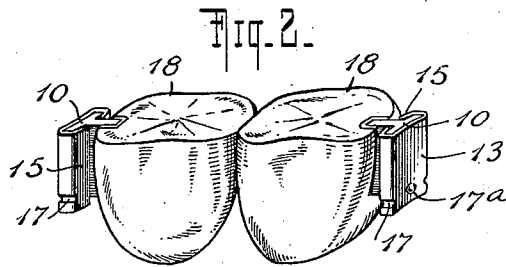
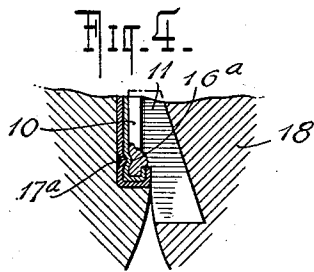
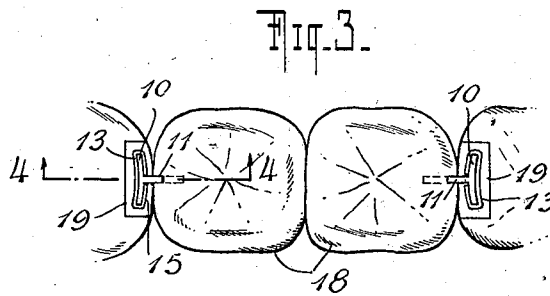
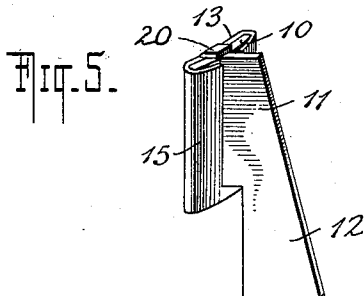
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ANCHORING DEVICE FOR DENTAL BRIDGEWORK

Filed March 26, 1927



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ANCHORING DEVICE FOR DENTAL BRIDGE WORK.

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My invention relates to anchoring devices for dental bridge work and has for its object to provide a novel and improved means for removably anchoring such bridge work to abutment teeth in the mouth. The invention contemplates particularly the provision of an anchoring device of the indicated type in which the possibility of breakage is avoided and whereby a secure connection with the abutment teeth is effected without interfering with the intentional removal of such bridge work when this is desired.

Other objects will appear from the description hereinafter and the features of novelty will be pointed out in the claims.

In the accompanying drawings, which illustrate examples of the invention without defining its limits, Fig. 1 is a perspective view showing the component parts of the anchoring device separated from each other; Fig. 2 is a perspective view showing the novel device in the form of a bridge carrying two teeth; Fig. 3 is a plan view showing the bridge work connected to the abutment teeth by means of the novel device; Fig. 4 is a fragmentary section approximately on the line 4-4 of Fig. 3, and Fig. 5 is a perspective view of another form of the anchoring device.

The anchoring device in all of its forms comprises a rigid member, preferably T-shaped, in combination with a resilient cap mounted upon the cross bar or flange of the rigid member and adapted to extend therewith into a co-operating recessed member fixed in the conventional way in the abutment tooth for establishing a frictional connection between said recessed member and accordingly between the abutment tooth and the anchoring device, whereby the latter is removably connected with said abutment tooth. In the preferred form, the resilient cap is removably fixed upon the rigid member, suitable provision being made for preventing unintentional separation of the cap and said rigid member.

In Figs. 1 to 4 of the drawing, the anchor consists of a T-shaped member comprising a cross bar 10 and an integral web 11 projecting perpendicularly from one face thereof, and in the preferred form, extending beyond the cross bar 10 in the form of a continuing projection 12, as shown in Fig. 1, the purpose of which will be set forth more fully hereinafter. The cross-bar 10 and the web 11 with its continuing projection 12 constitute

respectively a holding member for connecting the dental bridge work with a natural abutment tooth, and an attaching member arranged for attachment to a false tooth. The resilient cap is constructed in the form of a hollow sleeve 13 of tubular form, closed at its one end and open at its opposite end, and slotted lengthwise as indicated at 14 in Fig. 1 for the accommodation of the web 11, and to provide resilient members 15 upon opposite sides of said slot 14, as also shown in Fig. 1; the cap 13 is dimensioned to fit upon the cross bar or flange 10 so as to extend throughout the vertical length thereof and preferably is curved slightly as shown best in Figs. 2 and 3. The arrangement is such that in the fully combined condition of the parts, the members 15 are spaced slightly from the cross-bar 10 as shown in Fig. 2 so as to be capable of developing yielding movements. It will be understood that the cross-sectional form of the sleeve 13 may be varied to properly co-operate with the anchor. Suitable means is provided for maintaining the cap 13 against unintentional removal from the cross bar 10, said means being shown in the illustrated example in the form of notches 16 provided on the opposite vertical edges of the cross bar 10 and inwardly extending projections 17, located upon the corresponding side walls of the cap 13. If desired, a single recess or notch 16^a may be provided in the face of the cross bar 10, in which case a single co-operating projection 17^a may be provided upon the major wall of the cap 13, as shown in Fig. 4; if desired, both of the fastening means illustrated and described may be included, as shown in Fig. 2. In the preferred arrangement, the notches 16 and co-operating projections 17, or the recess 16^a and co-operating projection 17^a, are formed by means of a suitable indenting instrument, after the cap or sleeve 13 has been placed in position upon the cross bar 10; it will of course be understood that this is not absolutely essential and that the notches and projections may be formed in the cross bar and cap independently and before the latter is applied to the cross bar. The false teeth 18 in the number required are mounted upon the bridge in combination with the anchoring device in the customary manner, so that the cross bar 10 is located at a slight distance from the terminal teeth as shown, for instance, in Fig. 2, and a socket 19 of suit-

able shape and dimensions is cemented to each abutment tooth, as indicated in Figs. 3 and 4. The socket 19 is shaped to correspond to the shape of the cross bar 10, but is slightly larger in size, and further, is slotted lengthwise for the accommodation of the web 11 and projection 12.

In practice, the cap 13 is fitted upon the cross bar 10 in the manner shown in Fig. 2, the parts being so dimensioned that when the cap 13 is fully in place, its closed end will be in engagement with one end of the cross bar 10, and the open end of said cap will lie flush with the opposite end of said cross bar. If the projections 17 and/or 17^a and the notches 16 and/or 16^a have been previously formed on the cap 13 and cross bar 10, said projections will engage said notches in this position of the cap 13 and co-operate to fix it in place against unintentional removal from the anchor; otherwise said projections and notches will be formed by indenting the cap 13 and cross bar 10 at the proper points by means of a suitable indenting instrument to produce the same result. The cap 13, when connected with the anchor, retains the inherent resiliency of the members 15, because the latter are spaced from the cross bar 10 and increases the dimensions of the latter to such an extent that the combined cross bar 10 and cap 13 will snugly fit into the socket 19. In this way a resilient frictional connection is established between the socket 19 and the anchor, whereby the latter is detachably fixed in the socket and the bridge work is removably fixed in place. When removal of the bridge work is desired, it is simply necessary to exert a pulling force thereon sufficient to overcome the aforesaid resilient frictional connection and to enable the anchor with the cap in place thereon, to be withdrawn from the socket 19; this is accomplished without breaking the connection between the cap 13 and the cross bar 10.

In the form shown in Fig. 5, the device is essentially the same as in the form first described, and differs therefrom simply in the type of fastening device which is provided for preventing unintentional separation of the cap 13 from the cross bar 10. As shown in Fig. 5, the fastening device in this form comprises a lug 20 integral with the cap 13 and in its normal condition projecting in the direction of the length thereof; in its operative position, this lug 20 is bent transversely over the one end of the cross bar 10 and in combination with the closed end of the cap 13 maintains the latter in place on the anchor. When intentional removal of the cap in this form of the device is desired, it is simply necessary to bend the lug 20 back into an upright position, after which the cap 13 may be easily removed.

The novel device is extremely simple in construction and efficient in operation, and avoids the danger of breakage in those parts which are not easily replaceable, that is to say, the anchor itself is of rigid construction throughout and requires no bending of any of its parts to provide the desired resiliency and also does away with the necessity for soldering or welding. The cap 13 which constitutes an independent resilient device and is separate from the anchor itself is accordingly not subjected to the effects of any heat which may be applied in the process of completing the bridge work and accordingly is not annealed; as a result of this, the inherent resiliency of the cap is not interfered with, and the latter therefore develops at all times a resilient frictional grip of maximum efficiency. Furthermore, the fact that no solder is used positively prevents the structural stability of the device from becoming affected, regardless of how many times the anchor itself may be subjected to a heat treatment in the production of the bridge work. The projection 12 is provided on the web 11 so that if those teeth which are opposed to the false teeth carried by the bridge work are deep, so that it is necessary to cut away a part of the web 11 of the cross bar 10, sufficient material will remain for adequately attaching the bridge work to the false teeth. If, through continued use, the cap 13 in any of its forms should become damaged, said cap may be readily removed from the anchor by simply overcoming the engagement between the projections 17 and notches 16 or between the projection 17^a and the notch 16^a, after which the efficiency of the device may be restored by simply substituting another and perfect cap.

Various changes in the specific form shown and described may be made within the scope of the claims without departing from the spirit of the invention.

I claim:

1. A bridge anchoring device comprising a socket member adapted to be fixed to a natural abutment tooth, a rigid anchor arranged to be fixed to a false tooth and including a vertical member projecting beyond the latter and having a form complementary to said socket member, and a tubular closed-end cap fitted on said vertical member and split lengthwise to form resilient members arranged to extend longitudinally of said vertical member throughout the vertical length thereof and throughout the vertical length of said socket member to effect a resilient connection between said anchor and socket member whereby said false tooth is detachably connected with said natural abutment tooth.

2. A bridge anchoring device comprising a socket member, a rigid T-shaped anchor

- adapted to set into said socket member, an independent, resilient tubular cap removably mounted upon the cross-bar of said anchor and extending longitudinally thereof throughout the vertical length of said cross-bar, said cap being adapted to extend with said anchor into said socket member for establishing a resilient, frictional connection between said member and said anchor whereby the latter is removably fixed in said member, and means comprising a cooperating notch and projection on said cap and anchor whereby removal of said cap from said anchor is resisted.
3. A bridge anchoring device comprising a socket member, a rigid T-shaped anchor adapted to set into said socket member, an independent cap open at one end and closed at its opposite end, said cap being slotted lengthwise to form resilient members and being slidably mounted upon the cross-bar of said anchor and being arranged to extend therewith into said socket member for establishing a resilient, frictional connection between the socket member and said anchor whereby the latter is removably fixed in said socket member, the closed end of said cap constituting an abutment to prevent slidable removal of said cap from said anchor in one direction, and means whereby slidable removal of said cap from said anchor in the other direction is resisted.
4. A bridge anchoring device comprising a socket member, a rigid T-shaped anchor having a portion adapted to seat in said socket member, an independent, resilient cap dimensioned to slidably fit said socket member and said portion and adapted to be located between said socket member and said portion for establishing a resilient, frictional connection between said member and said anchor whereby the latter is removably fixed in said member, the lower end of said cap being closed, and means whereby removal of said cap from said anchor is yieldingly resisted.
- In testimony whereof, I have hereunto set my hand.

EMIL SÓRENSEN.