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2,644,231

DENTURE RETAINER

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Fig. 1.

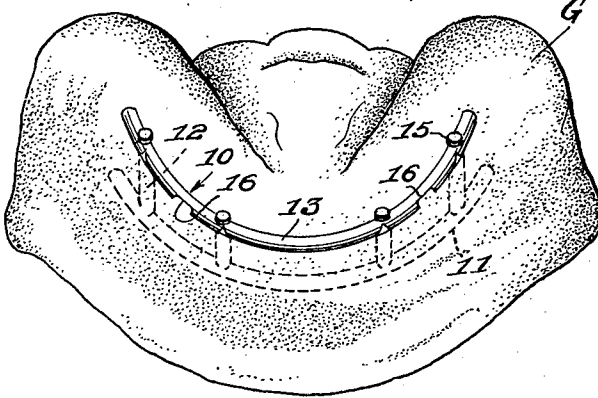


Fig. 4.

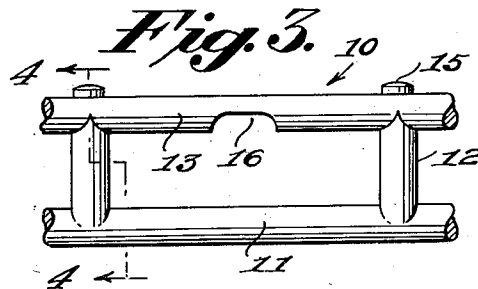
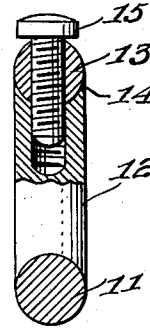


Fig. 2.

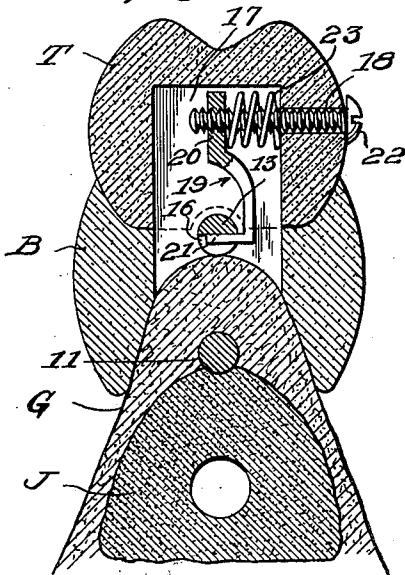
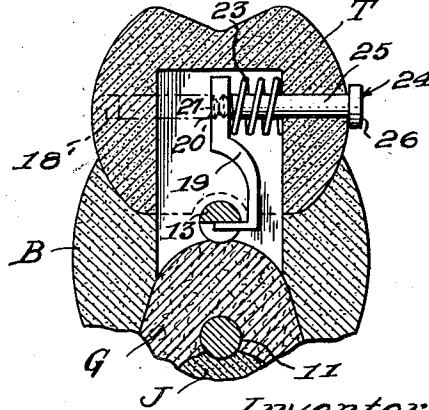


Fig. 5.



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DENTURE RETAINER

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7 Claims. (Cl. 32-2)

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This invention relates to apparatus for retaining artificial dentures in place.

The invention is more particularly concerned with an improved structure adapted for mounting within a chamber in an artificial denture or tooth and which cooperates with a bar supported on the exposed surface of a gum in the general manner as disclosed in my co-pending application Serial No. 68,949, filed January 3, 1949, now Patent No. 2,599,044, June 3, 1952, and of which this application is a continuation-in-part.

In said patent are disclosed several embodiments of the generic invention and which generally comprise an arcuate bar disposed on the exposed ridge of a gum together with means for retaining such bar in fixed position on the gum.

The artificial denture is provided with a clamp structure disposed within a chamber therein and which is automatically engageable with the bar whereby to removably retain the denture in place, the removability being effected by manually operable means on the clamp and which is accessible externally of the chamber.

A primary object of this invention is to provide artificial denture retaining means which is of simplified construction while being fully as efficient as that disclosed in said patent.

A further object of the invention is to provide artificial denture retaining means which is so constructed as to be readily removable from a wax denture preliminary to the processing thereof.

Other objects and advantages of the invention will become apparent in the course of the following detailed description, taken in connection with the accompanying drawing, wherein:

Figure 1 is a perspective view showing a lower jaw with the improved denture retaining bar operatively mounted thereon.

Figure 2 is a transverse sectional view of the denture and a portion of the jaw, and showing in particular the operative relation between the improved clamp supported within the denture and the bar supported on the jaw.

Figure 3 is an enlarged fragmental elevational view of the improved bar structure.

Figure 4 is an enlarged vertical sectional view in the plane of line 4-4 of Figure 3.

Figure 5 is a transverse sectional view similar to Figure 2 but showing a permanent support for the bar engageable clamp jaw.

Referring now in detail to the drawing, and referring first to Figs. 1, 3 and 4, the preferred

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improved structure for assembly within the jaw and for cooperating with the clamp disposed within the denture, is indicated in its entirety at 10. The retaining means 10 comprises a lower arcuate bar 11, from which project upwardly a plurality of posts or supports 12 and on the upper ends of which is removably supported the clamp jaw engageable bar 13.

While the bars 11 and 13 may be formed integrally as indicated in Figure 9 of said patent, it has been found more convenient in assembly to detachably support the bar 13.

As indicated in Figure 1, the bar 11 and posts 12 are embedded within the gum G in the manner set forth in said patent. After the positioning of bar 11 and posts 12, the retaining bar 13 is positioned upon the upper ends of the posts 12 and which may be effected by any devised means. Preferably, and as shown, the bar 13 rests in semi-circular seats 14 in the upper ends of posts 12 and screws 15 enter axially aligned tapped openings in the posts 12 and bar 13 as is clearly indicated in Figure 4.

Obviously, the posts may have reduced threaded extensions projecting through openings in bar 13 and upon such extensions securing nuts may be placed.

The assembly 10 is positioned with the retaining bar 13 firmly resting on the crown of the gum as is more clearly indicated in Figures 2 and 5 and the retaining bar 13 is provided with a plurality of clamp jaw receivable notches 16 in its lower side as is clearly shown in Figures 1, 2, 3 and 5.

Referring now to Figure 2, it will be seen that the artificial denture or tooth T as usual comprises a base B which is engaged with the gum G within which is the jaw bone J. At this point it is to be noted that the gum embedded bar 11 is seated on the jaw bone J.

The denture of tooth T is provided with a chamber 17 which opens through the base B as shown and an aperture 18 is provided on the inner side of the tooth T and which opens into the chamber 17.

A clamp structure 19 is provided for removably locking the denture to the bar 13 and such structure includes a clamp jaw having a vertical base portion 20 and a horizontally disposed end portion 21 for reception within a notch 16 in the retaining bar 13.

The clamp structure further includes retaining and releasing means and which for use with a wax denture comprises a screw 22 loosely extended through aperture 18 for axial movement

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thereon and whose head is externally disposed for grasping thereof by the fingers or a tool to retract the screw axially outward. The inner end of the screw is threaded into an aperture in base portion 20.

A coil spring 23 is disposed between the clamp jaw base portion 20 and the wall of chamber 17 of the inner end of aperture 18 and in encircling relation to the screw 22.

The spring 23 thus acts to normally urge the end 21 of the clamp jaw into a notch 16 and thereby lock the denture to the jaw supported bar 13.

When it is desired to remove the denture the head of the screw is grasped and the screw pulled outwardly against the action of spring 23 whereupon the clamp jaw end 21 is withdrawn from the notch 16.

It is desirable with wax dentures which are yet to be processed that the clamp structure be removable and accordingly provision is made for such in the structure just described since the screw may be laterally withdrawn from the jaw 20-21 whereupon the jaw and spring can be removed through the open end of chamber 17.

The clamp structure shown in Figure 5 is adapted as a permanent installation for finished or processed dentures and wherein the screw 22 of Figure 2 is replaced by a pin 24 whose shank 25 is slidably disposed in aperture 18 and which may have a permanent connection with the jaw but is shown as having a threaded end to expedite assembly.

While in the structure of Figure 2 as well as Figure 5 the aperture 18 extends through only one wall of chamber 17 and which may well be sufficient, the opposite wall may be recessed from the inside in axial alignment with aperture 18 and the pin 24 may have an extension receivable in the recess for better guidance thereof.

From the above, it should be appreciated that the present invention provides relatively simple structure for firmly retaining dentures in position and that such structure includes readily releasable means whereby the tooth or denture may be readily removed.

In the instant application, the denture retainer is illustrated as being associated with the lower jaw. However, it is to be understood that the denture retainer can be equally used in connection with the upper jaw.

While I have disclosed a preferred specific embodiment of my invention, such as to be considered as illustrative only, and not restrictive, the scope of the invention being defined in the sub-joined claims.

What I claim and desire to secure by U. S. Letters Patent is:

1. The combination with a denture, of means for retaining the denture in firm engagement with a gum comprising an arcuate member to be positioned within the gum, an arcuate bar for resting upon the gum and connected to the arcuate member, and clamp means supported in the denture in a position to releasably engage the arcuate bar.

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2. The structure according to claim 1, wherein the connecting means between the arcuate member and the arcuate bar comprises posts extending upwardly from the arcuate member, the arcuate bar resting on the upper ends of the posts, and fastening elements extending through the arcuate bar and into the upper ends of the respective posts.

3. The structure according to claim 1, wherein the arcuate bar is provided with notches for the reception of the clamp means carried by the denture.

4. The combination with a denture having a chamber therein opening into the bottom face thereof, of means for retaining the denture in firm engagement with a gum, comprising an arcuate bar for resting on the crown portion of the gum and to be rigidly secured thereon, said arcuate bar having a transverse notch, and clamp means supported in the denture comprising a member disposed vertically in the chamber and capable of lateral sliding movement, the lower end of the member being disposed laterally for removable engagement within the notch, and an operating element for the member extending through one side wall of the denture.

5. The denture according to claim 4, wherein the operating element comprises a slidable pin having its inner end directly connected to the upper end of the vertical member in the chamber of the denture.

6. The structure according to claim 5, wherein a coil spring encircles the pin and is disposed between the upper end of the vertical member and the wall of the chamber for normally urging the laterally disposed lower end of the vertical member into the notch in the arcuate bar.

7. The combination with a denture, of means for retaining the denture in firm engagement with a gum, comprising an arcuate bar to be secured to and for resting on the crown of the gum, said bar having a notch in its under side, and clamp means supported in the denture in a position to releasably engage the arcuate bar, said clamp means comprising a jaw having a free end slidably engageable in said notch, an elongated member slidably supported in one side wall of the denture in a line parallel to the plane of the arcuate bar, the inner end of the elongated member being connected to said jaw, and spring means within the denture and engaged with the jaw for normally urging the free end thereof into said notch.

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