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1,929,530

TOOTHBRUSH

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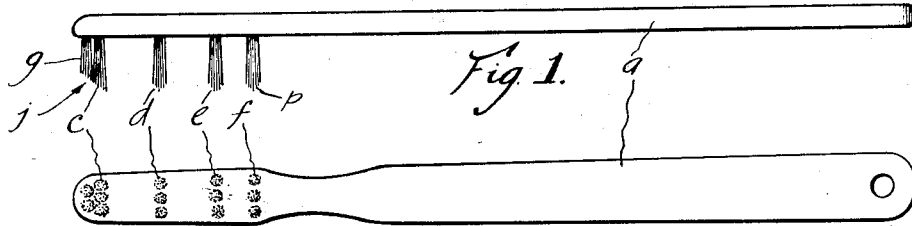
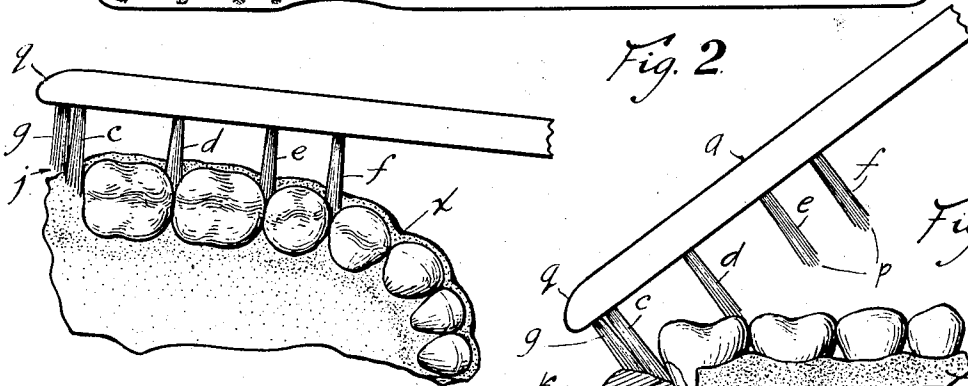


Fig. 3.

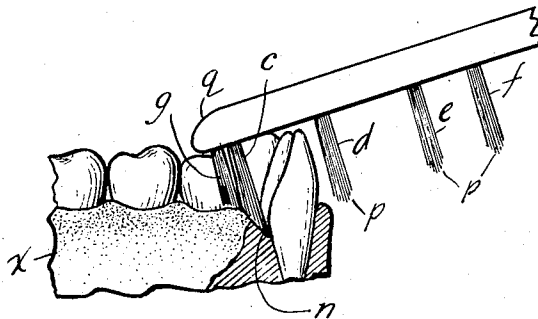


Fig. 5.

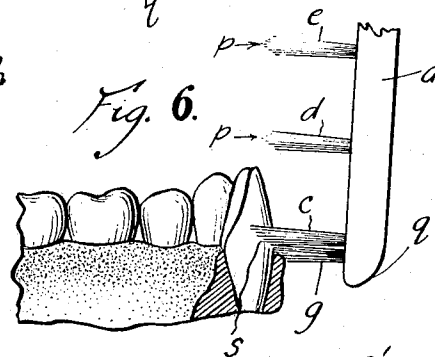


Fig. 6.

Fig. 7.

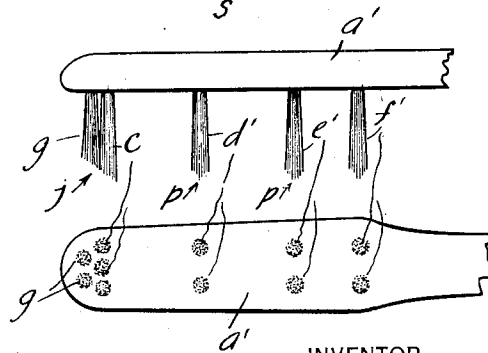


Fig. 8.

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TOOTHBRUSH

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2 Claims. (Cl. 15—167)

My invention relates to tooth brushes and the like.

In the practice of preventive dentistry it is especially important that the accumulations of food particles and other organic matter be thoroughly cleaned from the inter-proximal surfaces of the teeth and from under the gingival or free marginal surfaces of the gums. Such accumulations, especially under the said gingival margins, if not removed cause the teeth to decay, infect the gums, and ultimately cause such diseases as pyorrhea and the like.

It is estimated that ninety per cent of the people over the age of 40 suffer more or less from pyorrhea, which is directly traceable to inefficient and improper cleaning of the teeth.

The simplest means of preventing such diseases as pyorrhea and the like, is by the use of a tooth brush, but to be effective the tooth brush must be adapted to clean all the surfaces of the teeth, as mentioned. Heretofore, tooth brushes have been constructed with the bristle clusters arranged closely together so that a portion of the bristles bear against the sides of the teeth but this prevents any of the bristles from reaching the inter-proximal surfaces effectively and under the gingival margins with the result that the teeth and gums are not properly and efficiently cleaned.

Therefore the principal object of my invention is to provide a tooth brush adapted to properly and efficiently clean all the inter-proximal surfaces of the teeth, and around and under the gingival or free margins of the gums to prevent pyorrhea and the like.

A further object of my invention is to provide a tooth brush, the end bristle tufts of which are adapted to reach under and around the gingival or free marginal surfaces of the gums and so relatively arranged as to be supported each by the other to withstand the pressure necessary in reaching under said gingival margins; particularly the distal gingival margins of the last molars, which are difficult to reach and require considerable pressure to force the bristle clusters under and around the gingival margins.

I attain these objects in a tooth brush comprising a handle provided at one end with spaced transversely extending narrow clusters of bristles, one cluster located at the brush end, such cluster and the next two clusters spaced equidistant longitudinally of the brush, each cluster composed of transversely arranged clusters of bristles of substantial length, the end cluster

flanked on the side adjacent the brush end by an additional cluster of bristles, the tip of such cluster having an oblique angle towards the brush end and the tips of the remaining clusters being wedge-shaped.

These and other incidental features of my invention, the details of construction and mode of using my tooth brush are hereinafter further described with reference to the accompanying drawing.

In the drawing:

Fig. 1 shows a side elevation of my tooth brush and illustrates the relative arrangement of the bristle clusters;

Fig. 2 shows a plan view of the same and further illustrates the arrangement of the bristle clusters;

Fig. 3 shows in combination with a fragmentary view of a typodont how my brush is adapted for brushing the inter-proximal surfaces of the posterior teeth;

Fig. 4 shows similarly how the tufts of the end clusters of my brush are adapted for brushing the distal surfaces of the end molars and under the adjacent gingival margins;

Fig. 5 shows how the lingual gingival margins of the anterior teeth are brushed;

Fig. 6 shows how the tufts of the end clusters are adapted for brushing the gingival margins and labial surfaces of the anterior teeth; and

Figs. 7 and 8 show, respectively, side and plan views of a modification of my brush in which the bristle clusters, except those on the end of my brush, are composed of but two transversely arranged tufts, slightly spaced apart.

Referring now to Figs. 1 and 2: My tooth brush comprises a handle *a* provided at one end with transversely arranged and longitudinally spaced bristle clusters *c*, *d*, *e* and *f*.

The clusters *c*, *d*, *e*, and *f* comprise in this embodiment of my invention three transversely arranged bristle tufts. The cluster *c* is arranged adjacent the end of the handle *a* and the clusters *d* and *e* are preferably spaced therefrom equal distances approximately the width of the molars shown in the typodont *x* in Fig. 3 and the clusters *f* are spaced from the cluster *e* a lesser distance approximately the width of the bicuspid.

I have found such longitudinal spacing to be most effective in that it facilitates the insertion of the bristles clusters into the spaces between the posterior teeth, as illustrated in Fig. 3, which are the most difficult to reach.

Further such spacing eliminates the bristles which would otherwise lie intermediate the inter-

proximal surfaces of the teeth and by bearing against the buccal or lingual surfaces prevent any of the bristles from reaching said inter-proximal surfaces.

5 The extremities of the clusters *d*, *e*, and *f* are formed wedge-shaped, as at *p*, to permit them to slip readily between the teeth without being bent or crushed by coming squarely into contact with the high surfaces of the teeth.

10 An additional bristle cluster *g* is located close to the cluster *c* and between them and the end of the handle *a*. The extremities of the clusters *c* and *g* are formed at an oblique angle as at *j*, and thus provide an extended brushing surface

15 adapted to reach under the gingival or free marginal surfaces of the gums, as illustrated in Figs. 4, 5, and 6.

The bristle tufts of the cluster *g* are two in number and are arranged in line with the spaces between the tufts of the cluster *c*, see Fig. 2, and thus serve effectively to support the said clusters *c* when bent over by a longitudinally brushing motion of the brush.

Such arrangement also permits the cluster *g* 25 to be secured close to the end of the handle so that the latter will not come into contact with the gums when brushing under the free marginal surfaces, to further overcome such difficulty, I have beveled the end of the handle *a*, as at *q*.

30 In Fig. 4 is illustrated how the clusters *c* and *g* serve to clean the distal surfaces of the end molars, as at *l*, and to reach under the gingival margins, as at *k*, a place practically impossible to reach with the conventional type of tooth brush.

35 In Fig. 5 is illustrated the same operation in brushing the lingual gingival margins, as at *n*, of the anterior teeth.

40 In Fig. 6 is illustrated how my tooth brush is adapted to brush the labial inter-proximal surface of the anterior teeth and the gingival margins of the same. Fig. 6 further illustrates how the bristle tufts of the cluster *g* divide, one going into the inter-proximal surface on each side of an anterior tooth, as at *s*.

45 I have found the most effective length of bristles to be approximately and preferably not more than $\frac{3}{8}$ of an inch, as that is sufficient to reach all portions of the inter-proximal surfaces and yet at the same time does not lessen the stiffness of the bristles by making them of undue length.

50 In Figs. 7 and 8, I have shown a modification of my brush in which the bristle clusters *d'*, *e'* and *f'* are composed of but two transversely spaced tufts, arranged somewhat farther apart transversely of the handle *a'* than those de-

scribed before, the advantage of which is that one tuft will then enter the inter-proximal surfaces below the point of contact of the inter-proximal surfaces of the teeth and the other 80 above the said point of contact, so that no bristles will be crushed down by being brought directly into contact with the closed portions of the inter-proximal surfaces.

Further, for special use, such as for treating 85 advanced cases of pyorrhea, I may provide clusters equivalent to the clusters *d*, *e*, *f* of a single spaced tuft adapted for reaching deeply into the inter-proximal gingival margins.

I have found my tooth brush is most effectively 90 used when brushing the inter-proximal surfaces of the teeth by a short vertical vibratory motion to force the bristles between the teeth and for brushing the lingual surfaces with the end clusters, *c*, *g*, by a short horizontal and vertical choppy stroke so as to not only reach all portions 95 of the teeth but also to massage the gums and thus stimulate circulation.

I claim:

1. A tooth brush comprising a handle provided at one end with longitudinally spaced, trans- 100 versely extending narrow clusters of bristles, one cluster located at the end of the brush handle, such cluster and the next two clusters being spaced substantially equi-distant longitudinally of the brush, and a fourth cluster spaced a lesser 105 distance from the adjacent cluster, the tip of the cluster located at the end of the brush handle being flanked on the side adjacent the brush handle end by an additional cluster of bristles, the tips of such latter clusters having an oblique 110 angle toward the handle end.

2. A tooth brush comprising a handle provided at one end with longitudinally spaced, trans- 115 versely extending narrow clusters of bristles, one cluster located at the end of the brush handle, such cluster and the next two clusters being spaced substantially equi-distant longitudinally of the brush, and a fourth cluster spaced a lesser 120 distance from the adjacent cluster, the tip of the cluster located at the end of the brush handle being flanked on the side adjacent the brush handle end by an additional cluster of bristles, the tips of such latter clusters having an oblique 125 angle toward the handle end, the tufts of bristles making up such additional cluster being arranged in alignment with the spaces between the tufts of bristles of the adjacent cluster, whereby such additional cluster reinforces the adjacent cluster in use.

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