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E. SEABROOK

1,664,433

DENTAL DEVICE

Filed Dec. 8, 1925

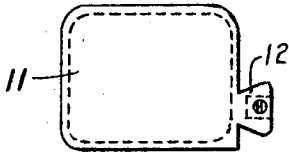


Fig. I

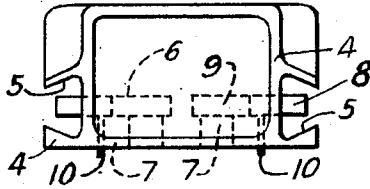


Fig. II

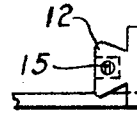


Fig. III

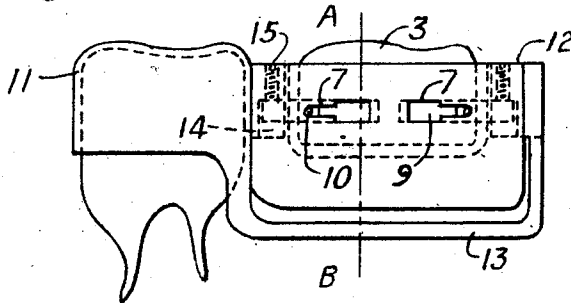


Fig. IV

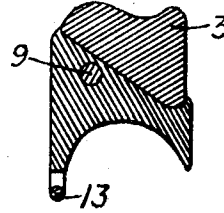


Fig. V

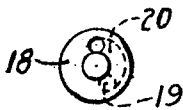


Fig. VI

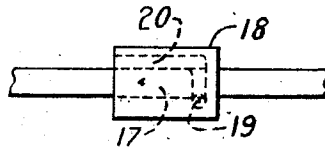


Fig. VII

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DENTAL DEVICE.

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This invention relates to improvements in dental appliances. More particularly, it is of a class of devices for securely holding one or more artificial teeth in the mouth of a person so as to protect said tooth or teeth from being displaced, as in the act of masticating, and to enable the user readily and quickly to remove the tooth-holding device from the mouth and to reinsert said device in place in the mouth, as, for example, when desired for the purpose of cleaning the device. One of the objects of my invention is to provide a dental device for so restoring one or more teeth that the abutment or abutments shall undergo no stress when in use.

It is an object of this invention to simplify the art of restoring one or more extracted teeth by minimizing the extensiveness of the elements auxiliary to the artificial tooth or teeth that must be kept in the mouth so long as an artificial tooth is in use. As is well known in the art, it is often necessary that, for example, an upper last artificial molar can be anchored in the mouth of the user only by means of a denture extended across to the opposite side of the mouth. One of the objects of my invention is, in such cases, to obviate the use of said denture and, instead, to anchor the artificial tooth or group of teeth to one or two abutments adjacent to the tooth or teeth to be restored. These and other objects are shown in this specification, which is illustrated by the accompanying drawings, in which

Fig. I is a plan of the abutment. Fig. II is a plan of the saddle. Fig. III is a plan of the posterior portion of the rod. Fig. IV is a side elevation of one tooth restored. Fig. V is a vertical section of the restored tooth on the line AB. Fig. VI is an end elevation, and Fig. VII a side elevation of a lock split rod.

It may be observed that said drawings represent the objects magnified, thereby illustrating the smaller parts more clearly than if drawn at natural size. It may be further observed that there is no essential difference between my invention as applied to an upper and to a lower tooth or teeth to be restored. Accordingly, my drawings and the subsequent part of this specification show my invention illustrated and described in the case of one lower tooth to be restored. It will appear that, in this description, one

abutment is used and said abutment is anterior to the tooth to be restored.

According to my invention, I provide a saddle 2. Said saddle is of the kind that is known in the art as a tissue bearing saddle. Saddle 2 may consist of any of the materials usual to a saddle, such as gold, platinum, aluminium, or rubber. I permanently fasten an artificial tooth 3 at any convenient point, as at the central part, of the saddle. At predetermined points of the saddle, preferably one anterior and the other posterior to the artificial tooth 3, I provide upwardly directed projections 4. Each projection includes a mortise 5, and I preferably make the respective mortises directed open to the corresponding ends of the saddle, as may be noted in Fig. II.

I provide a tenon, described below, for each of said mortises; and a mortise and cooperating tenon, as herein described, constitute what is known in the art as an attachment. As will appear, I so make and adjust each said mortise and tenon as to cause said attachment to allow lateral and vertical movement of the saddle.

In the form of my saddle illustrated in the drawings, I provide, for each mortise, a sleeve 6, preferably a cylindrical hole. Each sleeve, beginning at the inner end of the corresponding mortise, extends substantially horizontally towards each other. In accordance with a preferred form of my invention, I provide a substantially horizontal slot 7 through the lingual side of the saddle for each sleeve 6, the inner side of each slot terminating in the side of and, therefore, communicating with, the corresponding sleeve.

Into each sleeve 6, I insert a plunger 8 of any suitable material, for example gold or platinum. I provide means for holding the plunger loosely and resiliently in the sleeve. For that purpose I provide, in this illustrating form of my invention, a cushion 9 of any suitable material, such as elastic soft rubber, placed in the inner end of the sleeve.

Each plunger is provided with a stud 10 adapted slidably to project through slot 7. It may be observed that, in each sleeve, cushion 9 elastically keeps the plunger outwardly, thus causing stud 10 to press against the outward end of the slot. This position of the plunger is herein termed the locking

position. In said position, the free end of the plunger suitably protrudes beyond the outer end of the sleeve, as shown in Fig. II. Obviously, by pressing on stud 10, thereby
 5 pressing the plunger on the outer end of cushion 9, I cause the cushion to be compressed and the plunger, moving backwardly, assumes a position entirely within the sleeve; and this backward position of the
 10 plunger is herein called the unlocking position.

For each abutment I provide a crown, band, or inlay, which may consist of gold or platinum. Accordingly, in this illustrating
 15 application of my invention I provide a crown 11. Said crown, also a rod, described below, contains a tenon 12, which is adapted to be received by the above mentioned mortise.

20 I provide a rod 13, which is permanently fastened to crown 11 in any convenient manner, as, for instance, by soldering. Rod 13 may be integral with crown 11. The free end of rod 13 is preferably bent substantially at a right angle to the central part of
 25 the rod.

It may be observed that each tenon 12 contains a socket 14. The sockets are designed to receive, at times, the outer ends of the co-
 30 operating plungers, thereby locking the saddle to the abutment member and the rod. It will appear later, when vertical motion will be considered, that socket 14 may conveniently assume a U shape open downward.

35 In this application of my invention, in which the plungers are held by the saddle, I provide, for each tenon, a screw 15. Said screw is one of my forms of my adjusting member. It is well known in the art that,
 40 for example on account of resorption, the saddle should be susceptible to slight vertical motion. As shown in Fig. IV, the screw, at its lower end, presses downwardly on the free end of plunger 8. A dentist, by causing
 45 screw 15 slightly to advance or recede, may cause the saddle to press more or less on the patient's gum.

Referring to Fig. II, it may be observed that plungers 8 normally assume the locking
 50 position due to the elasticity of cushion 9. By pushing the plungers to the unlocking position, as above described, the user may cause the mortises to be unobstructed. The user of my invention, holding the plungers
 55 to the unlocking position, may properly put the saddle into position on his gum by sliding the mortises downwardly around the tenons. Once the saddle is thus placed on the gum and the user next releases studs 10,
 60 the plungers, immediately assuming the locking position, lock the saddle on the user's gum.

Assume artificial tooth 3 to be in place, as shown in Fig. IV. By pressing studs 10
 65 towards each other, the user will cause the

mortises to be unobstructed from the plungers. Thus the user becomes free to slide the mortises upwardly around the tenons and remove the tooth-containing saddle from his mouth.

An alternative form of my rod differs with the foregoing form at any convenient point between the rod tenon and the juncture between the rod and the crown; and I call this modified rod, presently to be described, my
 70 lock split rod.

Referring to Figs. VI and VII, it may be observed that my lock split rod contains a plug 17 and a receptacle 18, the plug being
 80 here shown inserted in the receptacle. The plug may be of any desired cross section and I here show it to be of circular section. The calibre of the receptacle is such as to receive, with but little play, the plug. It may be
 85 noted that, preferably at the free end of the plug, I provide a key 19. Correspondingly I provide a key way 20, internal to the receptacle. Said key way extends, from the outer
 90 end of the receptacle, longitudinally to or near the inner end of the cylinder and, at or near the inner end of the receptacle, continues annularly, penetrating the internal
 cylinder through any convenient arc.

It should be noted that Figs. VI and VII show plug 17 locked, by its key 19, in receptacle 18. Evidently one could not remove
 95 the plug from the receptacle by pulling the two longitudinally; for, as shown in Fig. VI, key 19, being in key way 20, is angularly removed from the longitudinal part of the
 100 key way. By first angularly moving the receptacle sufficiently and then pulling it longitudinally one may withdraw the receptacle from the plug.

In Figs. VI and VII the plug and receptacle are shown in the relative angular position they assume when artificial tooth 3,
 105 Fig. IV is in use. Simultaneously, as previously shown, plungers 8 upwardly lock saddle 2 to tenons 12, and mortises 5 lock
 110 said tenons laterally. Thus plug 17, Figs. VI and VII is held immovable in receptacle 18. When, however, the saddle is removed, in the foregoing manner, from the mouth of the user, the tenons are unrestrained from
 115 the mortises. In consequence, the user, by turning receptacle 18, as above mentioned, is free to remove the receptacle from the mouth.

In this specification and the claims the
 120 terms, mortise and tenon mean a cavity, groove, or opening and a mechanical element adapted to be received and grasped by the mortise. From what precedes, it is obvious that the mortise and tenon are reciprocal
 125 elements of the foregoing attachment. The expression, abutment member means a crown, inlay, or band, devices that are well known in the art.

Having described my invention in the
 130

foregoing specification and further illustrated said invention in the accompanying drawings, I claim:

1. The combination of a denture provided
5 with a mortise and with a slot, a plunger
carried by said denture and slidable relatively thereto in order to be thrust into said
mortise and withdrawn therefrom, a cushion
carried by said denture and engaging said
10 plunger in order to normally hold said
plunger in the position into which it is thus
thrust into said mortise, and a second denture
provided with a tenon for detachably
fitting into said mortise in order to hold the
15 two dentures together, said tenon being provided
with an opening for receiving said
plunger as said plunger is thrust into said
mortise while said tenon is within said
mortise.
20 2. The combination of a denture provided
with a mortise, a locking member carried by
said denture and movable relatively thereto,
in order to be moved partially into said mortise
and withdrawn therefrom, a second denture
25 provided with a tenon for fitting de-

tachably into said mortise, said tenon having an opening for receiving said locking member in order to lock said tenon within said mortise, and adjusting mechanism carried by said tenon and engaging said locking member, said adjusting mechanism being controllable by the operator for shifting the position of the dentures relatively to each other.

3. The combination of a denture provided 35
with a mortise, a plunger carried by said denture and movable partially into said mortise, a second denture provided with a tenon for fitting detachably into said mortise, said tenon having an opening for receiving a portion of said plunger when said plunger is 40
moved partially into said mortise while said tenon occupies said mortise, and an adjusting screw carried by said tenon and positioned to engage said plunger while said 45
plunger extends into said opening, in order to adjust the position of said dentures relatively to each other.

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