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3,530,584

DENTAL PLUG

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Fig.1

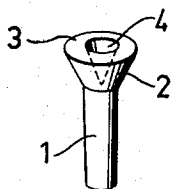


Fig.2

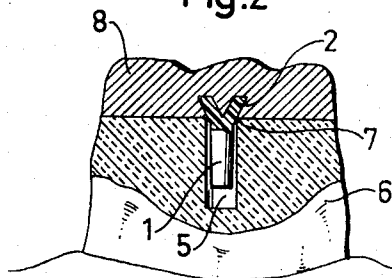


Fig.3

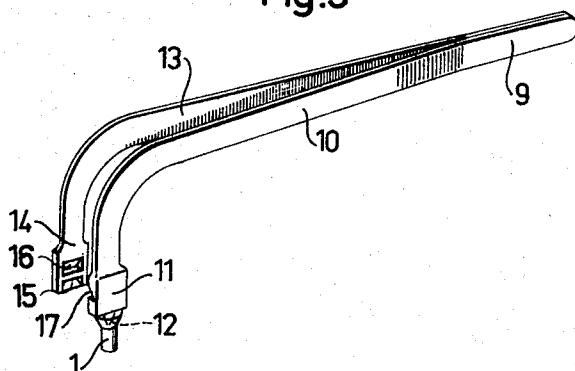


Fig.4

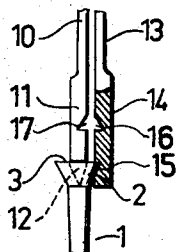
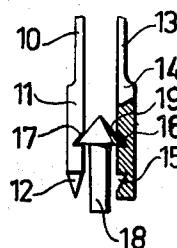


Fig.5



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1

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DENTAL PLUG

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6,992/66

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2 Claims

ABSTRACT OF THE DISCLOSURE

A device for anchoring in position a temporary dental fixture, such as a crown, bridge or the like, so that when the temporary fixture is removed, a hole previously drilled in the tooth to receive a permanent crown or the like is preserved in its original condition. The device comprises a plug-like member having a substantially cylindrical peg portion fixedly connected at one end thereof to a head portion, which is conical and diverges outwardly toward the free end of the plug-like member, which is preferably constructed of a resilient material.

When drilling holes in teeth for the purpose of mounting gold crowns, bridges, etc. it is common practice to fill the holes made in the teeth with some suitable material whilst waiting for the gold crowns or bridges to be made in the dental laboratory, to prevent the patient from suffering during the waiting period and to prevent pieces of food stuff, etc. from entering the drilled holes. When the gold crown or bridge is ready to be mounted it is necessary to remove the provisional filling; an operation which is often effected by drilling the hole clean and blowing out all possible remaining impurities. Such work is troublesome and may damage the accurately drilled holes which have been previously disposed for the location of anchoring pins.

The present invention is intended to remove these disadvantages and to provide a means which can easily be mounted in said drilled holes and which is pressed into sealing abutment with the edges of the hole, and which also provides an effective anchoring of a provisional dental filling in the drilled hole.

The plug means according to the present invention is mainly characterized by a preferably slightly conical peg-like portion which at one end transforms into a more pronounced, diverging conical portion. The last mentioned conical portion is preferably hollow. The plug means is suitably made from an elastic or resilient material, such as a plastic material or the like.

The invention is also concerned with a device for mounting said means in a drilled hole or the like and is mainly characterized by a pincer-like device, the ends of the legs of which are provided with mutually opposed recesses, holes, etc., wherein at least the one leg being provided with a pointed portion which fits into the cavity of the conical portion.

The present invention will be more closely described with reference to the accompanying drawing which shows an embodiment of the invention. FIG. 1 shows a plug means according to the invention seen in perspective. FIG. 2 shows the said plug means inserted in a tooth in which holes have been drilled. FIG. 3 shows a device for mounting the plug means according to the invention. FIG. 4 shows said device supporting the plug means according to the invention in one position and FIG. 5 shows the same supporting an anchoring pin.

The means shown in FIG. 1 comprises a preferably slightly conical peg-like portion 1 which transforms at one end into a more pronounced, diverging conical portion 2 having a substantially flat top surface 3. The last

2

mentioned conical portion is hollow, the cavity 4 having a conical form corresponding to the outer conical configuration of said portion 2. The plug means is suitably made from a plastic material.

The peg-like portion 1 of the means is intended to be inserted into a hole 5 drilled in a tooth 6 (see FIG. 2); the depth of the hole naturally being greater than the length of the peg. When the conical portion 2 has reached the upper edge 7 of the hole 5 the means can be pressed further into the hole, thus providing a sealing abutment between the jacket surface of the conical portion 2 and the upper edge 7 of the hole. Owing to the fact that the conical portion is hollow a certain yielding, spring action is obtained which contributes towards retaining the means in the hole. When the holes (only one hole is shown in FIG. 2) are fitted with the plug means according to the invention the area over which the holes extend is covered with a suitable material 8 so that the conical portions, which extend above the surface of the tooth, become grouted in said material, which is allowed to solidify and form a shield over the area in which the holes are disposed.

When the solidified portion of the protective material 8 is to be removed it is only necessary to pry the said material from the tooth, whereupon the plug means embedded in the mass are simultaneously removed from the teeth and uncover the holes, which are thus left as clean and unscathed as they were before being drilled. The protective mass, together with the means according to the invention embedded therein, can then be thrown away and work commenced on the tooth.

To facilitate the mounting and possible removal of the above mentioned plug means it is convenient to use a device more closely illustrated in FIG. 3. The device comprises a pincer-like arrangement 9, the one leg 10 of which is provided at its end 11 with a pointed portion 12 adapted to fit the cavity 4 in the conical portion 2 of the aforescribed means. The other leg 13 is provided at its outer end 14 with a recess 15. Owing to the co-operation between the recess 15 and the pointed portion 12 a plug means 1, 2 can be gripped and held between the ends 11, 14 of the legs, as can be seen from FIG. 4, when the pointed portion 12 has been inserted into the cavity 4; the said recess 15 having a shape which substantially conforms to the outer configuration of the conical portion 2.

The outer ends 11, 14 of the legs 10, 13 are conveniently provided with facing recesses 16, 17, primarily intended to cooperate with the upper conical portion of another type of pin 18 used in dental work; the said pin being described more closely in my U.S. patent application Ser. No. 620,992, filed Mar. 6, 1967, now Pat. No. 3,473,223. FIG. 5 illustrates how such a pin is gripped between the legs of the device whilst cooperating with the recesses 16, 17, which are shaped substantially in conformity with the cap-like upper conical portion of the pin 18. Naturally, all recesses 15, 16, 17 may be formed so that they pass transversely through the outer portions 11, 14 and thus form through-going holes, which in certain cases may be preferred from a manufacturing aspect.

Naturally it is not necessary within the scope of the invention for the pronounced conical portion 2 in the means to be hollow, although this is preferred. Neither is it necessary that the said conical portion presents the same conical configuration along the total jacket surface, but may also be varied so that it is only slightly conical in the close proximity of the peg-like portion and, for instance, increases exponentially. Naturally, other embodiments may also be conceived wherein the strongly pronounced conical portion is provided with transversal holes and/or various projecting means for providing a better

3

anchorage in the protective mass applied around the drilled region of the tooth, etc.

It is also possible to design a tong-like means having leg ends as described in conjunction with the pincer device 9 to fulfil the intended purpose.

What is claimed is:

1. A device for anchoring the material of a temporary dental fixture, such as a temporary crown, bridge or the like, in position on a tooth so that when said temporary fixture is removed, a hole previously drilled in the tooth to receive a permanent fixture is preserved in its original condition, said device comprising:

a plug-like member having a substantially cylindrical and rod-like peg portion receivable in said hole and a substantially conical head portion fixedly connected to the peg portion at one end thereof, said head portion diverging away from said peg portion thereof for seating against the part of said tooth defining the outer end of said hole when said peg portion is received within said hole, at least a part of said conical head portion extending beyond and being larger than said outer end of the hole formed in the tooth, so that when said material of said temporary fixture is in surrounding engagement with said part of said head portion, said part is embedded in and is secured to said temporary fixture, said head portion being constructed of an elastic material so that said head portion is deformed radially inwardly upon being

4

forced into said hole to tightly seal the outer end of said hole, said head portion having an inwardly extending recess formed therein to facilitate deformation of said head portion upon insertion into said hole and to receive material of said temporary fixture therein, said inwardly extending recess being defined by an annular wall which is resiliently deformable for expansion into tight sealing contact with said part of said tooth in response to insertion of said material into said recess.

2. A device according to claim 1, wherein the recess formed in said head portion is conical and diverges away from said peg portion.

References Cited

UNITED STATES PATENTS

2,400,722	5/1946	Swan	215—47 XR
608,984	8/1898	Hanson	32—51
1,335,413	3/1920	Abbott	32—15
1,721,334	7/1929	Dillman	32—2
2,896,629	7/1959	Warr	215—47 XR

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32—40