

April 3, 1928.

1,665,154

R. M. WITHYCOMBE

SUPPORT FOR YIELDABLE DENTURES

Filed Dec. 22, 1924

FIG. 3

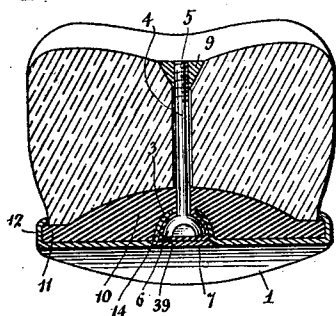


FIG. 4

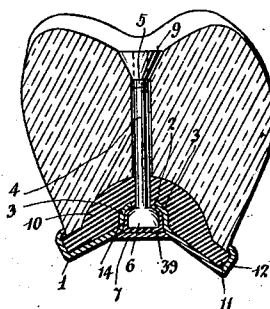


FIG. 5

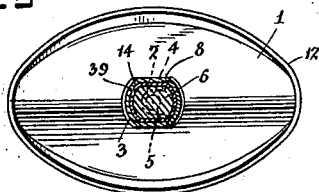


FIG. 1

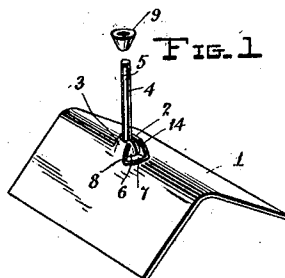


FIG. 6

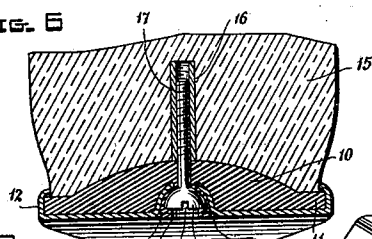


FIG. 8

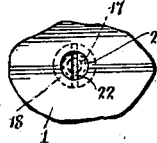


FIG. 7

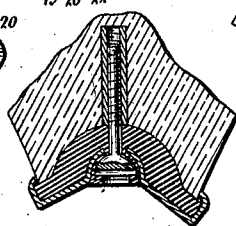
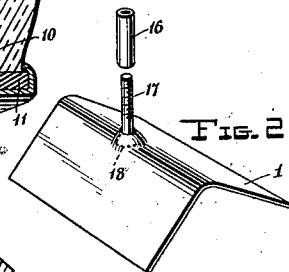


FIG. 2



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Patented Apr. 3, 1928.

1,665,154

UNITED STATES PATENT OFFICE.

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SUPPORT FOR YIELDABLE DENTURES.

Application filed December 22, 1924. Serial No. 757,559.

This invention relates to supports for yieldable dentures, and while primarily an improvement of certain features of the invention disclosed and claimed in my pending application #747,926; filed Nov. 5, 1924, it has a broad field of uses some of which are disclosed or suggested in the present specification.

One of the objects of the invention is the provision of an approved artificial tooth and the construction of a combined relatively swivelled post and backing, for use in conjunction therewith.

Other objects of the invention will reveal themselves as the following description of certain preferred embodiments thereof proceeds.

In the drawings:—

Figure 1 is a perspective view of one form of the combined backing and swivelled post, used with my approved resilient tooth.

Figure 2 is a similar view showing another modification.

Figures 3 and 4 are respectively cross sections taken at right angles showing a resilient tooth and embodying that form of the invention shown in Figure 1.

Figure 5 is a plan view from beneath of the structure shown in Figure 3.

Figures 6 and 7 are respectively cross sectional views taken at right angles of a resilient tooth provided with that form of backing shown in Figure 2, parts being broken away.

Figure 8 is a plan view of the structure shown in Figure 6, parts being broken away.

Referring now in detail to the several figures, the numeral 1 represents a backing which is adapted for use with a tube tooth of the type designated by the reference character 50 in Figures 3 and 4. Said backing may be made in any suitable manner but is most readily constructed by bending a sheet of metal, preferably a royal metal, into a dihedral angle as shown, and then drilling, punching or otherwise producing the aperture 2 in said backing adjacent the apex of said dihedral angle. If the drilling or punching is done from within the angle the metal constituting the edges of the aperture becomes off-set as shown at 3, forming with the assistance of the sides of said dihedral angle a socket 14 for the reception of a post 4, said post being preferably threaded at its outer end as at 5 and having a head 6 seated

loosely in said socket and of greater diameter than the aperture 2 so that it may not escape therethrough. The socket is provided with a bottom wall constituted in any suitable manner as by a piece of sheet metal 7 soldered to the underside of the bent sheet 1. It may be desirable to introduce the post 4 into the socket before the sheet 7 is soldered in place, but in some instances it is preferred to insert the post in the completed socket by sliding the head thereof through a cut-away portion 8 of the wall of said aperture, afterwards closing said cut-away portion by a drop of solder, or if thought necessary, preferably leaving it open and relying upon the rubber which will afterward be vulcanized around the head of the post within the socket, to hold the post in place. It is to be understood that the loose fit of the head 6 within the socket permits the post to partake of a limited oscillatory movement in all directions. The threaded post is inserted through the aperture in a tube tooth as is indicated in Figures 3 and 4, the nut 9 being then applied to the threaded end of said post and screwed thereupon in order to bring the porcelain element of the tooth into proper relation with said backing, the gingival end of the porcelain element being recessed so as to surround a cushion 10 of rubber or other suitable elastic substance. The screwing on of the nut has the effect of putting the rubber under suitable compression. In the construction illustrated in Figures 3 and 4 the rubber extends in a thin layer beneath the gingival edge of the tooth as shown at 11 and the sheet 1 is then cut to a suitable size and shape so that the edges can be turned up by the dentist as shown at 12 in Figure 3 and burnished against the sides of the porcelain element, completely concealing the zone of rubber or its equivalent which otherwise would be exposed between the porcelain element and backing.

It is to be understood that while the burnishing of the upturned sides of the backing 1 against the porcelain element initially forms a socket closely engaging said porcelain element, a few masticatory actions of the tooth will serve to spread the walls of the socket sufficiently to permit the functioning of the resilient properties of the denture. A tooth thus formed is not complete without a process of vulcanization by which the rubber or its equivalent makes close ad-

hesion with the walls 12 of the socket preventing the access of saliva to the relatively movable parts of the denture support. Before vulcanizing, it is preferred to pack soft vulcanizable rubber, indicated at 39, into the socket through the aperture 2. This, when vulcanized, forms a resilient cushion between the post and the walls of the socket and fills the void within said socket which might otherwise become the lodging place for foreign matter.

In the form of invention shown in Figures 1 to 5 inclusive it is found necessary to prevent complete rotation of the post 4 within the socket so that the nut 9 may be screwed home. To inhibit the rotary movement of the post the head 6 and socket are formed with non-circular corresponding dimensions, as shown in Figure 5, so that the post cannot be turned because of engagement of the head thereof with the walls of the socket 14.

It is generally preferred to make the tooth imperforate on the occlusal or masticatory face. A tooth of this type is indicated in Figure 6 in which the porcelain element 15 is apertured for only a portion of its length, the aperture opening in a recess on the gingival face of the tooth and extending toward, but terminating short of the occlusal face thereof. An internally threaded sleeve 16, preferably of metal, is soldered or otherwise suitably secured in said aperture, with which sleeve the threaded end of the post 17 engages. The base in this instance must be rotatable, and to this end the socket and head 18 of the post are so made as to permit relative rotation of the parts. The bottom wall 19 of the socket, which corresponds to the wall 7 of the socket shown in the first described form of the invention is provided with an aperture 20 slightly smaller than the head 18 of the post. Said aperture is intended for the insertion of a screw-driver, the head 18 being formed on its lower face with a kerf 22. The post is inserted in the socket in any suitable manner as in the first described modification. The porcelain element is then placed with the sleeve 16 in line with the post and the latter is rotated by means of the screw-driver, drawing the porcelain element 15 down into proper relation with respect to the rubber cushion on which it rests. The void within the socket is filled with rubber, said rubber being preferably introduced through the aperture 20 as well as between the socket walls and stem of the post. It may be desirable before subjecting the denture to vulcanization to plug the aperture 20 with solder, hard rubber or any suitable substance.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. A support for artificial teeth compris-

ing a backing formed with a socket and a post carried by said backing having a head loosely mounted in said socket to permit said post to deviate from the perpendicular, relative to said backing, said post being adapted rigidly to support a tooth in movable relation relative to said backing.

2. A support for artificial teeth comprising a backing formed with a socket, a post having a head loosely mounted in said socket to permit said post to deviate from the perpendicular, relative to said socket, said post being formed for engagement with a tool by which it may be rotated, a sleeve interengaging with said post, said sleeve being adapted to be secured within a porcelain element of the tooth, said post being adapted rigidly to support said element in movable relation to said backing, the latter being formed with an aperture opening into said socket for giving access of a rotating tool to said post.

3. A support for artificial teeth comprising a backing, a post swivelly carried by said backing and oscillatable about a point substantially coincident with the point of emergence of said post from said backing and a cushion of elastic material filling the space between said head and the wall of said socket.

4. A support for artificial teeth comprising a backing, a post swivelly carried by said backing and oscillatable about a point substantially coincident with the point of emergence of said post from said backing and a cushion of elastic material filling the space between said head and the wall of said socket and in adherence with said head and wall.

5. A support for artificial teeth comprising a backing formed with a socket, a post having a head loosely mounted in said socket and formed for engagement with a tool for rotating said post, a cushion of rubber between said head and the walls of said socket, a sleeve interengaging with said post, said sleeve being adapted to be secured in the porcelain element of the denture, said backing being formed with an aperture opening into said socket for giving access of the rotating tool to said post.

6. An artificial tooth comprising a backing formed with a socket, a post having a head loosely mounted in said socket, a porcelain element carried by said post, an elastic cushion between said porcelain element and backing and means on said post for maintaining said cushion in compressed relation toward said backing and porcelain element.

7. An artificial tooth comprising a porcelain element, an internally threaded metallic sleeve fixed in said element, a threaded post forming a support for said element engageable with said sleeve and a resilient backing for said element to which said post

is swivelly mounted so as to be able to deviate from the perpendicular to said backing.

8. An artificial tooth having a recess in its gingival end, a post aperture opening at the bottom in said recess directed toward the incisal and masticatory end of the tooth, and terminating short of said end, an internally threaded metallic sleeve fixed in

said aperture, a backing having a socket, a post rotatable in said socket engageable with said sleeve and an elastic cushion in the space between said recess and backing, said cushion surrounding the joint between said post and socket. 10 15

In testimony whereof I have hereunto set my hand.

ROBERT MORSE WITHYCOMBE.