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CLASP FOR REMOVABLE FALSE TEETH

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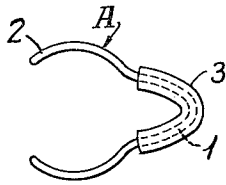


FIG. 1.

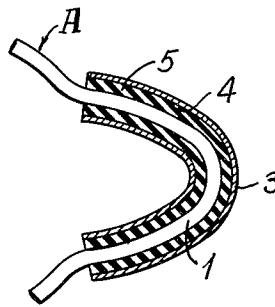


FIG. 3.

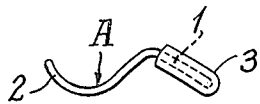


FIG. 2.

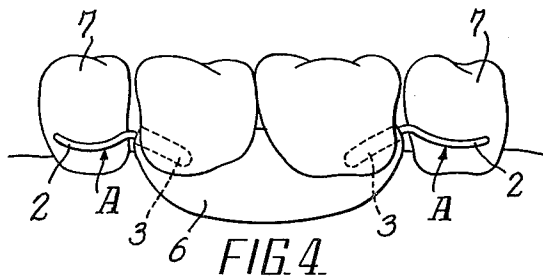


FIG. 4.

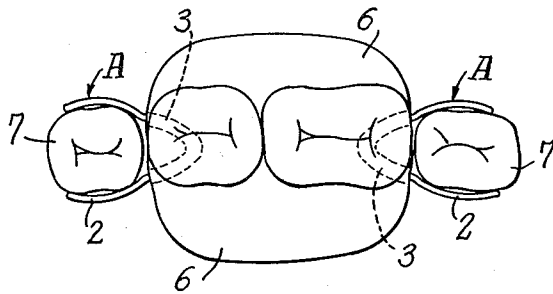


FIG. 5.

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CLASP FOR REMOVABLE FALSE TEETH
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The present invention relates to clasps which can be used for an extended period of time for removable false teeth without loss of spring power.

Hitherto, clasps for false teeth have been formed with a clasping portion on either end thereof for clasping basic supporting teeth, and further formed with a supporting portion connecting together said clasping portions. Since said supporting portion is inserted deep into the false tooth base, the elasticity of clasping portion is greatly restricted, thus preventing said clasping portion from developing a sufficient spring action. Accordingly, on the inserting or withdrawing the false teeth, the clasping portion does not usually open sufficiently under pressure to meet protruding portions of the basic supporting tooth when said clasping portion passes over said protruded portion. As a result, insertion or removal of false teeth cannot be effected smoothly, and consequently no close contact can be provided between the false and the basic supporting teeth. Moreover, when the retaining force of the clasping portion is insufficient, the loosening and even the eventual loss of the basic supporting teeth are likely to occur. As a result, an improper chewing pressure occurs on the basic supporting tooth, resulting in a torsional strain due to lever action of such pressure. Therefore, disadvantages result which make the usual dentist's clasp undesirable. Such clasps are easily damaged due to strains upon them, and do not possess sufficient durability.

In order to remove these disadvantages, the clasp according to the invention is formed of an alloy wire having high strength and toughness which is bent into approximately V-shape to form a supporting wire portion. Both ends of said wire are symmetrically made arcuate to form a clasping portion for clasping a basic supporting tooth. The V-shaped portion of the supporting wire is covered with a wrapping tube made of an alloy having high toughness and also formed in V-shape, and is of a diameter to leave a clearance between the inner surface of said wrapping tube and the outer surface of the supporting wire. This clearance is filled with a soft plastic substance to afford a resilient connection between the wire and the tube. The tube is then fixed within the false tooth base. According to the invention, therefore, the supporting wire portion is not stationary, but movable with respect to the false tooth base. The clasping portion is advantageously capable of retaining a substantially uniform pressure against the false tooth base.

The invention will now be explained in further detail with reference to the accompanying drawings, in which, FIG. 1 is a plan view of the clasp according to the present invention;

FIG. 2 is a front view thereof;

FIG. 3 is a horizontal sectional view of FIG. 1 on an enlarged scale;

FIG. 4 is a front view of the clasp according to this invention, as it is used; and

FIG. 5 is a plan view thereof.

Referring to the accompanying drawings, there is shown a wire A, which is made of an alloy. The wire A has a supporting wire portion 1 formed in approximately V-shape, and also has clasping portions 2 at the ends of the V-shaped portion 1, symmetrically bent to engage a basic supporting tooth 7.

A wrapping tube 3 is made of an alloy similar to that of the wire A, covering said supporting wire portion 1

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and forming a V-shape configuration like that of the wire portion 1. Thus, the wrapping tube 3 surrounds the V-shaped supporting portion 1 of the wire A being at all points coaxial therewith. The wrapping tube 3 has a slightly larger inner diameter than that of the supporting wire portion 1, leaving a clearance 4 between the supporting wire portion 1 and the inner wall surface of the wrapping tube 3. A soft plastic body 5 fills the clearance 4. The wrapping tube 3 is embedded in a false tooth base 6, and is secured thereto.

Thus, it is apparent from the foregoing description, that, since the outer surface of the wrapping tube 3 is embedded in the false tooth base 6, the clasping portion 2 of the wire A has limited resilient movability with respect to the false tooth base 6 together with the supporting wire portion 1. Because, by virtue of the soft plastic filler 5 in the clearance 4, a cushioning effect is obtained which gives mobile properties to the wire A. Thus the supporting wire portion 1 becomes somewhat movable with respect to the false tooth base 6, even if the wrapping tube 3 is embedded in the false tooth base 6 and secured thereto, in a local false tooth construction. According to the invention, the following advantages are attainable:

(1) A satisfactory balance in the pressure exerted on a supporting tooth 7 and other portions can be obtained; a yielding retaining action can be developed similar to the resilient action of parts of the human body, and a like movement of the denture can be induced; and the supporting force can be stabilized without imparting any undue pressure on the supporting tooth.

(2) The supporting wire portion 1 attains a cushioned behavior by virtue of the soft plastic filler 5 filling the space 4 between the wire 1 and the wrapping tube 3; and the clasping portion 2 makes possible a free opening of the portion 1 under pressure and free clipping action, about the supporting teeth thus making possible a smooth and accurate fitting of the four ends of the clasping portions 2 about the contractions of the two supporting teeth 7. See FIGS. 4 and 5. Consequently the clasping portions 2 grasp the narrowest portion of the neck of the supporting teeth, hold a configuratory balance and obtain stability of the teeth.

(3) Undue stress occurs seldom on the wire A, because the supporting wire portion 1 has no fixed points against the false tooth base 6. Therefore, finer wires can be utilized, because the fatigue, deformation, rupture, etc. are all low. As a result, it becomes possible to develop a spring action effectively. The feeling of having a alien substance in the mouth, due to the clasp used, is very faint. Also the esthetic sense in connection with having a foreign body in the mouth can also be kept substantially high. Further, a whole supporting device can be made simple and highly durable.

(4) A uniform cushioning layer is formed over each outer face of the supporting wire 1 and also the inner wall of wrapping tube 3 respectively, by the soft plastic filler 5 filling the clearance 4 within the wrapping tube 3. The operation of clasping portion 2 is performed more uniformly and more smoothly by the cushioning layer to obtain a resilient adjustment. Thus the supporting teeth 7 may always be operated independently in their natural movement, without being subjected to the effect by impact, excess pressure, torsional stress, or otherwise imparted unexpectedly to the supporting teeth 7 by the false teeth, thus making it possible to chew with the supporting teeth without loosening them.

(5) Foreign matter is prevented by soft plastic filler 5 from entering into the clearance 4. Thus, the clasp is advantageous from the hygienic point of view, and at the same time the rust proofing is effected, as well as prevention of breakage of the wrapping tube 3 are attained for an extended period of time.

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 What I claim is:

1. A clasp for attaching removable false teeth to a basic supporting tooth, said clasp comprising a wire having a V-shaped supporting portion and clasping portions at the ends of the V-shaped portion symmetrically bent to engage between them a basic supporting tooth, said V-shaped portion and said clasping portion being inclined toward each other at an obtuse angle, a wrapping tube surrounding the V-shaped supporting portion of said wire at all points coaxial therewith, said wrapping tube having a slightly larger inner diameter than that of said wire leaving a clearance space of constant dimension between the supporting portion of said wire and the inner wall surface of said wrapping tube, and a soft plastic body filling the space between said wrapping tube and the supporting portion of said wire to provide a cushioning effect between said wire and said wrapping tube, said wrapping tube being adapted to be embedded in a false tooth base and fixed thereto, whereby the clasping portions of said wire have limited resilient movability with respect to the false tooth base.

2. In a device for attaching one or more false teeth between two spaced basic supporting teeth, the combination comprising a false tooth base to which such teeth are attached, two wires each having a V-shaped supporting portion and clasping portions at the ends of the V-

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 shaped portion symmetrically bent to engage between them a basic supporting tooth, each V-shaped portion and its corresponding clasping portions being inclined with respect to each other and defining an obtuse angle therebetween, a wrapping tube surrounding the V-shaped portion of each of said wires at all points coaxial therewith, each of said wrapping tubes having a slightly larger diameter than that of the V-shaped portion which it surrounds leaving a clearance space of constant dimension between the supporting portion of the corresponding wire and the inner wall surface of said wrapping tube, and a soft plastic body filling the space between each wrapping tube and the supporting portion of the corresponding wire to provide a cushioning effect between each of said wires and the corresponding wrapping tube, said wrapping tubes being substantially oppositely embedded in and fixed to said false tooth base with the clasping portions of said wire extending outwardly therefrom, whereby the clasping portions, of each of said wires are adapted to engage one of said spaced basic supporting teeth and said false tooth base has limited resilient mobility with respect to the clasps engaging the spaced basic supporting teeth.

References Cited in the file of this patent

UNITED STATES PATENTS

2,483,353 Seveilhac et al. ----- Sept. 27, 1949