

[54] **TREATMENT MEMBER**
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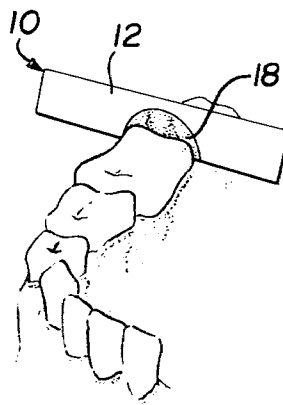
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 [51] **Int. Cl.**.... A61c 15/00, A61c 5/12, A61f 13/00
 [58] **Field of Search** 424/14, 18, 28, 52;
 132/93; 15/104.93; 32/34, 64; 128/260

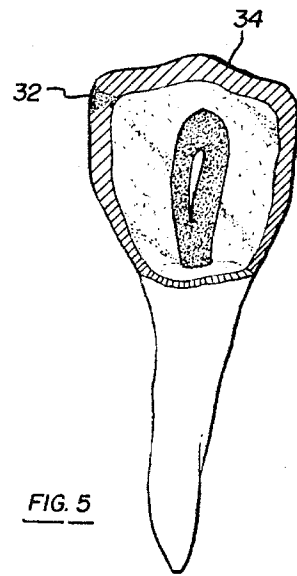
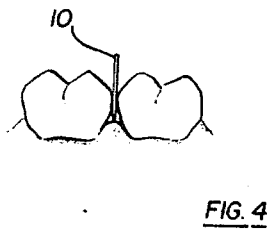
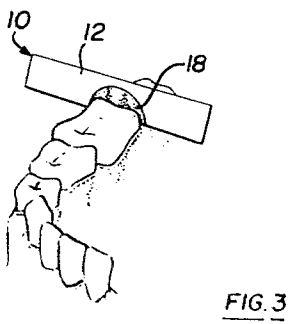
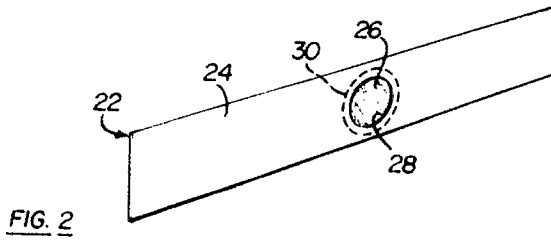
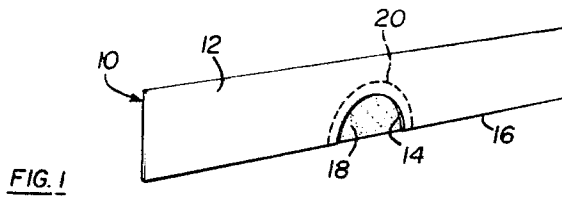
[57] **ABSTRACT**

A member for use in the treatment of caries in the teeth with fluoride or other chemicals which are carried by a section of the member which may be detachable. The member is worked between two teeth at a contact area to place the detachable section in contact with the teeth. The chemical agent is applied to the detachable section either before or after it is placed in contact with the teeth. The detachable section remains between the teeth when the rest of the member is removed, and preferably dissolves in the mouth when wet.

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2 Claims, 11 Drawing Figures





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FIG. 6

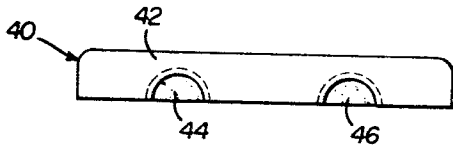


FIG. 7

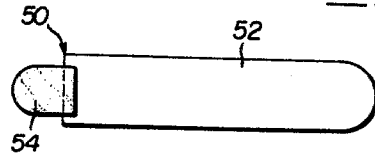


FIG. 8

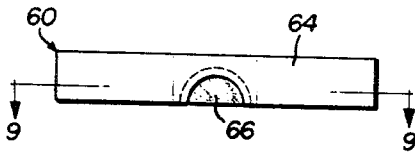


FIG. 9

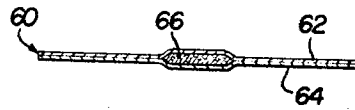


FIG. 10

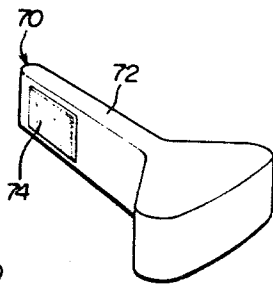
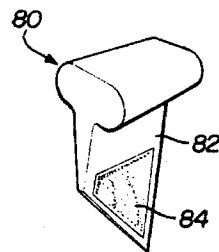


FIG. 11



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TREATMENT MEMBER

BACKGROUND OF THE INVENTION

At the present time, fluoride materials are applied by dentists to the teeth of their patients usually by painting on a liquid solution. The liquid may not effectively reach some areas between teeth, particularly where two teeth are in contact with each other. Thus, it would be desirable to have a more thorough and effective way of treating areas between teeth with fluoride or other chemicals.

SUMMARY OF THE INVENTION

The present invention provides a treatment member for use in treating contact areas between teeth especially where incipient carious lesions occur by working the member between the teeth to place a detachable section of the member between the teeth. The fluoride or other chemical agent which is to accomplish the treatment may be applied to the detachable section at the time of manufacture of the member, or just before or after placing the member between the teeth. The detachable section remains between the teeth when the rest of the member is removed and serves to treat the area between the teeth with fluoride or the like.

Accordingly, it is an object of the invention to provide a member which is effective in applying fluoride or other chemicals to areas between teeth.

Another object of the invention is to provide a treatment member having a detachable section which will remain between teeth when the member is worked between the teeth and then removed.

A further object of the invention is to provide a treatment member with a detachable section which dissolves in the mouth when wet.

Other objects of this invention will appear from the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a treatment member in accordance with one embodiment of the invention;

FIG. 2 is a perspective view of a treatment member in accordance with another embodiment of the invention;

FIG. 3 illustrates the manner in which the treatment member may be worked between two teeth;

FIG. 4 is a view of two teeth having a treatment member worked between them for treating the area where the teeth normally contact each other;

FIG. 5 is a schematic view of a tooth showing an incipient carious lesion which may be treated by use of the treatment member;

FIG. 6 is a view of a treatment member forming a further embodiment;

FIG. 7 is a view of a treatment member having the detachable section at one end in accordance with another embodiment;

FIG. 8 is a view of a multi-layer embodiment;

FIG. 9 is a sectional view taken along line 9—9 of FIG. 8;

FIG. 10 is a view of a wedge-shaped embodiment; and

FIG. 11 is a view of another wedge-shaped embodiment.

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

AS SHOWN ON THE DRAWINGS

The treatment member 10 shown in FIG. 1 includes a rectangular strip 12 made of metal foil such as gold foil, aluminum foil, or steel foil or other suitable thin material such as plastic, fabric or paper. The strip 12 has an aperture 14 which in the embodiment of FIG. 1 opens at the bottom edge 16 of the strip. The aperture 14 is covered with absorbent material 18 which is the detachable section of member 10. The absorbent material 18 may be adhered at 20 to the strip edge about the aperture 14 as with adhesive. The absorbent material 18 preferably comprises material which will dissolve when wet by saliva in the mouth of the patient. Some forms of paper are suitable for the absorbent covering 18.

Another embodiment of the invention is shown in FIG. 2. In this embodiment, the member 22 includes a strip portion 24 and a detachable section in the form of an absorbent portion 26. The absorbent material 26 covers an aperture 28 in the foil 24, the aperture being centered in the strip. The absorbent covering 26 may be adhered to the strip 24 at the area 30 surrounding the aperture 28. The material of strip 24 and absorbent covering 26 may be the same as strip 12 and absorbent covering 18 respectively.

The manner in which member 10 or member 22 is used is illustrated in FIG. 3 and 4. The member 10 is shown in these views, but it will be understood that member 22 could be used in substantially the same manner. The treatment member is worked between two teeth as shown to place the absorbent material 18 at the area between two teeth where they normally contact each other. The absorbent material 18 (or 26) carries a chemical agent which is transferred to the teeth as it comes in contact with them. The member will normally be used at the present time to apply a fluoride material to the teeth, but it can be used to apply other chemicals. The fluoride material may be stannous fluoride, sodium fluoride, or possibly monofluoro-phosphate. The fluoride or other chemical is preferably applied to the absorbent material at the time the treatment member is manufactured. However, it may be possible in some cases to make treatment members without fluoride impregnated therein, and apply the fluoride to the absorbent material just before the treatment member is worked between the teeth. Alternatively, the treatment member can be worked between the teeth, and a liquid fluoride solution then applied to the absorbent material which will spread the liquid to the area between the teeth.

Ordinarily, when fluoride solution is applied to children's teeth, interproximal caries are somewhat inhibited. However, in areas where caries have already begun, and in adult teeth, which do not absorb fluoride as readily as children's teeth, a concentrated application of fluoride is desirable directly at the site. A cavity 32 in the enamel 34 of a tooth is shown in FIG. 5, the cav-

ity being in an interproximal position where it can be treated with the treatment member of the invention.

The detachable section 18 or 26 should remain between the teeth when the strip 12 or 24 is removed. An advantage of the treatment member 10 as compared to treatment member 22 is that since the aperture 14 opens at the bottom edge 16 of the strip 12, the absorbent material 18 is more likely to remain between the teeth when the foil 12 is removed.

FIG. 6 shows an embodiment of the invention wherein the treatment member 40 consists of a strip 42 having two detachable sections 44 and 46, preferably absorbent material, adhered to the outer surface of strip 42. A longer strip of this type could be provided with a plurality of detachable sections and supplied in the form of a roll. The specific materials of the strip 42 and the sections 44 and 46 may be in accordance with the description of FIG. 1.

FIG. 7 shows a treatment member 50 consisting of a strip 52 having a detachable section 54 projecting from one end and adhered to the left end of the strip 52. The strip 52 could be inserted between the teeth starting at the right end and then worked through until the detachable section 54 is between the teeth. When the strip 52 is removed, the detachable section 54 detaches from strip 52 and remains between the teeth. The materials of strip 52 and section 54 may be in accordance with the description of FIG. 1.

FIGS. 8 and 9 show still another embodiment. In this embodiment, the treatment member 60 consists of multiple layers. There are two layers 62 and 64 forming a strip with a detachable section in the form of a layer 66 sandwiched between layers 62 and 64. The layers 62 and 64 and the detachable section 66 may be in accordance with the description of FIG. 1.

FIG. 10 shows a treatment member 70 consisting of a wedge-shaped member 72 having a detachable section 74 adhered to its outer surface. The treatment member 70 is designed to have the left end portion as viewed in FIG. 10 inserted between the teeth until the detachable section 74 is in contact with the teeth. Then when the wedge 72 is removed from the teeth, the detachable section 74 remains between the teeth.

FIG. 11 shows a treatment member 80 have a modified form of wedge 82 carrying a detachable section 84. This embodiment is similar to FIG. 10, but the lower end of the wedge is designed to be inserted downwardly or upwardly between two teeth until the detachable section 84 is between the teeth. Then the wedge 82 may be removed, and the detachable section 84 remains between the teeth.

In each of the embodiments, the detachable section

may have a tearable joint or a soluble joint or a dissociable joint with the remainder of the treatment member. For example, if the detachable section is made of paper, the paper may be flimsy enough so that when it is wet, it will tear away from the remainder of the treatment member and remain between the teeth.

The detachable section in each embodiment may have fluoride or other chemical material incorporated in it at the time of manufacture of the treatment member. Alternatively, the fluoride or other chemical may be applied to the detachable section just before or just after the treatment member is placed between the teeth.

The detachable section preferably dissolves in the mouth as previously explained. Thus, even though the detachable section remains in the mouth when the strip is removed, it dissolves when it is wet by saliva over a moderately extended period of time.

Thus, the invention provides a treatment member which is more effective in applying fluoride or other chemical agents to areas between teeth than known treating methods and devices. The treatment member can be manufactured economically from readily available materials. It has the further advantage that although the detachable section remains between the teeth when the rest of the member is removed, the detachable section ultimately dissolves.

Having thus described my invention, I claim:

1. A dental caries treatment device comprising a thin plastic, fabric, paper or metal foil strip carrier dimensioned in thickness to be sufficiently thin to fit between two teeth at a contact area thereof and slightly separate those teeth from each other, and a thin caries treatment section which ultimately dissolves when wet with saliva, said treatment section including absorbent material affixed with adhesive to said thin strip carrier and covering an aperture at the bottom edge of the strip, said absorbent material being dissolvable when wet with saliva, said thin strip carrier having a linearly extended leading strip edge for entering the contact area first so that said thin strip carrier can be worked between the teeth at the contact area to place said treatment section at the contact area for detachment to remain between the teeth when said carrier is removed, and said detachable treatment section remaining between the teeth and carrying a caries treatment material for treating the teeth particularly at the contact area.

2. The dental caries treatment device as claimed in claim 1 which said treatment material comprises fluoride.

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