TOOTHBRUSH WITH A FLEXIBLE HEAD

Louis R. Bressler, Southampton, Mass., assignor to Stanley Home Products, Inc., Westfield, Mass., a corporation of Massachusetts

Application March 16, 1953, Serial No. 342,641

2 Claims. (Cl. 15—167)

Referring now to the drawings more in detail, the invention will be fully described.

The head of the toothbrush is represented by Fig. 1 and includes an outer end section 4, an inner end section 6 and intermediate sections 8. A handle 10 of usual form extends from the section 6.

The toothbrush is molded in a mold and under heat and pressure from plastic material and the sections in the molding operation enclose an elongated flat resilient spring-like member 12. The member 12 is located in the mold so as to extend through the intermediate sections and terminate in the inner and outer end sections.

The mold is formed so as to provide spaces 14 between the sections and the member 12 may be provided with notches on opposite sides 13 coinciding with the spaces between the sections.

The member 12 will be formed from nylon which is very strong and capable of flexing between the sections many millions of times without rupture wherefore the sections are relatively movable. The notches 13 enhance the flexibility of the member 12.

Subsequent to the molding operation, holes or sockets for tufts of bristles 16 are provided. Said sockets in the preferred way are formed by drilling and extend upwardly through the lower portion 18 of the sections, through the member 12 and upwardly into the upper portion 20 of the sections as shown in Figs. 3 and 4.

The resilient member being plastic the sockets extend therethrough so that the tufts of bristles have upper end extending upwardly into the upper portions of the sections which is desirable for suitable securement of the bristle tufts.

The bristle tufts 22 include a plurality of bristles 24 which are doubled upon themselves intermediate their ends and inserted in the sockets.

The tufts are secured in the sockets by what will be called anchors and to explain the securement a single bristle 24 is shown in Figs. 3 and 4.

In Fig. 3 the anchor consists of an elongated member which may be small wire as 26 which overlies the bristles and is wedged into the socket. By doubling the bristles, the anchor lies within a loop 24′ of the bristles.

In another way, as in Fig. 4, a staple 22 is driven into the upper portion 20 of the section and engages the loop 24″ of the bristles.

The sockets will be of such a diameter as to snugly receive the doubled bristles forming the tufts and the anchors will securely hold the bristles of the tufts in the bottoms of the sockets.
The tufts extend through the resilient member so as to be secured in the upper portions of the sockets whereby the bristles are secured against displacement.

The member 12 being formed from nylon is sufficiently stiff to retain the sections in the desired relationship but possesses flexibility whereby the sections may be relatively flexed many millions of times.

Nylon is a generic name for materials defined as synthetic fiber-forming polymeric amides having protein-like chemical structure derived from coal, air and water, or other non-metallic substances characterized by great strength and flexibility and resistance to fatigue and corrosion.

It will be noted that the sections of the head are molded around and flexibly connected by a resilient member for readily flexing movements of the sections. The sockets in which the bristle tufts are anchored extend through the flexible member with the tufts being anchored above the flexible member thereby insuring against relative displacement of the parts.

While I have illustrated and described the invention as embodied in a specific arrangement, I do not intend to be limited to the details shown since various modifications and structural changes may be made without departing in any way from the spirit of the invention.

Without further analysis, the foregoing will sufficiently reveal the gist of my invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the claims below.

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

1. A brush construction having a flexible bristle carrying portion comprising, said bristle carrying portion including opposite end sections and intermediate sections therebetween formed from plastic material, an elongated relatively thin resilient member formed from plastic material extending through said intermediate sections and having end sections disposed in said end sections and spacing adjacent sides of adjacent sections apart, said resilient member being disposed between upper and lower portions of said sections, said sections provided with sockets extending upwardly through the lower portions thereof and said resilient member and terminating in the upper portions thereof, bristle tufts including bristles doubled upon themselves with the doubled portions extending upwardly in said sockets and anchors securing said tufts in the terminations of said sockets.

2. A toothbrush having a flexible head comprising, an elongated handle and a sectionalized head at one end thereof molded about a resilient member, said head including an inner head section integral with an end of said handle and an outer head section and a plurality of intermediate head sections therebetween, said resilient member comprising an elongated strip of relatively thin plastic material having opposite ends disposed in said inner and outer head sections and an intermediate portion extending through said intermediate sections, adjacent sides of adjacent sections being spaced apart a relatively small distance and said resilient member being disposed intermediate upper and lower portions of said sections, said sections provided with sockets for bristle tufts extending upwardly through the lower portions thereof and through said resilient member and terminating in the upper portions thereof said resilient member, upper portions of tufts of bristles disposed in said sockets, and anchors securing said bristle tufts in the upper terminations of said sockets.

References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,466,723</td>
<td>Izawa</td>
<td>Sept. 4, 1923</td>
</tr>
<tr>
<td>1,920,328</td>
<td>Carpenter</td>
<td>Sept. 20, 1933</td>
</tr>
<tr>
<td>2,224,788</td>
<td>Jobst</td>
<td>Dec. 10, 1940</td>
</tr>
<tr>
<td>2,254,365</td>
<td>Griffith et al.</td>
<td>Sept. 2, 1941</td>
</tr>
</tbody>
</table>