Lower Denture Retaining Device

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My invention relates to a new and useful retaining device adapted for holding the lower denture of artificial teeth in position, efficiently and in a comfortable manner.

It is well known in the dental profession that, due to the irregularities of the contour of the lower gum, and due to the paucity of contact and suction surface, it is practically impossible for a lower denture to remain in fixed position in the mouth, even though such plate is made right and properly fitted. This is particularly so due to the fact that the contour of the gum of the patient wearing the denture is constantly changing and it is obviously impractical to change the denture as often as the contour of the lower gum changes.

To overcome this difficulty, various expedients have been resorted to among which was the use of a powdered adhesive calculated to dissolve into a viscous mass intended to hold the denture in place partly by its adhesive viscosity and partly due to the tendency of the viscous mass to fill the crevices resulting from irregularities in the gum and thus increase the suction and contact surface. Aside from the fact that any such powder ultimately finds its way into the stomach of the user, it has also been found that the powder is effective only very temporarily due to the fact that under the action of saliva the viscosity is gradually reduced until it loses all of its effectiveness, both as an adhesive and as a filler. Other expedients have consisted in the use of a piece of fabric cut to the shape of the denture and interposed between the denture and the gum, such fabric being in the nature of cotton gauze, as in the Rowe Patent No. 1,817,932. The action of this expedient was to cushion the gum and to supply frictional engagement between the gum and the denture, with or without the aid of an adhesive. Due to the fact that this fabric is of a uniform thickness it will interpose the same cross-section intermediate the high and low points of the gum and denture, and since these points do not always coincide, (due to the changes in the gum after the denture is made) it is apparent that a fabric having a uniform cross-section, or thickness, will not be satisfactory.

Still another expedient is disclosed in the MacKinnon Patent Re. 18,932, in which a lath shaped cotton roll is interposed between the gum and the denture together with a stiffened lip adapted to engage the inside wall of the denture. This construction is disadvantageous in that its use will interfere with proper articulation to the extent of the thickness of the roll, and for other reasons.

It is therefore the object of my invention to overcome these difficulties and to that end I have produced a novel device which is extremely inexpensive, and which, in addition to greatly increasing the comfort of wear of a lower denture, also effectively creates sufficient suctional surface contact properly to keep the lower denture in position at all times.

To the above ends, my novel retaining device consists of a relatively thin sheet, cut and formed to the shape of the gum, said sheet being made of padded, felted, or molded cotton fibers or the like, which are held together by mechanical compression and not by means of any adhesive or sizing, so that when the retaining device is moistened by saliva, the padded or felt fibers are loosened from each other, and the initially uniform cross-sectional thickness of the retaining device now automatically adapts or adjusts itself to compensate for the irregularities that exist between the contour of the gum and the denture after the denture has been worn for some time.

My invention still further relates to a retaining device which is automatically adjustable to different sizes of gums and dentures, thereby enabling me to manufacture the retaining device in a minimum number of different sizes.

In the accompanying drawing:

Fig. 1 represents a plan view of a lower denture retaining device embodying my invention.

Fig. 2 represents a cross-section on line 2—2 of Fig. 1.

Fig. 3 represents a side elevation of a lower denture applied to a lower gum and showing the use of my retaining device.

Fig. 4 represents a section on line 4—4 of Fig. 3.

Fig. 5 represents a section on line 5—5 of Fig. 4.

Fig. 6 represents, on an enlarged scale, a section similar to Fig. 2 illustrating diagrammatically the composition of the retaining device.

Referring to the drawing in which like reference characters represent like parts, the general shape of my novel retaining device as viewed in top plan view, is shown in Figs. 1 and 2 from which it will be seen that the retaining device is of a generally inverted U or V shape to form the raised portion 1, which is adapted to rest over the ridge 2 of the lower gum 3, and the inner and outer inclined walls 4 and 5, which are adapted to engage the corresponding inner and outer sloping walls of the gum 3. The lower edges of the side walls 4 and 5 are preferably upwardly inclined, as at 6 and 7, so as to form a cushion and a seal under and around the respec-
tive lower edges 8 and 9 of the lower denture 18, as best seen in Fig. 4, it being noted that the lower edge 7 of the outer wall 5 is adapted to overlap the lower edge 9 of the gum, as will be best un-
derstood from Figs. 3 and 4. Referring now to Fig. 5, it will be seen that after the retaining device is placed in the mouth and wetted with the saliva, its fibers loosen and redistribute themselves under pressure, thus automatically adjust-
ing its cross-sectional thickness to correspond to the shape of the space between the denture and the gum. Thus, intermediate the surface of the denture and a high point in the gum, such as 12, the retaining device is of a reduced cross-sectional thickness, and it is of an in-
creased cross-sectional thickness at a low point in the gum, or where there is a relatively large space between the gum and the lower denture, as at 13. Thus, the automatic self-adjustment and redis-
tribution of the fibers produces the necessary alter-
tations in the contour and cross-section of the retaining device to fit the retaining device to the exact surface variations in the surface of the denture as well as to the irregularities occurring in the contour of the gum. This results in uniform-
ly distributing the pressure on the entire gum, thereby preventing inflammation due to ex-
cessive localized pressure, in cushioning the gum, thus preventing chafing of the high points of the gum, in providing frictional mechanical contact, due to filling in the crevices and irregularities occurring between the denture and the gum, and in providing an adequate suction surface contact which alone is enough firmly to retain the denture in position. The upturned edge 1 on the outer wall 5 of the retaining device turned up against the lower edges 8 of the corresponding wall of the denture serves more firmly to engage and retain the same and makes a seal to prevent interruption of the suction first produced after the retaining device has been placed in position, wetted and after it has adjusted itself to the con-
tour as above set forth. In order to render the retaining device adjustable to mouths of various sizes, I provide the cut 14 in the inner wall 6 of the device, by means of which the free ends of the retaining device can be brought closer to-
gether or spaced further apart according to the size of the gum or the denture in connection with

While I have found that my retaining device works very satisfactorily when made in the form of a sheet composed of matted unsized fibers, it is nevertheless within the scope of my invention, if desired, very slightly to size the sheet, when finished, with a soluble sizing calculated to aid in holding the shape of the retaining device in handling and shipment, such sizing being of a nature that will dissolve immediately when mois-
tened with saliva so as to permit the loosening and self-redistribution of the matted fibers in the manner set forth.

Having thus described my invention, what I claim as new and desire to secure by Letters Pat-
ent is:

1. A retaining device for a lower denture com-
promising a sheet of cushioning material having a central raised portion adapted to ride on the ridge of the lower gum and pendant side walls adapted to engage the side walls of said lower gum, and an upwardly turned lip on the outer wall of said retaining device adapted to engage the lower edge of the outer wall of said denture, said sheet being formed of loosely assembled fibers adapted, when moistened by saliva and subjected to pres-
sure between the denture and the gum, to re-
distribute themselves and thus vary the cross-
sectional thickness of the sheet in accordance with the irregularities between the denture and the gum, whereby suction is induced between the gum and the denture and whereby the chafing of the high points of the gum by the denture is prevented.

2. A retaining device for a lower denture formed of a cushioning sheet adapted to be in-
serted between said lower denture and the lower gum, there being a cut-out in a longitudinal edge of said sheet to render said retaining device adjustable, said sheet being formed of loosely assembled fibers adapted, when moistened by saliva and subjected to pressure between the dentity the gum, to redistribute themselves and thus vary the cross-sectional thickness of the sheet in accordance with the irregularities between the denture and the gum, whereby suction is induced between the gum and the denture, and whereby the chafing of the high points of the gum by the denture is prevented.