July 11, 1939. C. H. SEIFERT 2,165,420

TOOTH CLEANING ELEMENT

Filed July 29, 1937

Fig. 1.

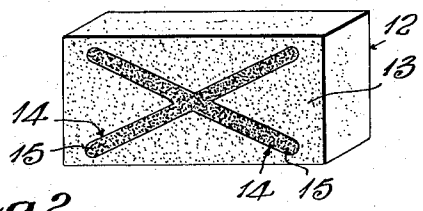


Fig. 2.

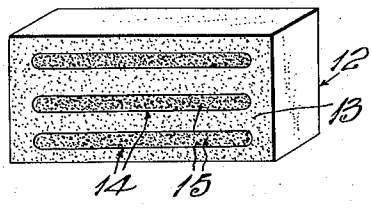


Fig. 3.

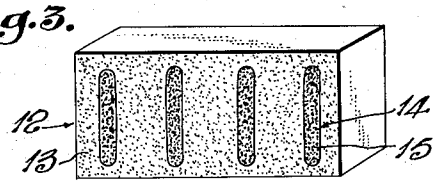


Fig. 4.

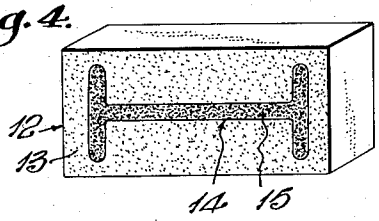


Fig. 5.

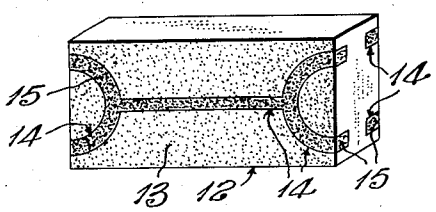


Fig. 6.

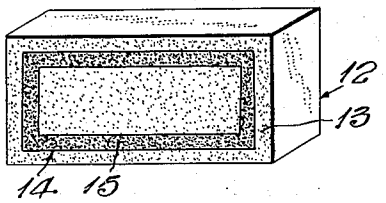


Fig. 7.

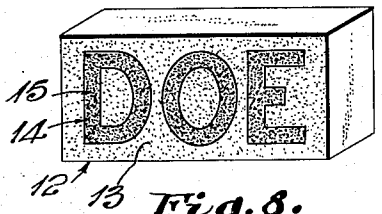


Fig. 8.

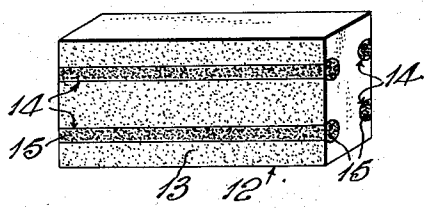


Fig. 9.

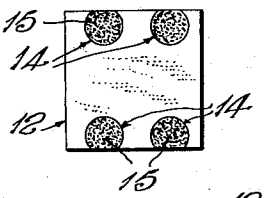
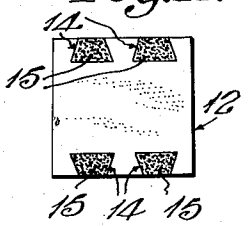


Fig. 10.



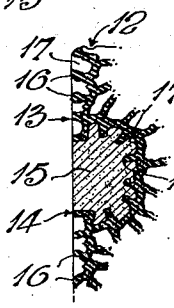


Fig. 11.

Inventor

Charles H. Seifert

By H. B. Wilson & Co

Attorneys

Patented July 11, 1939 2,165,420

UNITED STATES PATENT OFFICE

2,165,420

TOOTH CLEANING ELEMENT

Charles Henry Seifert, Hempstead, N. Y.

Application July 29, 1937, Serial No. 156,413

1 Claim. (Cl. 15—210)

The invention aims to provide a new and improved tooth-cleaning element consisting of a sponge rubber block having a brushing surface at which some of the webs and cells of the sponge rubber are exposed, having at least one groove which opens through said brushing surface, and having a dentifrice filling each groove for direct application to the teeth while the latter are being brushed with said brushing surface.

A further object is to provide a cleaning element of the class set forth in which some of the cells and webs of the sponge rubber are exposed at the walls of the dentifrice-holding groove or grooves, whereby the dentifrice and the rubber may readily key together, obviating danger of the dentifrice falling from the groove or grooves before or during use.

A still further object is to provide a tooth-cleaning element well adapted for use as a "refill" for a toothbrush having means for removably holding the same, one example of such a brush being shown in my United States application Serial No. 153,265, filed July 12, 1937, and another in my United States application Serial No. 153,266, filed on the same date.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawing.

Figs. 1 to 8 inclusive are perspective views showing different arrangements of dentifrice filled grooves in the rubber block.

Fig. 9 is an end elevation of Fig. 8.

Fig. 10 is a view similar to Fig. 9 but showing a slight variation.

Fig. 11 is an exaggerated detail sectional view showing the manner in which the dentifrice and the sponge rubber are keyed together or interlocked.

Various examples have been shown in the drawing, each consisting of a sponge rubber block 12 having a brushing surface 13 (or a plurality of such surfaces), one or more grooves 14 opening through said surface or surfaces, and a dentifrice 15 filling each groove. The grooves may be located and related with each other in a wide variety of ways as will be clear from the drawing and they may have right angularly related walls as shown for instance in Fig. 5, curved walls as shown in Fig. 9, acute angularly related walls as illustrated in Fig. 10, or they may be of any other desired cross-sectional shape.

Some of the webs 16 and cells 17 of the sponge rubber are exposed at the brushing surface 13 and others of said webs and cells are exposed at the walls of the grooves 14, and by the latter exposure, the dentifrice 15 and the sponge rubber may readily key together or interlock, obviating danger of the dentifrice falling out either prior to or during use. While this dentifrice might well be in the form of an unusually thick paste, it is preferably composed of appropriate tooth powder mixed with a water soluble binder, the grooves being filled with the mixture while the latter is plastic and being then partially dried with air and heat, the article however, being packaged in a moisture-proof container before the mixture becomes hard and brittle, the nature of the container insuring that the dentifrice shall not become excessively desiccated with danger of cracking and falling at least partially from the grooves.

When the cells and webs of the sponge rubber are exposed at the groove walls to allow effective interlocking between them and the dentifrice, it matters little what the cross-sectional shape of the grooves may be, as long as it be such as to retain the dentifrice. However, it may be advantageous in some instances, particularly if the cells and webs be not exposed at the groove walls, to provide grooves of such cross-sectional shape that they are narrower at their open sides as illustrated for example in Figs. 9 and 10. If grooves of this nature are to be cut into the sponge rubber block instead of otherwise forming them therein, it is of advantage to squeeze the block sides adjacent the brushing surfaces together along their central portions, imparting convex formations to the brushing surfaces by such squeezing and thereby facilitating the groove cutting. If the grooves be cut with substantially parallel side walls while the brushing surfaces are in convex form, said walls will move into outwardly converging relation when the pressure on the block is relieved and said brushing surfaces return to flat form. Grooves of the character under consideration may also be advantageously formed by cutting them in the sponge rubber while the latter is still in sheets, and while bent over forms to stretch the surface to be grooved.

While the improved cleaning element could of course be used simply by holding it between thumb and finger, it is preferably held in some suitable form of holder for convenience. The device is of course moistened with water before use and the combined action of the wet dentifrice and the sponge rubber serve to effectively

clean the teeth. Then too, the sponge rubber provides an excellent means for massaging the gums. The dentifrice is, of course, yieldably backed by the sponge rubber and works gradually from the grooves, effectively performing its function without danger of any excessive abrasive or similar action upon the teeth. The dentifrice-filled grooves preferably cover quite an extended area of each brushing surface and the device is therefore equally effective whether it be moved horizontally, vertically or in a rotary manner.

While I have referred to **13** as the brushing surface, the real brushing surface is formed jointly by the exposed side of the dentifrice insert and the surface **13**, the relative areas being such that each forms a portion of the brushing surface.

I claim:

A tooth-cleaning element to be used once and thrown away, said element comprising an elongated substantially rectangular sponge rubber block having a groove in one side, and a dentifrice insert filling said groove, one side of said dentifrice insert being exposed at said one side of said block, the relative areas of said side of said block and said exposed side of said dentifrice insert being such that a brushing surface is provided formed partly by said side of said block and partly by said side of said dentifrice insert, the cells and webs of said block being exposed at all portions of said brushing surface formed by the aforesaid side of said block, said groove being cross-sectionally shaped to retain said dentifrice insert therein, some of the cells and webs of the sponge rubber block being exposed at the walls of said groove to allow effective locking of the insert to the block.

CHARLES HENRY SEIFERT.