Jan. 17, 1956 L. R. BRESSLER 2,730,747

BRUSH HAVING RELATIVELY MOVABLE BRISTLE CARRYING SECTIONS

Filed June 21, 1952

Fig. 1

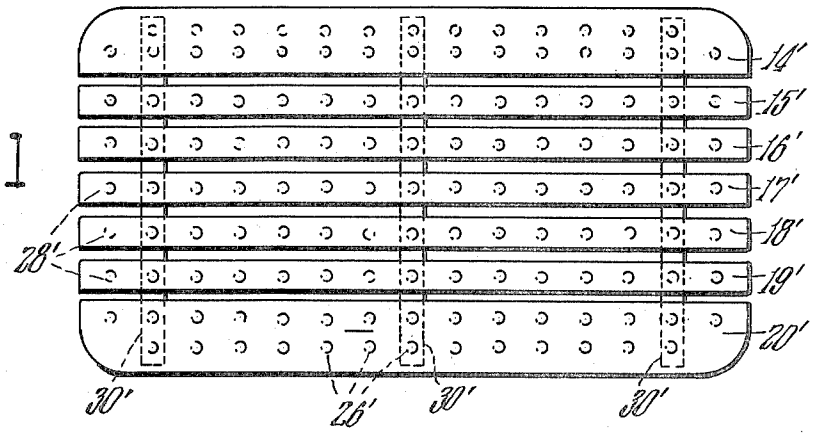
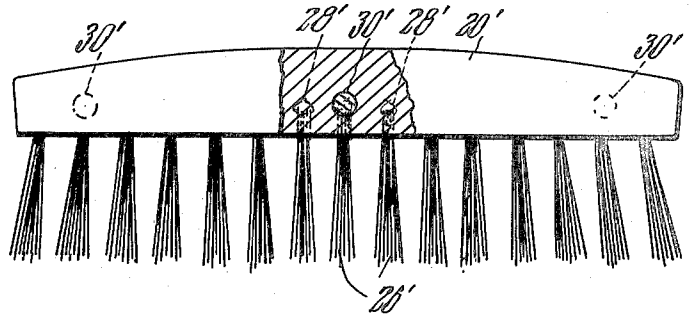


Fig. 2.



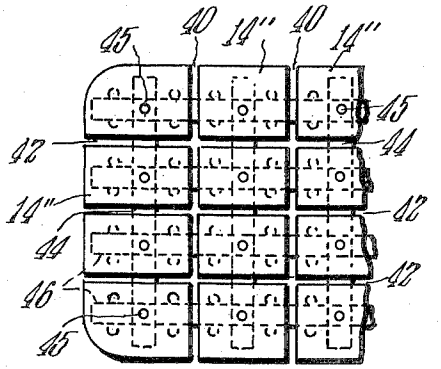


Fig. 3.

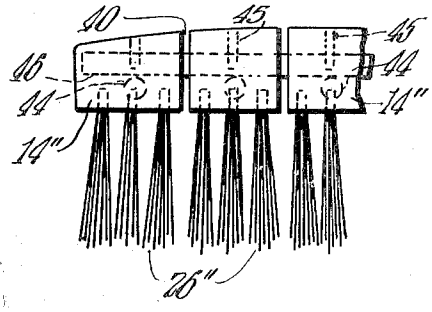


Fig. 4.

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United States Patent Office 2,730,747 Patented Jan. 17, 1956

2,730,747

BRUSH HAVING RELATIVELY MOVABLE BRISTLE CARRYING SECTIONS

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Application June 21, 1952, Serial No. 294,850

3 Claims. (Cl. 15—201)

My 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 my invention to provide a novel and improved construction of the type in which the brush has a bristle supporting head portion which is flexible whereby the bristles may 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 my invention is to provide structural and operational improvements in devices of the class to which reference has been made, which improvements not only simplify the structure as such but also provide important distinct advantages in strength, flexibility, durability and the like.

With the above primary object in view, it is another object of my 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. Furthermore, 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 very reason of this aforementioned 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 and are objectionable for numerous reasons. There is a faulty bond between the metal spring and the plastic of the head sections and the metal is subject to corrosion as well as to fatigue. Furthermore, the metal sets so as to rupture with normal use and the tufts of bristles are not properly secured in the sections because the securing means, usually comprising staples, may not extend into the plastic material to the required depth. That is, the staples cannot extend through the metal spring which results in inadequate bristle securement.

According to my invention, a brush construction is provided which is formed by bristle sections flexibly connected by non-metallic spring-like members which are formed from a plastic such as nylon or the like.

Nylon is a well known synthetic polyamide of extreme toughness, strength, and elasticity well suited for the practice and is made in the form of rods, sheets and the like.

Such a construction overcomes the difficulties experienced with prior art brushes and has many advantages thereover in that the plastic spring members are adequately bonded or secured to the bristle sections, are resistant to corrosion, and have a much longer life than metallic springs as they are capable of many times the flexing movements of metal springs and the staples may impinge or extend through the nylon spring thereby to secure the sections together.

My invention also consists in certain new and original features of construction hereinafter set forth and claimed in conjunction with the annexed drawings which illustrate a certain form of embodiment thereof, which form is deemed preferable since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various parts can be changed within the scope of the claims without 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 my invention as will become more readily apparent as the description proceeds, my 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 construction;

Fig. 2 is a side elevational view of the brush shown in Fig. 1 with parts broken away for purposes of clarity;

Fig. 3 is a partial top plan view of a modified form of the brush construction; and

Fig. 4 is a side elevational view of the brush shown in Fig. 3.

I have shown in Figs. 1 and 2 a brush construction wherein the bristle supporting sections 14', 15', 16', 17', 18', 19' and 20' are elongated and are so related to each other that the spaces therebetween are parallel to the longitudinal axis of the brush.

By the arrangement shown in Figs. 1 and 2, the danger of hairs being caught within spaces is obviated inasmuch as the slots and the bristle support members are disposed in planes transverse to the plane of the normal brushing action and not parallel to it.

The separate bristle supporting members are connected integrally by means of resilient spring members 30', any desired number of such members being adaptable for use, although in the construction shown three of such members are employed.

The tufts 26' of bristles which are represented by dotted lines in Fig. 1 are held by means of staples 28' within sockets in the bristle supporting members.

Certain of the tufts are stapled in sockets extending through the bristle supporting sections and into the spring members 30' disposed therein. The stapling provides means to secure the bristle sections to flexible members in their separated spaced relation.

As modified form of my invention, I have shown in Figs. 3 and 4 an arrangement wherein there are a plurality of square or rectangular bristle 14'' supporting sections which are separated from each other both by spaces 40 which are disposed transversely to the longitudinal axis of the brush and spaces 42 which are disposed parallel to the longitudinal axis of the brush.

The members are connected to each other by means of resilient spring members 44 such as described which extend therethrough in planes transverse to the longitudinal axis of the brush and spring members 46 which extend in planes parallel to the longitudinal axis of the brush.

In this modification spring-like members 44 and 46 are disposed at right angles and being secured to the bristle sections said sections are relatively movable in opposed directions.

The tufts 26'' of bristles are secured within sockets in the bristle supporting sections 14'' by stapling as before

described. Certain of the tufts are secured in sockets which extend through the sections 14'' and into the spring members 44 by stapling as described.

Pins 45 extend through the bristle sections and into the members 46 which pins may be formed from material similarly to that of the members 44 and 46.

It will be observed that in this construction the plane of one of the sets of spring members (in this illustration, member 46) is disposed above the plane of the other set of spring members (members 44) same being obviously necessary with the construction as disclosed.

Conceivably the members 44 and 46 could be formed into a single preformed unitary structure and the bristle supporting sections could be molded thereon in the aforementioned manner.

As in the former case the bristle sections may be formed and then drilled for the members 44 and 46 or in some manner the bristle sections may be molded about said members.

In all modifications, means is provided for securing the bristle sections to the spring-like members and in one way the stapling of bristle tufts in the spring-like members and the pins or pegs accomplishes the purpose.

Nylon has been mentioned as suitable for the spring members due to its strength and flexibility but any other non-metallic plastic material having the desired characteristics will be adequate. That is, plastic material 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 having a sectionalized bristle carrying portion comprising in combination, separate outer bristle sections at opposite and adjacent sides and ends of said brush and separate intermediate sections between said outer sections, straight elongated plastic resilient rod members having opposite ends embedded in the outer sections at opposite sides of the brush and in intermediate sections between said outer sections, other straight elongated plastic resilient members disposed transversely to the first-named members having opposite ends embedded in the outer sections at opposite ends of the brush and intermediate sections embedded in intermediate sections between said end sections, said first and second named resilient members being in different planes and crossing one another and holding said sections with adjacent faces of adjacent sections in spaced relation for relative movements thereof as said resilient members

are flexed, tufts of bristles having upper ends extending into said sections with the bristles thereof extending therefrom, and staple means securing upper ends of said bristle tufts in said sections.

2. A brush having a sectionalized bristle carrying portion comprising in combination, separate outer bristle sections at opposite and adjacent sides and ends of said brush and separate intermediate sections between said outer sections, straight elongated plastic resilient rod members having opposite ends embedded in the outer sections at opposite sides of the brush and in intermediate sections between said outer sections, other straight elongated plastic resilient members having opposite ends embedded in the outer sections at opposite ends of the brush and intermediate sections embedded in intermediate sections between said end sections, said first and second named resilient members being in different planes and crossing one another and holding said sections in brush forming relationship with adjacent faces of adjacent sections in spaced relation for relative movements thereof as said resilient members are flexed, tufts of bristles having upper ends extending into said sections with the bristles thereof extending therefrom, and staple means securing upper ends of said bristle tufts in said sections, and means securing at least certain of said resilient members in certain sections.

3. A brush of the sectionalized type comprising in combination, transversely spaced rows of separate bristle sections having tufts of bristles secured therein with bristles thereof extending therefrom, means securing said bristle sections together with adjacent faces of adjacent sections in spaced relation, said means including straight elongated rod members formed from resilient nylon disposed in one plane and being embedded in the sections of the rows thereof and other similar rod members extending transversely to the first-named rod members and in a plane spaced from said first-named plane and being embedded in corresponding sections of the rows of sections whereby portions of rod members are disposed in an angular relation in each of the sections, and means extending within certain sections and into certain rod members embedded therein securing the sections and rod members together.

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