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2,679,063

RESILIENT BRUSH

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Fig. 1

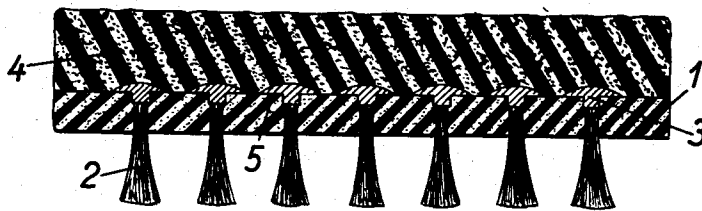


Fig. 2

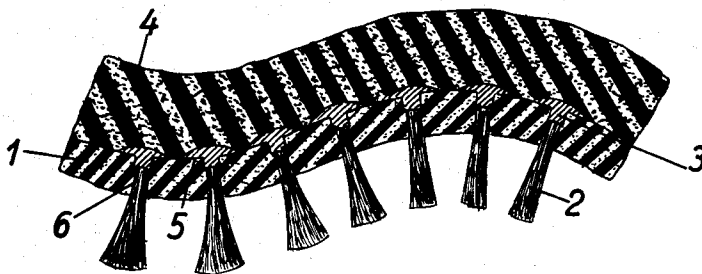
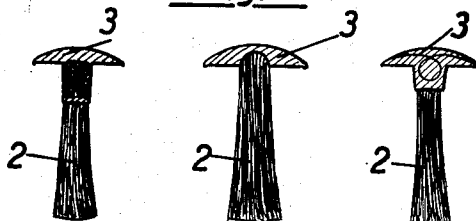


Fig. 3



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RESILIENT BRUSH

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2 Claims. (Cl. 15—186)

1

This invention relates to resilient brushes.

As compared with rigid brushes, resilient ones have the advantage that the bristle tips can be adjusted to a high degree to the surface to be treated.

Flexible or resilient brushes are known in which the bristles are fixed either by means of a binding medium, such as hemp or wire (as disclosed in the German Patent No. 71,274), which is not expanded when the brush is being deformed, or by means of spherical heads provided on the massage pins or bristle bundles and fixed in the bristle carrier (as disclosed in the British Patent No. 17,492, A. D. 1914).

The brush embodying this invention is advantageously distinguished from the known types in that the several bundles of bristles, or massage pins, are fixed by means of convex-top heads not in the resilient bristle carrier, but superficially behind the same, and that the bristles are loosely fitted in holes in the bristle carrier.

A brush embodying the invention is shown by way of example in the drawings, in which

Figs. 1 and 2 are sectional views showing the brush in two different positions, and

Fig. 3 illustrates the shape of the bristle heads and a few of the possible methods of fixing the bristles.

1 is a plate from moss rubber or a similar material and used as a bristle carrier. Combining high strength and elasticity this plate, as shown in the drawing, has a core formed with a multitude of hollow cells closed from each other, and on both sides of said core a closed surface layer less resilient than said core. Moss rubber is the translation of the German word "Moosgummi" or the French "caoutchouc mousse" and is described, e. g., in Germany Patents Nos. 114,250; 160,710; and 821,423. A sponge rubber plate or body 4, of a known type, is combined with the bristle carrier to form an elastic brush body. The sponge rubber plate 4 holds the heads 3 against the bristle carrier. Owing to its sponge-like nature the plate 4, as an additional cleaning means, substantially increases the range of application of the brush.

The bristle bundles 2 or massage pins have heads 3 of any suitable material, such as sheet metal or plastics, in which the bristles are fixed, e. g., by means of wire loops or ties, or by cementing or vulcanizing. Where the material of the bristles permits they may directly be provided with heads in dipping or fusing processes.

The outside shape of the heads, similar to a lens, in particular to a spherical cap, is essential

2

to enable the bristle bundles 2, fixed in the heads, to be pushed from below into the finished brush body, which consists of the moss rubber plate 1 and the sponge rubber plate 4. Furthermore, it is essential that the bottom surface 5 of the heads be flat or concave so as to superficially bear against the strong upper skin of the plate made from moss rubber or an equivalent material. The sponge rubber plate is somewhat displaced when the heads are being pushed in and ensures that the heads are held firmly by the pressure exercised upon the same.

The loose fit of the bundles of bristles in the moss rubber plate gives the brush favorable properties in view of the nature of the human and animal epidermis. Outwardly bulging portions, being less susceptible than hollow ones, and extremities require harder and denser bristles. When the brush hugs an extremity the pressure exercised by the moss and sponge rubber plates causes the heads to assume a position in which the plane defined by them is tangential in respect of the curvature whereas the bristles assume a radial position. The bristles are then closer to each other and the strong lower skin layer of the bristle carrier clamps the bristles fast so that they are given a harder effect. The opposite effect is observed when the brush is bulged outwardly, e. g., at a hollow portion of the body.

What I claim is:

1. In a brush comprising a resilient body, the combination of a rubber plate comprising a core formed with a plurality of hollow cells closed from each other and having on both sides of said core a closed surface layer less resilient than said core, said plate being fixedly connected to said body with one of said surface layers and having a plurality of holes extending through said surface layers and core, and a plurality of bristle members consisting of material sufficiently resilient to deflect under brushing pressure, each of said bristle members extending as a loose fit in one of said holes through the core of said plate and beyond the outer surface layer thereof, which is remote from said body, and carrying a convex-top head retained between said body and rubber plate.

2. In a brush comprising a resilient body, the combination of a rubber plate comprising a core formed with a plurality of hollow cells closed from each other and having on both sides of said core a closed surface layer less resilient than said core, said plate being fixedly connected to said body with one of said surface layers and having a plurality of holes extending through said surface

3

layers and core, and a plurality of bristle members consisting of material sufficiently resilient to deflect under brushing pressure, each of said bristle members extending as a loose fit in one of said holes through the core of said plate and beyond the outer surface layer thereof, which is remote from said body, and carrying a convex-top head retained between said body and rubber plate, the thickness of said rubber plate, the width of said holes and the thickness of said bristle members in said holes being so related that said outer surface layer when outwardly concavely deformed is adapted to clamp and when outwardly convexly formed is adapted to release said bristle member, whereby the effective length and resiliency of said bristle members is varied in dependence of the shape in which said outer surface layer is deformed.

4

References Cited in the file of this patent

UNITED STATES PATENTS

	Number	Name	Date
5	1,364,971	Alexander	Jan. 11, 1921
	1,957,363	Snell	May 1, 1934
	2,441,682	Wybrants	May 18, 1948
	2,482,928	Neff et al.	Sept. 27, 1949

FOREIGN PATENTS

	Number	Country	Date
10	2,541/31	Australia	Mar. 18, 1932
	426,495	Italy	Oct. 27, 1947
	492,752	Germany	Mar. 1, 1930
	944,767	France	Nov. 8, 1948

15