



Dental hygiene tool

5 In preventive dental hygiene, the object of which
is to reduce the risk of caries attack, cleaning of
the teeth is the most important measure. It has been
found that brushing the teeth is not sufficient but
that for cleaning the space between the teeth, cleaning
10 is additionally necessary by means of tools which
penetrate in between the teeth. The invention relates
to such a dental hygiene tool.

A number of different tools for this purpose are
already known. One type is the tooth stick which,
15 in its most developed form, has a triangular cross-
section adapted to the shape of the gap between the
teeth and also brushing members for an effective
cleaning of the tooth surfaces during movement backwards
and forwards in the gap between the teeth. An alter-
20 native to the dental stick is dental thread which has
the advantage that it can be taken down into the gap
between the teeth from the chewing surfaces and so
clean the whole area and which, moreover, reaches
the part of the gap between the teeth adjacent to the
25 mouth better than a stick introduced from the outside
does. An attempt has been made to eliminate the
disadvantage of the thread of being relatively thin
by providing it with brush-like thickened portions, but
this only led to a very incomplete adaptation to the
30 shape of the gap between the teeth in comparison with
what can be achieved with the dental stick constructed
as a rigid body. Use of a dental thread also means

that the fingers which hold the inner end of the thread must be introduced into the mouth during the cleaning operation, which is both inconvenient and unhygienic.

5 An attempt to improve these conditions by means of a holder for the thread has led on the one hand to permanent tools in which the thread must be mounted before use, something which is time-consuming and difficult, or tools of a throw-away character where
10 a thread is moulded onto a plastics holder, something which for its part led to a tool which, in relation to its short life, was relatively expensive because of the increase in moulding costs which the insertion of a foreign element such as a thread must always
15 involve.

 One disadvantage of a member such as a thread which is fixed at both ends is that it always requires a wide open space for its introduction. Such a member therefore cannot be used with bridges which
20 extend over the gap between the teeth.

 Thus dental sticks and threads each have their own specific disadvantages and advantages. One disadvantage which they share, however, is that neither
25 with dental sticks of the conventional construction nor with a thread is it possible to clean the gap between the teeth which are inside the side of the mouth. For this an angular tool is required which is so constituted that a short, pointed dental stick is secured at right angles to a shank. If this dental
30 stick is made triangular, which is desirable for the sake of effectiveness, the dental stick must be turned in the holder to assume the correct position for the different directions of insertion which must be used. Thus this leads to a relatively complicated tool and
35 such tools with rotatable dental sticks set at an angle are likewise known. In an attempt to combine

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the advantages of the dental stick and the dental thread in a single tool, a tool has been developed in which the thread is gripped in a yoke from which a handle originates for holding so that the thread can be introduced into the mouth without needing to hold its inner end. Said handle is formed like a dental stick at its end. Despite this, the tool does not offer any satisfactory possibility for cleaning the gap between the inner teeth. Despite the proposals for various solutions and combinations which are represented in the prior art, no simple, cheap single tool has thus been found which covers all types of tooth cleaning needs besides brushing the teeth.

According to the present invention there is provided a dental hygiene tool for cleaning between adjacent teeth comprising: a yoke means; a first stick portion extending from an inner end portion of the yoke means towards the outer end portion thereof so as to leave a gap for passage of a tooth; a grip portion for gripping with the fingers, said grip portion being connected to and extending outwardly of said outer end portion of the yoke means; and a second stick portion extending outwardly from the grip portion at the opposite side from its connection to the yoke means; and wherein each said stick portion has a free end and is arranged for introduction into and through a gap between adjacent teeth, said first stick portion and yoke being so arranged that the yoke can bridge a row of teeth with the grip portion on one side and the stick portion positioned to be introduced into the gap from the other side.

The present invention makes it possible to provide a tooth cleaning tool adapted for cleaning the gap between the teeth and so complementary to the toothbrush, which tool renders possible a convenient and effective cleaning of all the gaps between the teeth while offering the advantages which the use of dental sticks, dental thread and dental sticks set at an angle each offer individually.

Another advantage which may be attained is to provide a dental hygiene tool of said complete kind which can be manufactured at a low cost so that a construction for use once only or a few times is rendered possible.

5 Furthermore, a tool has been achieved which permits cleaning of the teeth even if a bridge extends over a gap between the teeth.

An embodiment of the invention will now be described with reference to the accompanying drawings, in which:

10 Figure 1 shows the embodiment in a side view;

Figure 2 shows on a larger scale than Figure 1 a cross-section on either line VI-VI in Figure 1 of a tool in use in a gap between teeth and gum; and

15 Figure 3 shows the embodiment in a view from above and also shows that parts of the tool are flexible.

As can be seen from Figure 1, a dental hygiene tool according to one embodiment of the invention consists of a single body 1 which is preferably made by injection moulding of plastics material. The plastics body 1
20 comprises a yoke portion 2 with the general shape of a semicircular arc, a handle portion 3 and a holder portion 4 situated between these two portions. The holder portion 4 is formed from portions of material which surround a hole 5 to afford a satisfactory finger grip.

25 The actual tool

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members of the tool are two and consist of a first stick portion 7 originating from the handle portion 3 and a second stick portion 9 originating from the outer end of the yoke portion 2 opposite the holder portion 4. The stick portion 9 should be directed in the same direction as the handle portion 3 and its point thus comes to be directed towards the end of the yoke portion 2 connected to the holder portion. It must be seen to that there is adequate space between this part of the yoke portion and the point on the stick portion 9 to be able to guide the point down the rear side of a tooth with the end of the yoke portion outside this. A spacing from the yoke 2 corresponding to the height of a tooth must be provided above the stick portion 9. Both gaps should generally be of the order of magnitude of 8mm.

The two stick portions 7 and 9, which are substantially alike, are connected by means of hinge portions 6 and 8 to the handle portion 3 and the yoke portion 2 respectively.

The cross-section of the stick portions 7 and 9 can be seen from Figure 2. Thus it is triangular and may comprise a large number of relatively short brush members 11 which are produced during the moulding of the plastics material. The brush members 11 may appropriately be arranged in rows which are set obliquely so that the whole of the distal surfaces worked on surrounding teeth are exposed to satisfactory brush action. The hinge portions 6 and 8 are narrow portions in the material which, using the flexibility of the material, permit swinging of the stick portions 7 and 9 to both sides so that they can be set in different angular positions, for example at right angles to the common line in which the handle portion 3 and the yoke portion 2 extend, as can be seen from Figure 3.

The under side 15 of the stick portions is concave for adaptation to the shape of the gum papilla in the gap. As a result of the contact between the under side and the papilla which is obtained, massage of the papilla is brought about with cleaning of the gap with the respective stick portion.

When the teeth are to be cleaned with the tool shown in Figure 1 and this is to be effected from the outside, the stick portion 7 is used. The surfaces of the triangular cross-section provided with brush members 11 are allowed to slide against the tooth surfaces 16 (see Figure 2) during the cleaning operation. As mentioned above, a massage of the gum papilla is effected at the same time by the rubbing of the under side 15 against the papilla. During cleaning of the front teeth, the stick portion 7 can be allowed to point straight out as shown in Figure 1. During cleaning of the inner teeth it can be folded at an angle to the handle portion 3. This is effected by bending at the hinge portion 6. During cleaning of the lower teeth on the right-hand side as during cleaning of the upper teeth on the left-hand side, the stick portion 5 must be bent as shown in Figure 3, while it is bent in the opposite direction during cleaning of the upper teeth on the right-hand side and the lower teeth on the left-hand side. As a result of this, the sides provided with brush members always come into contact with the tooth surfaces 16. As a result of the placing of the brush members on concave surfaces, substantially adapted to the curvature of the distal surfaces, an evenly distributed brushing effect is obtained. As a result of suitably balanced deformability both in the brush members 11 and in the body of the stick portion, a satisfactory adaptability of the tool with regard to the curvature of the distal surfaces is obtained in the horizontal plane.

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Nevertheless, complete cleaning cannot be effected only from one side of the gaps between the teeth, but both sides must be attacked. The stick portion 9 is intended for this purpose and should be introduced into the gaps between the teeth from the inside. The yoke portion 2 is guided over the abutting teeth between which cleaning is to take place so that the tip of the stick portion 9 comes close to the gum in the intended space between the teeth. Then the tool is pulled outwards so that the stick portion 9 penetrates in between the teeth. After that, cleaning is effected in the manner described with reference to the stick portion 7. In this case, too, the tool can be bent in relation to the stick portion so that better accessibility is obtained, for example to the inner teeth inside the corners of the mouth. As distinct from earlier tools, the stick portion 9 renders possible cleaning from the inside even if there is a bridge or close contact between the teeth which does not permit introduction of an element in the direction from the chewing surface and down to the gum.

The invention is not limited to the examples described above and shown on the drawing but can be modified within the scope of the following patent claims. The brush members 11 can be eliminated or be constructed and arranged differently. They may, for example, consist of a plurality of brush threads secured in the stick portion. The holder portion 4 is selected only as an example and is not bound to any specific form of embodiment.



CLAIMS:

1. A dental hygiene tool for cleaning between adjacent teeth comprising: a yoke means; a first stick portion extending from an inner end portion of the yoke means
5 towards the outer end portion thereof so as to leave a gap for passage of a tooth; a grip portion for gripping with the fingers, said grip portion being connected to and extending outwardly of said outer end portion of the yoke means; and a second stick portion extending outwardly from
10 the grip portion at the opposite side from its connection to the yoke means; and wherein each said stick portion has a free end and is arranged for introduction into and through a gap between adjacent teeth, said first stick portion and yoke being so arranged that the yoke can
15 bridge a row of teeth with the grip portion on one side and the stick portion positioned to be introduced into the gap from the other side.
2. A tool according to Claim 1, wherein each stick
20 portion has an outer point and surfaces adapted to the shape of the gap between the teeth, which surfaces are at least partially provided with brush members.
3. A tool according to Claim 1 or claim 2 wherein at
25 least the second stick portion is articulated to the rest of the tool such that it can be moved to different angles to the tool.
4. A tool according to Claim 3 wherein the or each
30 articulated connection of a stick portion is provided by a respective weakened portion of material situated in the transition between the stick portion and the rest of the tool.
- 35 5. A tool according to any preceding claim, wherein each stick portion has a substantially triangular cross-sectional shape with concave sides, of which two sides

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situated symmetrically to one another bear brush members.

6. A tool according to any preceding claim which is a unitary structure formed of a single material.

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7. A dental hygiene tool substantially as any described herein with reference to and as illustrated in the accompanying drawings.

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