W. A. LEONARD & S. W. BOYNTON.

MATERIAL FOR CLEANING TEETH.

APPLICATION FILED JAN. 31, 1914.

1,149,376. Patented Aug. 10, 1915.

Fig. 1.



Fig. 2.

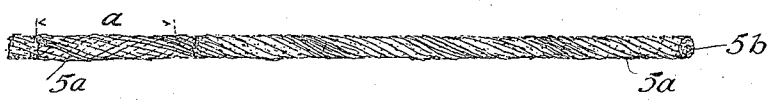


Fig. 3



Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM A. LEONARD, OF RIVERSIDE, AND SETH W. BOYNTON, OF CHICAGO, ILLINOIS.

MATERIAL FOR CLEANING TEETH.

1,149,376. Specification of Letters Patent. Patented Aug. 10, 1915.

Application filed January 31, 1914. Serial No. 815,753.

To all whom it may concern:

Be it known that we, WILLIAM A. LEONARD and SETH W. BOYNTON, citizens of the United States, residing, respectively, at Riverside, Illinois, and Chicago, Illinois, have invented certain new and useful Improvements in Material for Cleaning Teeth, of which the following is a specification.

This invention relates more particularly to a flexible material composed principally of a fibrous substance and adapted to be drawn between the teeth or against the surface of the teeth for the purpose of cleaning the same, also to the method of constructing such material.

Among the objects of this invention are to provide a material of this character which may be readily and economically manufactured, which will be strong and substantial in use, and which is constructed so that it may be readily inserted between the teeth.

In the accompanying drawings illustrating our invention, Figure 1 is an enlarged view illustrating a plurality of pieces of yarn as arranged or brought together to form the first step in the manufacture of our material; Fig. 2 is a similar view showing the yarn after being twisted and treated with wax or the like; Fig. 3 is a similar view showing the completed material; and, Fig. 4 is an enlarged end view of the completed material.

We are aware that it has heretofore been proposed to form a dental floss with parallel threads covered with wax, but we have found that such material is apt to be readily split or the threads separated when inserted between the teeth, and is also apt to be weak if made of sufficiently fine threads. In order to overcome these objections, and also to provide an improved material for cleaning teeth we construct the same in the method indicated by the drawings. A plurality of strands of yarn or fiber 5, of silk or any other suitable material are gathered together as indicated in Fig. 1 with the fibers in more or less parallel relation, but preferably intermingled or crossing each other to a certain extent, as would be apt to occur when a number of such strands are drawn together from different rolls or spindles. After a sufficient number of these strands have been arranged in this manner, they are slightly twisted, as indicated in Fig. 2, but not a sufficient amount to make a hard twisted thread. The twisting is done for the purpose of causing the fibers to overlap or cross each other to a greater or less extent when the material is flattened, this crossing or overlapping being for the purpose of strengthening the material and preventing it from readily splitting or separating. As indicated in Fig. 2, where the length of a twist or coil is represented by *a*, the outer fibers such as 5^a will tend to bind together the inner fibers 5^b and prevent them from being easily separated. The completed thread or strand is then fully impregnated with wax, paraffin, or the like, which further tends to bind or hold the fibers together and also makes the completed material more convenient to use. After the twisted yarn or fibers has been treated with wax, it is then passed through rolls or the like and flattened until it is sufficiently thin to be readily passed between the teeth. It will be seen that when the material is flattened, the fibers on one side of the twisted thread will be pressed against the fibers on the opposite side, so that there is a more or less uniform crossing of these fibers in the completed material without their being woven together in the ordinary sense of "weaving" as when applied to a woven tape. It will be noted that the drawings are considerably enlarged as the actual material when completed will be approximately from $\frac{1}{16}$th to $\frac{1}{8}$th of an inch wide, and exceedingly thin.

Having thus described our invention, which however, we do not wish to limit to the exact form and construction herein shown and described, except as specified in the following claim, what we claim and desire to secure by Letters Patent is:

The process for forming a material for cleaning the teeth, which consists in arranging a plurality of strands of fiber in sub-

stantially parallel relation, then distorting the bundle of strands so that the fibers will lie diagonally with respect to the bundle, then impregnating said strands with wax, and finally pressing the bundle to form a flat strip, whereby the strands will cross each other at substantially regular intervals, and will be held in position by the wax.

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Witnesses:
IRENE FORREST,
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