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A. C. LEVIS.
TOOTHBRUSH.
FILED APR. 26. 1920.

Fig. 1.

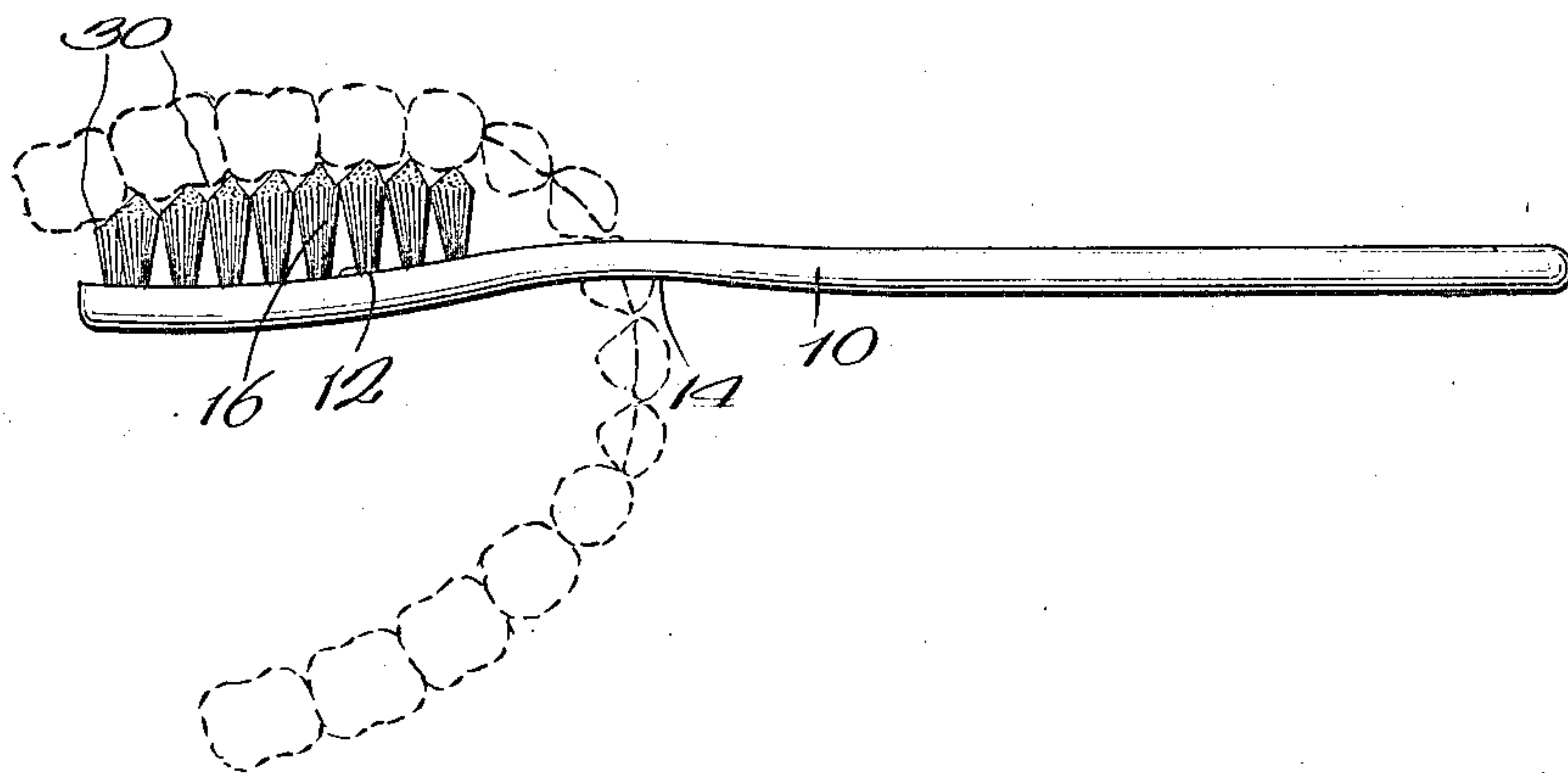


Fig. 2.

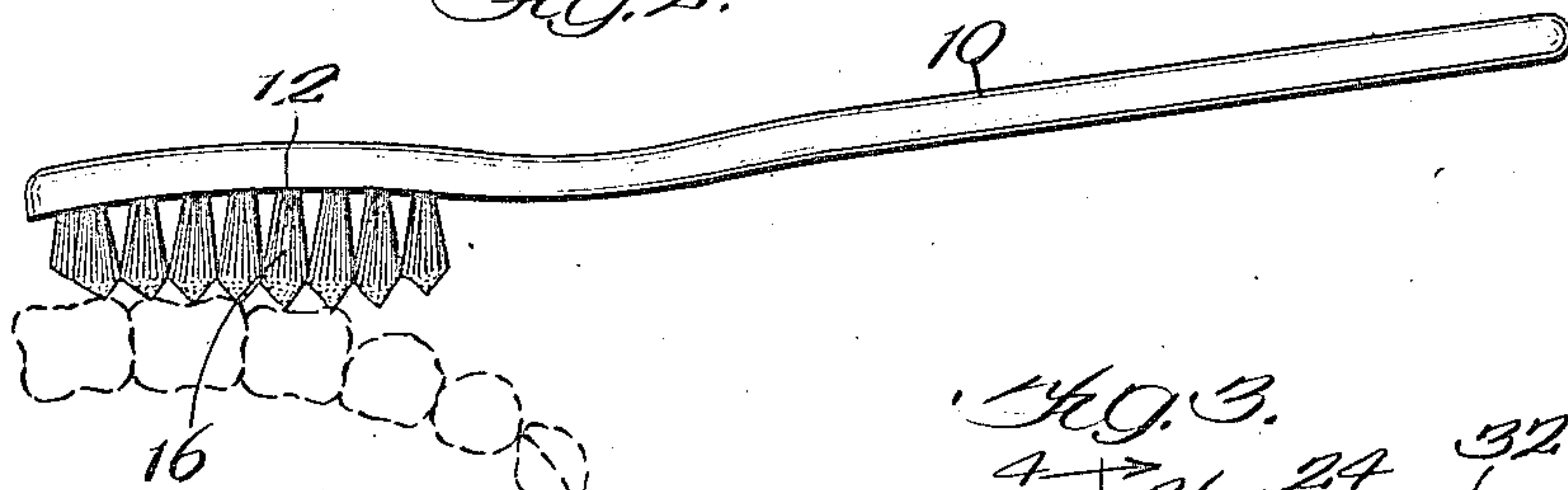


Fig. 3.

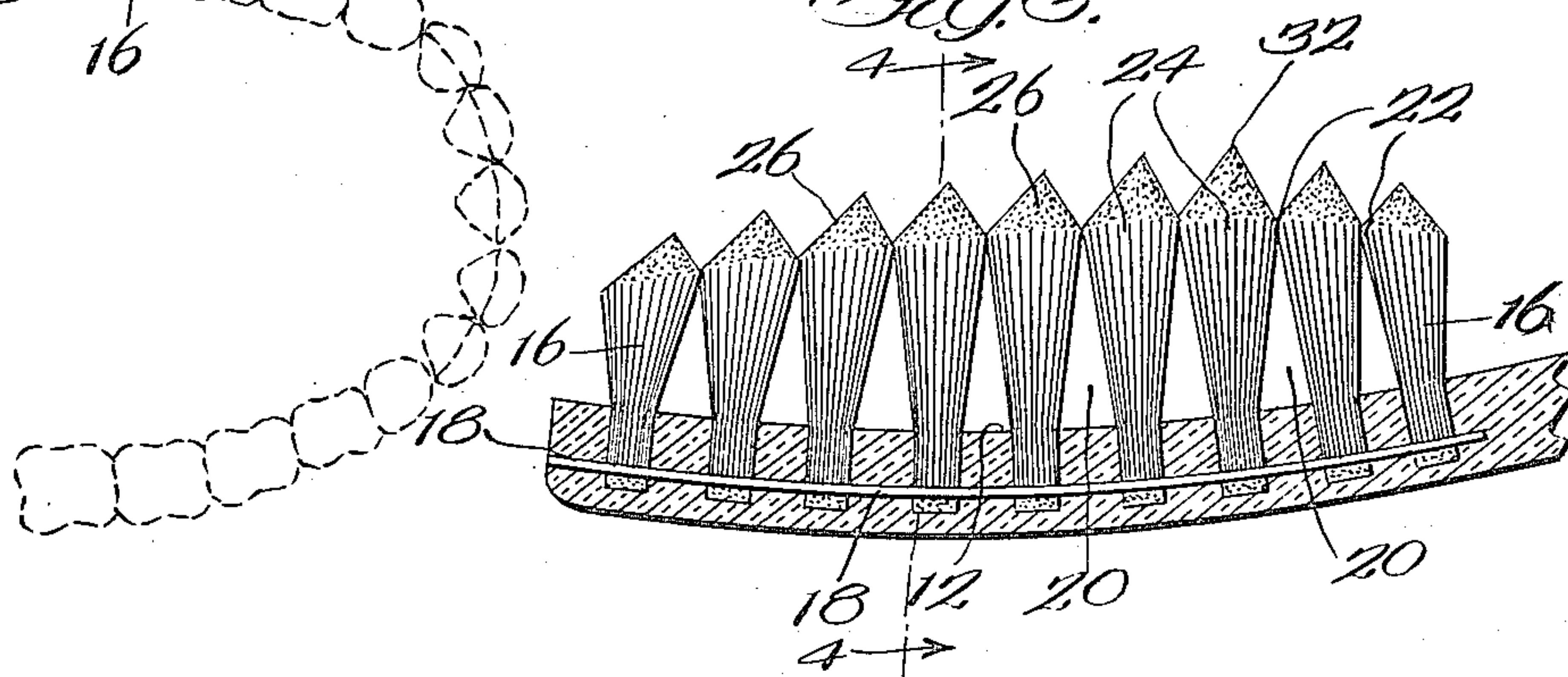
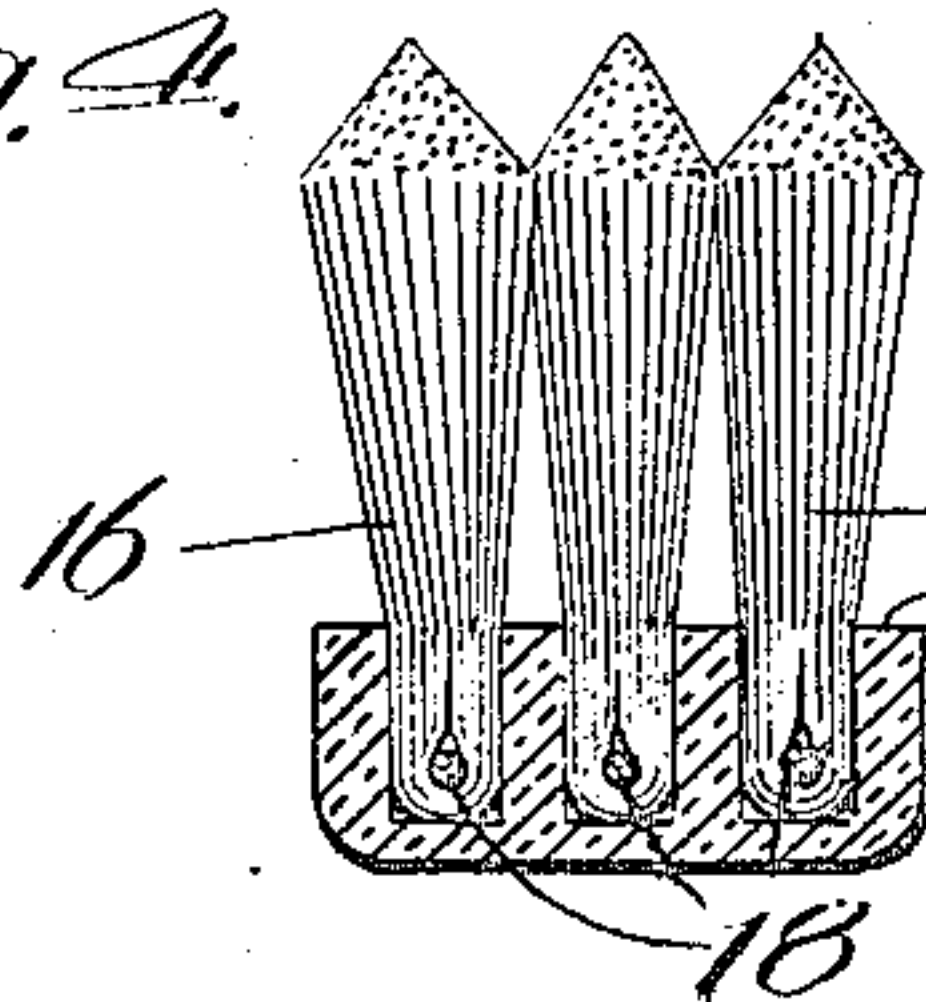


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALBERT C. LEVIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTERN BOTTLE MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TOOTHBRUSH.

Application filed April 26, 1920. Serial No. 376,555.

To all whom it may concern:

Be it known that I, ALBERT C. LEVIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Toothbrushes, of which the following is a specification.

My invention relates to tooth brushes and has for its object to provide a brush element having its brushing or working surface so shaped as to render the single brush element effectively usable for brushing either the outer or inner side surfaces of the teeth vertically or otherwise and thereby eliminate the necessity of providing two brush elements each with a distinctively shaped brushing surface in order to effectively accomplish the two types of brushing set forth. Furthermore, it is the object of my invention to so construct the brush element of the foregoing type that it will stand up under hard usage with resulting long life.

Briefly stated my invention consists in progressively increasing the heights of the tufts of the bristles from the ends toward a predetermined point at the rear of the center of the brush and in so mounting each tuft of bristles that it is substantially radially disposed with respect to a concaved curved surface formed on the working side of that portion of the handle which constitutes the brush back. By this arrangement the extremities of the bristles in adjacent tufts lengthwise of the handle contact and brace each other along the working surface of the brush, thereby permitting the brush to be constructed higher at the predetermined point between its ends previously referred to than would be possible were this bracing action omitted.

Referring to the drawings in which like numerals denote like parts throughout the several views,

Figure 1 is a side view of a brush of this invention showing its application to the inner tooth surfaces of a human mouth.

Figure 2 shows the same brush applied to the other surfaces of the teeth in the ordinary manner.

Figure 3 is an enlarged detail side view showing the construction of the brush.

Figure 4 is an end view of the parts shown in Figure 3.

In constructing my invention I provide a handle member 10 of any suitable mate-

rial. One end of this handle member constitutes the brush back as is usual and said end is shaped to provide a curved inner surface 12. Along the surface 12 tufts of bristles 16 are inserted as clearly shown in Figure 3 and secured in place in the usual manner, as for instance by the thread, wires or staples 18 inserted from the end of the handle. The tufts of bristles 16 progressively increase in height from each end of the brush to a predetermined intermediate point 32 which is located some distance to the rear of the center of the brush. I thus provide the brush with relatively long and short brushing surfaces *a— a* and *b— b* (Fig. 3) respectively which in combination form a substantially convexly curved brushing surface conforming to the curvature of the inner side surface of the teeth as shown in Figure 1 and renders my brush highly efficient in cleansing these surfaces. On the other hand by providing the relatively long brushing surface *a— a* the effectiveness of my brush in operating on the outer side and crown surfaces of the teeth is fully maintained as clearly shown in Figure 2. By providing the brushing surfaces *a— a* and *b— b* I render my single brush capable of efficiently performing the dual function previously set out and which functions have heretofore required separate brushing elements for their proper performance. In order to prevent premature collapse of the brush in use as a result of providing the high brush portion at the point 32 I dispose each tuft of bristles 16 substantially radial with respect to the curve surface 12 at the point of its insertion in the handle, with the result that although the groups of bristles are separated by relatively wide spaces 20 the outer end portions of each tuft of bristles necessarily engages the corresponding portion of the adjacent tuft of bristles at points 22. As a result of this construction it will be obvious that each tuft of bristles is braced by the surrounding bristles at the points of contact 22, which provides the essential strength for the brushing or working surfaces, even though the brush element is constructed relatively high at an intermediate point to accomplish the functions heretofore set forth.

Attention is called to the fact that the brush is rectangular, its length being about three times its width, that is, three tufts of

bristles wide and nine tufts long, thus fitting it for all round use in the mouth, a feature which is impossible with round or oval brushes of the prior art; and to the fact that
5 the tufts of bristles are all set in rows, separated by spaces 20, extending lengthwise or crosswise of the brush handle, thereby affording ready access of drying air through the base part of the brush proper and under
10 normal atmospheric conditions insuring the brush's being dry and ready for use within three hours of a previous use. This last point is important because until a brush dries out between usings it cannot, under
15 modern brushing practice, which requires dry stiff bristles, be used again, and the closely packed bristles of the prior art will not, under ordinary atmospheric conditions, dry out in the three or four hours between
20 meals.

I claim:—

1. A tooth brush comprising a handle having the end forming the brush back provided with a concavely curved inner surface, and a plurality of tufts of bristles secured to the handle and projecting from said curved surface in substantial radial disposition with respect thereto, said tufts of bristles progressively increasing in height
25 from the ends of the brush to a point between the center and rear ends thereof, said group of tufts of bristles being of rectangular form of a length approximately three or more times its width, there being wide air
30 spaces between the base portions of the tufts of bristles.

2. A tooth brush comprising a handle having the end forming the brush back provided with a concavely curved inner surface and a plurality of tufts of bristles, spaced
40 apart at their bases to form wide air spaces between tufts, secured to the handle and projecting from said curved surface in substantial radial disposition with respect thereto, said tufts extending to heights where each
45 tuft normally slightly contacts each of its neighbors slightly below their outer ends which ends progressively increase in height from the ends of the brush to a point between the center and rear ends thereof, the
50 entire group of tufts of bristles on the handle being of rectangular form of approximately three times its width.

3. A brush having a longitudinally concaved back provided with tufts of bristles in
55 radial arrangement thereto with the bases of the tufts spaced apart while the upper portions of the tufts are closely adjacent each other, the outer ends or points of the tufts being parallel to the back of the brush
60 in a transverse line and convex thereto in a longitudinal line with the highest point of convexity located between the center of the brush and the handle end thereof.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

ALBERT C. LEVIS.

Witnesses:

B. FRAZER,
JOHN I. WOODSIDE.