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BRUSH HAVING RELATIVELY MOVABLE BRISTLE CARRYING SECTIONS

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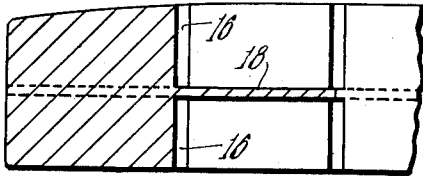


Fig. 3.

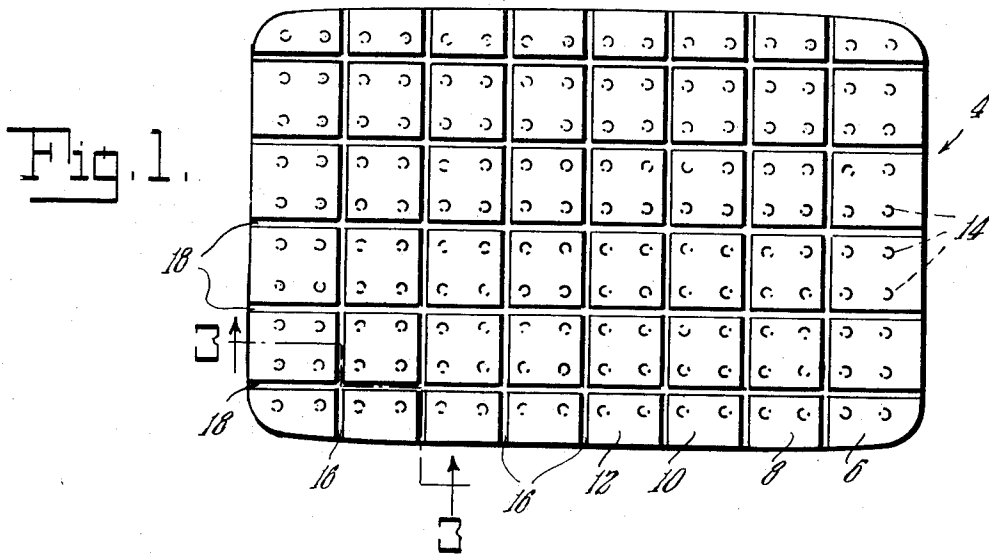
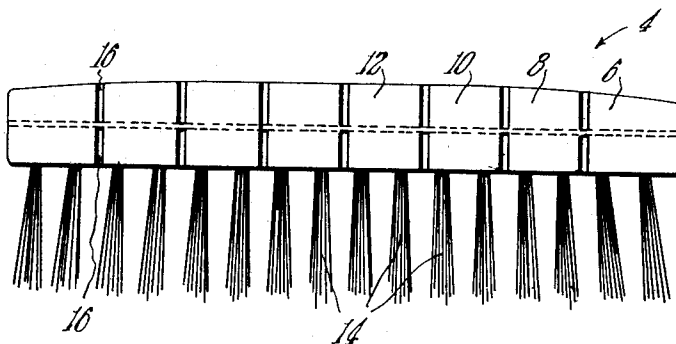


Fig. 1.

Fig. 2.



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BRUSH HAVING RELATIVELY MOVABLE BRISTLE CARRYING SECTIONS

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2 Claims. (Cl. 15—201)

This invention relates to new and useful improvements in brushes and is directed more particularly to brushes having relatively flexible bristle-carrying sections and to an improvement in a means for producing same.

It is the principal object of this invention to provide a novel and improved construction of the type in which the brush has a flexible bristle supporting head portion whereby the bristles may more closely conform to the contour of the head or other parts of the body when the brush is in use.

One of the primary purposes of this invention is to provide structural and operational improvements in devices of the class to which reference has been made, which improvements provide important distinct advantages in strength, flexibility, durability and the like.

With the above primary object in view, it is another object of this invention to provide a construction of the above described character which is distinctive in its appearance, simple in its construction, and reliable in its operation.

It offers a device which can freely and readily fit itself to conform to any configuration of the body so as to keep the bristles in close touch with the body surface by the very reason of this unique flexibility.

Brushes have heretofore been made where the bristle supporting heads have included a plurality of bristle carrying sections connected by means of metallic springs for relative flexing of the sections. Such brushes have not been satisfactory. There has consistently been a faulty bond between the metal spring and the plastic of the bristle carrying sections. The metal has been subject to corrosion as well as to fatigue. The metal elements have set so as to rupture with normal use.

According to this invention, a brush construction is provided which comprises a plurality of bristle carrying sections which are flexibly connected by non-metallic spring-like connecting elements which are formed from the plastic material of the sections themselves and are integral therewith.

Such a construction overcomes many of the aforementioned objectionable features in the prior art devices and has many advantages thereover as will be observed as this description proceeds. For instance, I have determined as a result of considerable experimentation that brushes of this new construction have a longer life than brushes employing their metallic spring members as they are capable of many times the number of flexing movements obtainable with brushes employing the metal springs.

This invention also consists in certain other new and original features of construction as will hereinafter be set forth and claimed in conjunction with the annexed drawings which illustrate a certain form of embodiment thereof. The form disclosed is deemed preferable since the same has been found in practice to give satisfactory and reliable results.

It is to be understood, however, that the various parts can be changed within the scope of the claims without

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departing from the broad aspects and spirit of the invention. All of the above cited objects, I accomplish by means of such structure and relative arrangement of parts, as will fully appear by a perusal of the description below and by various specific features hereinafter to be set forth.

To the above cited and other ends and with the foregoing and various other novel features and advantages and other objects of this invention as will become more readily apparent as the description proceeds, this invention consists in certain novel features of construction and in the combination and arrangement of parts as will be hereinafter more particularly pointed out in the claims hereunto annexed and more fully described and referred to in connection with the accompanying drawings wherein:

Fig. 1 is a top plan view of the brush of the invention; Fig. 2 is a side elevational view of the brush shown in Fig. 1; and

Fig. 3 is a sectional elevational view along the line 3—3 of Fig. 1.

Referring now to the drawing more in detail, I have shown a brush which includes a head or bristle supporting portion generally indicated by 4.

The head portion 4 includes a plurality of bristle supporting sections similar to those indicated by numerals 6, 8, 10 and 12 which are spaced in longitudinal and transverse rows substantially as shown in Fig. 1.

These rows of sections are spaced apart as shown so as to be movable relative to each other as will subsequently appear.

The brush construction is preferably formed from suitable plastic material by an appropriate molding operation.

From these various sections extend tufts 14 of bristles which may be of any length or shape. The tufts are represented by dotted lines 14 in Fig. 1. Sockets for the tufts are provided in the sections as by molding or by drilling and these may have any relative spacing and arrangement as desired, the arrangement shown being merely for illustrative purposes.

The tufts are secured in the sockets provided in the molded sections of the head portion by suitable means which engage the bristles in the sockets.

According to my invention, the bristle sockets may be provided in the molding operation or they may be thereafter formed by drilling same into the bristle supporting sections.

Additionally, I provide spaces 16 between the bristle supporting sections which spaces are disposed longitudinally and transversely of the brush as shown in Fig. 1 and extend downwardly from the upper surface thereof and upwardly from the lower surface to points adjacent the midsection thereof in such a manner as to provide a longitudinally extending centrally disposed spring-like section 18 which is integral with the bristle supporting sections.

It will be understood that such construction may be provided during the molding operation by means of appropriately positioned spaces in the molds which are adapted to provide the spaces 16 in the end product or it may be provided subsequent to the molding operation by means of suitable cutting operations whereby the spaces 16 are formed in the end product.

In any event, the separate bristle supporting sections are connected together by means of the member 18 whereby the separate sections may be freely flexed relative to each other.

Thus, there is provided a plurality of square or rectangular shaped bristle supporting sections which are separated from each other by spaces which are disposed not only in planes parallel to the longitudinal axis of the brush but in planes transverse thereto as well, which

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sections are connected to each other by means of a resilient member 18 which is integral with the bristle supporting sections themselves.

By means of this construction the bristle supporting sections are flexible or relatively movable in opposed directions.

It will be understood that the spaces 16 extending either in the longitudinal or in the transverse direction could be eliminated so as to provide elongated bristle supporting sections which would be flexible or relatively movable in transverse or longitudinal directions only relative to each other.

Non-rigid or elastomeric vinyl compounds are especially adapted for use in the practice of this invention. Polyethylene is especially suited due to its extreme flexibility, its strength, and its other superior properties which lend themselves to provide a plastic material which is adapted to withstand repeated flexing without fatigue and rupture.

The invention may be embodied in other specific forms without departing from the essential characteristics thereof. Hence, the present embodiments are therefore to be considered in all respects merely as being illustrative and not as being restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all modifications and variations as fall within the meaning and purview and range of equivalency of the appended claims are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

1. A brush construction comprising in combination, a one-piece unitary body molded from plastic to have integral bristle support sections and reduced flexible con-

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necting webs therebetween, said sections having horizontal spaced upper and lower faces and arranged in both longitudinally and transversely spaced rows of sections, said connecting webs being disposed intermediate upper and lower faces of said sections and holding adjacent sides of adjacent sections in spaced relation whereby said webs may flex for relative movements of said sections, and bristles secured to and extending from lower faces of said sections.

2. A unitary brush construction comprising in combination, a one-piece body of plastic material having opposite and adjacent longitudinal sides and transverse ends and upper and lower faces, said body being provided with transversely spaced longitudinally extending slots and with longitudinally spaced transversely extending slots extending downwardly and upwardly from upper and lower faces thereof and having bottoms terminating at a distance from one another and forming relatively thin weblike flexible portions connecting transversely spaced rows of longitudinally spaced bristle sections, and tufts of bristles secured in said bristle sections having bristles extending from a face of said sections.

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