

May 29, 1928.

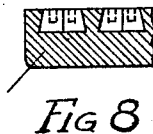
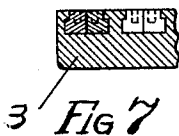
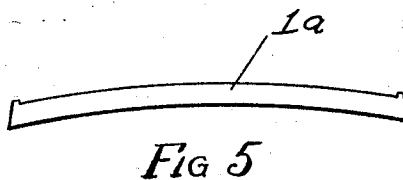
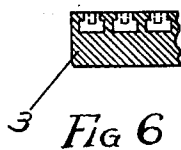
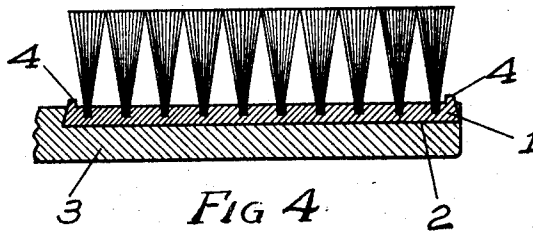
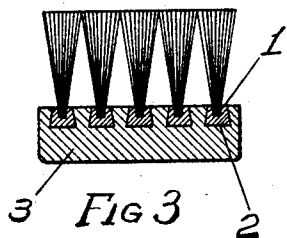
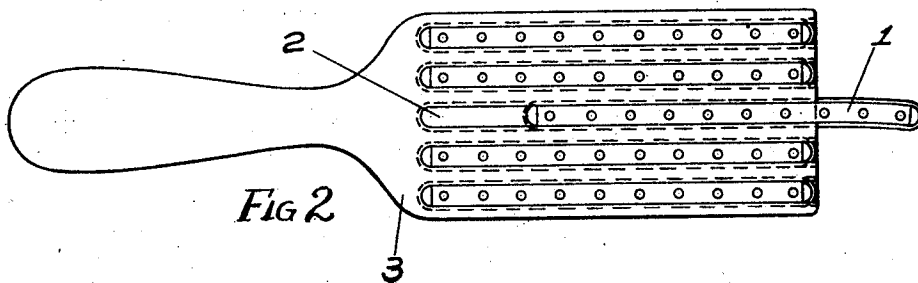
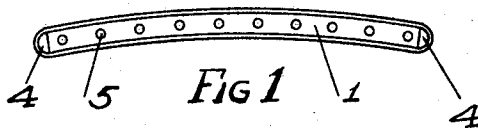
1,671,334

H. L. WHITE

BRUSH

Filed Oct. 13, 1923

2 Sheets-Sheet 1



INVENTOR

Harvard L. White
BY
William A. Hodges
ATTORNEY

May 29, 1928.

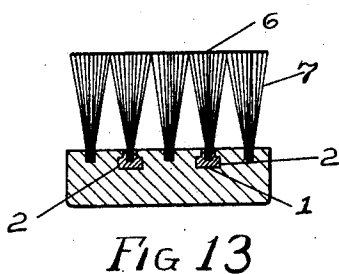
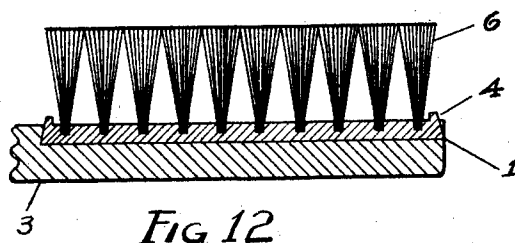
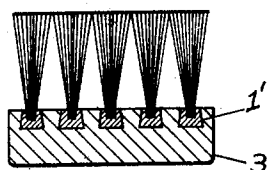
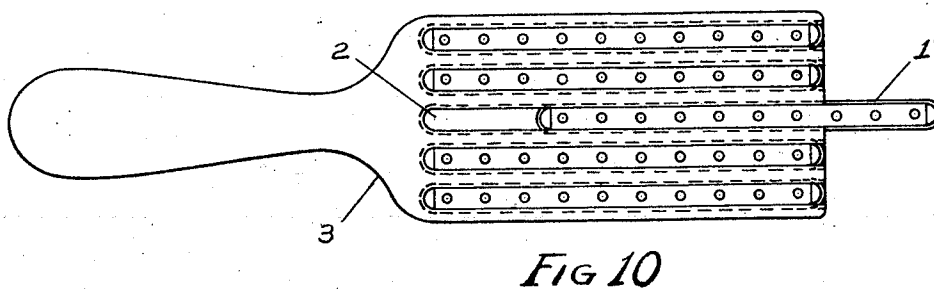
1,671,334

H. L. WHITE

BRUSH

Filed Oct. 13, 1923

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

HOWARD L. WHITE, OF NEW YORK, N. Y.

BRUSH.

Application filed October 13, 1923. Serial No. 668,253.

My invention relates to brushes having special provision for taking them apart for thorough cleaning or for the substitution or replacement of parts. It particularly relates to brushes having bristle holding slides inserted in the brush back and to simple means for firmly holding the slides in the back and yet allowing the easy removal of them for the cleaning of the brush, etc.

The object of my invention is to provide a brush which can be taken apart for cleaning, or for reversal, exchange, or substitution of parts, and which is simple of construction and is sanitary.

Another object of my invention is to provide a bristle slide type of brush in which the bristle slide is held in the brush by simple means.

In the ordinary brushes of the bristle slide type various devices are resorted to for securing the slide to the brush back, but such devices are complicated and have parts which catch and accumulate dirt and cause the brush to become unsanitary. This is especially the case in tooth brushes of this type, for the extra parts tend to collect and retain tooth paste or powder and foreign matter from the teeth and are undesirable and even become dangerously unsanitary.

Metal parts are often used to secure the slides in the brush back but these are undesirable in such as clothes, hair, and tooth brushes and it is to such brushes that my invention is particularly applicable although it is capable of general application.

My invention involves a bristle slide for a grooved brush back which, being substantially of the same cross-sectional size and shape as the groove therefor, has a fit with said back which is a little tighter than a sliding fit and which is tight enough to hold the slide in the brush against forces exerted on it in the ordinary use of the brush but which is not so tight as to prevent convenient removal of the slide from its groove for the purpose of cleaning, exchange, etc., of the slides and bristles.

A modification of my invention involves a bristle slide of somewhat resilient material which while being of the same cross-sectional

outline as the groove into which it fits and of such smaller size as to allow its being easily slid into the groove, yet has a longitudinal axis which is not of the same shape as that of the groove. This difference in the longitudinal section of the slide from that of the grooves along their respective and substantial lengths causes a binding between the sides of the slides and the sides of their respective grooves which insures the holding of the slide against any force applied in the ordinary use of the brush. The brush back is solid enough to be rigid and the slide is resilient enough to bend to accommodate itself to the groove into which it is slid and yet is stiff enough to cause a binding between the sides of the groove and the slide. That the sides of the groove and of the slide be approximately parallel with their respective axes is of course necessary for the slide and groove construction. The sides of the groove tending to cause the slide to conform and fit the groove causes a binding between the slide and groove when they are slid together which holds the slide in the brush back securely enough for all purposes for which the brush is ordinarily used. It also allows the slides to be taken out of the back with out any excessive force.

Ordinarily in making my brush I either make the slides slightly bowed along their length and their respective grooves straight, or I make the slides straight and the grooves bowed. The slides when bowed can have the bow in any place along their length or in any plane of their axis but my usual method is to bow them in the plane of the axis of their bristles (see Fig. 5 of the accompanying drawing) or in the plane at right angles to the plane of the bristles (see Fig. 1). When making a brush in which the bristle rows are on a decided curve as in oval shaped brushes I make the groove along a regular curve such as an arc of a circle or ellipse of large diameter and make the bristle slide with a curve of slightly less or more curvature.

In the drawing Fig. 1 shows a plan view of a slide curved in a plane normal to the axes of the bristles.

Fig. 2 shows a plan view of a brush back with brush slides fitted into the groove thereof and with one slide but partly pushed into its groove.

Fig. 3 is a transverse sectional view of my brush showing the cross-sectional shape of the grooves and slides.

Fig. 4 is a longitudinal section through a brush back showing a slide positioned in a groove.

Fig. 5 is a side elevation of a bristle slide which is curved in the plane of the axes of the bristles.

Fig. 6 shows a cross-section of a part of a brush back with grooves and slides of T-shaped cross-section therein.

Fig. 7 shows a split or double slide, each part carrying a row of bristles and the two parts together forming a T-shaped cross section to fit a similarly shaped groove.

Fig. 8 shows a two part slide similar to that of Fig. 7 but of dove-tailed cross-section as in Fig. 3.

In Fig. 9 is shown a slide similar to those shown in Figs. 1 and 5 but which is substantially straight throughout its length and which depends upon friction between its sides and those of its groove for holding it in its groove.

Figs. 10 to 12 show this straight form of slide inserted into straight grooves in a brush back.

Fig. 13 is a sectional view of a brush having bristles set in both the brush back itself and in brush slides. In this view is also shown a T-slot slide and groove arrangement.

In the different figures of the drawings like characters refer to like parts throughout.

In Fig. 1 the bristle slide, 1 is curved in a plane normal to the axes of the bristles and of the bristles holes, 5. On either end of the slide are the raised portions, 4 which facilitate the pulling or pushing of the slide into or out of the groove.

In Fig. 2 the brush back or body, 3 has in it the dove-tailed grooves, 2 into which fit the slides, 1. The slides, of course are made in the dove-tailed shape to conform to that of the grooves. Here is also shown a slide, 1 inserted part way into its groove, the part in the groove having been straightened out to the configuration of the groove.

The transverse section shown in Fig. 3 shows the sectional shapes of the grooves, 2 and the slides, 1. In Fig. 4 is shown the slide, 1 as having conformed longitudinally to the shape of the groove, 2 when inserted therein. In this case the slide is normally curved and the groove straight as shown in Fig. 2. In Fig. 5 is shown a slide, 1^a with the bristles, 4 inserted therein. The slide in this case is curved in the plane of the axes of the bristles.

In Fig. 6 is shown a cross sectional shape of slide and groove which is T-shaped and which has for certain forms and uses of brushes advantages not possessed by the dove-tailed slot and slide shown in Fig. 3.

In Figs. 7 and 8 are shown T-shaped and dove-tailed slots and slides, respectively but in these figures the slides are split to form double slides each section of the slides having bristles mounted thereon. In these slides the contiguous faces of the two sections of each slide are substantially perpendicular to the bottom of the slide and with the opposite faces angled or beveled to fit the T-shaped or dove-tailed groove, respectively. This double form of slide allows a close arrangement of the bristle rows in the brush.

In Fig. 9 is shown a slide, 1' similar to those shown in Figs. 1 and 5 but which is substantially straight throughout its length. This form of slide is made for either a curved groove or for a straight groove as shown in Fig. 10. Where a straight slide is mounted in a straight groove friction between the sides of the groove and of the slide serves to hold the slide in the groove. Figs. 10 to 12 show this form of slide and its grooved brush back assembled.

For some purposes I find that it is desirable to mount the bristles in the brush backs by means of slides only in alternate rows of the brush. Removing a slide in such a brush provides sufficient additional space between the fixed rows of bristles to allow convenient access for the cleaning of the brush. In Fig. 13 is shown such a brush in which the bristles, 7 are set in rows which alternate with the grooves, 2 into which fit the bristle slides, 1 with their bristles, 6.

From the specification and drawings it is obvious that the bristle slides may be readily removed for cleaning, or for reversing end for end to insure even wear of the bristles, or for the replacement of worn slides with new ones.

I claim:

1. In a brush, in combination, a brush back having a groove with undercut sides and a bristle holding slide for such groove, said slide being resilient and having an axis of different shape from that of said groove, whereby said slide is held in said groove against any force normal in the use of the brush and whereby the slide may be easily and quickly removed from or put into the brush back.

2. In a brush, in combination, a brush back having straight grooves with undercut sides, slides of substantially the same cross section as said grooves, and bristles mounted on said slides, said slides being of resilient material and normally curved longitudinally whereby when inserted in said grooves they will frictionally engage the sides of said grooves to hold them in place during use

and whereby they can be taken out and re-inserted or replaced.

3. A brush structure comprising a brush back constructed to form a plurality of undercut grooves of like cross-sectional size and shape, and a plurality of interchangeable bristle holders of resilient material each

of the same cross-sectional size and shape as that of the brush back grooves but of different longitudinal shape.

Signed at New York, in the county of New York and State of New York, Oct. 12, A. D. 1923.

HOWARD L. WHITE.