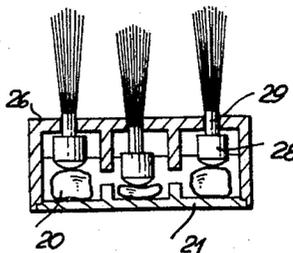
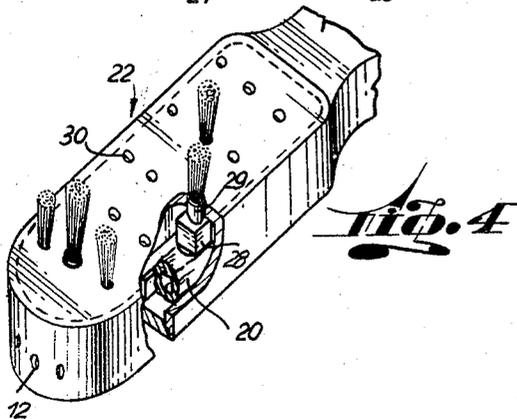
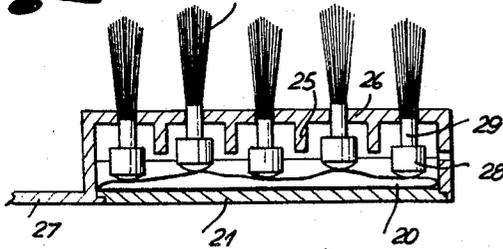
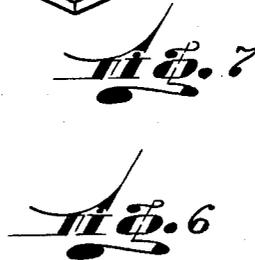
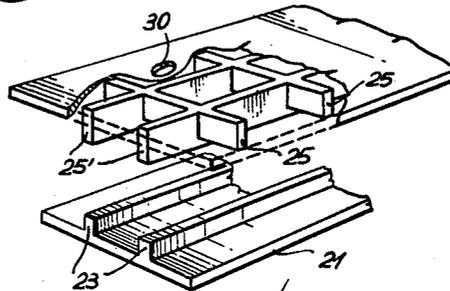
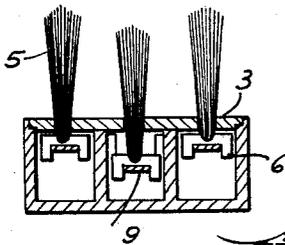
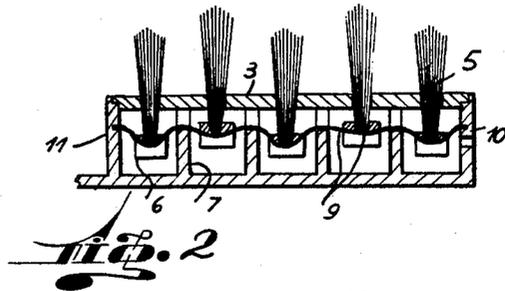
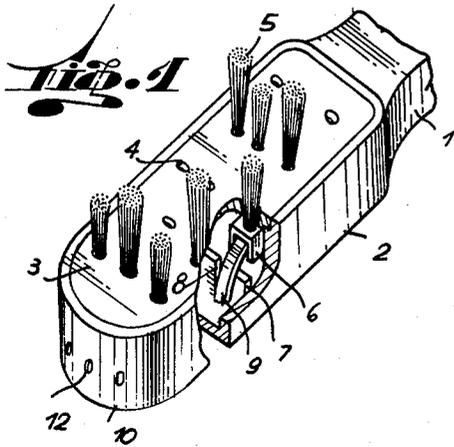


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TOOTH-BRUSHES AND THE LIKE

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2,935,755

**TOOTH-BRUSHES AND THE LIKE**

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7 Claims. (Cl. 15—167)

The invention relates to improvements in tooth-brushes and the like such as massage brushes, and more particularly it refers to an improved arrangement of the bristles or the like so that a better cleaning or massage may be carried out.

The tooth-brushes so far well known are all of the fixed bristles type, that is to say that the bristles are stationary mounted in the bristles supporting portion or housing of the handle, and different designs have been proposed as to the operating surface of the bristles so as to achieve better cleaning results for the teeth.

With these known types of tooth-brushes it is necessary to apply a substantial pressure, in order to be able to reach as far as possible all the different interstices, which method is erroneous and even injurious if the user has a delicate gum.

Accordingly it has been considered that the ideal tooth-brush would be one which is able to efficiently clean the teeth with a minimum of pressure, by adapting the bristle tips to the shape of the surface to be cleaned.

Thus, the present invention consists of a tooth-brush comprising a handle including a bristle supporting portion, a plurality of bristle assemblies slidably mounted substantially along their respective longitudinal axes in said bristle supporting portion, flexible, inextensible means in said bristle supporting portion, said bristle assemblies resting on said means.

Although reference has so far been made only to "bristles" it is obvious that a brush for massages could be provided in accordance with the present invention, wherein the bristles are substituted by rubber pins or the like.

From the foregoing it will be apparent that it is an object of the present invention to provide a tooth-brush or the like, which always will be able to adapt its brushing surface to the surface to be brushed, and to maintain this feature even if the brush is moved along an irregular surface.

Another object is to provide a tooth-brush of simple structure and low manufacturing cost.

These and further objects and advantages of the present invention will become more apparent during the course of the following description, wherein by way of example several embodiments have been described and shown in the accompanying drawings.

In the drawings:

Figure 1 is a perspective view, partially in section of part of a tooth-brush according to a first embodiment of the present invention.

Figure 2 is a longitudinal section along line II—II of Figure 1.

Figure 3 is a cross section along line III—III of Figure 1.

Figure 4 is a partial perspective view of a second embodiment, similar to Figure 1.

Figures 5 and 6 are similar longitudinal and cross sections, respectively, as Figures 2 and 3, of the embodiment shown in Figure 4.

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Fig. 7 is a perspective view of the partition arrangement of the embodiment of Figs. 4 to 6;

Figure 8 is a side elevation of a modified structure showing a rubber pin.

As may be seen in Figure 1, the tooth brush consists of a handle 1 having a bristle supporting portion or housing 2 and a cover 3, said cover 3 having a plurality of spaced apart holes 4 defining in this embodiment three banks of holes. Each bank of holes 4 is destined to receive a corresponding number of bristle assemblies 5 each mounted in a U shaped bristle holder 6.

The housing 2 and more particularly, the lower base 2' thereof is integral with a plurality of upstanding transversal partitions 7 located between pair of rows of holes 4 and each partition 7 has in this embodiment three recesses 8 facing one of the banks of holes 4, so that the total of the partitions 7 define three longitudinal channels, in each of which a flexible inextensible band 9 is housed. The length of each flexible inextensible band 9 is preferably considerably longer than the length of the housing 2, more particularly the distance between the front wall 10 and the rear wall 11 into which the ends of the bands 9 are fastened, so that a band of irregular shape, as best seen in Figure 2, is obtained.

Each U shaped bristle holder 6 straddles on one of the bands 9 and the bristles pass through the corresponding hole 4.

It will now be understood that when one or more bristle 5 of one band are depressed others will be raised sliding along their respective longitudinal axes *a* and the flexibility of each bank of bristles is sufficient so as to adapt the tooth brush to the plurality of convexities defined by the outer side of a row of teeth or to the plurality of concavities defined by the inner side of a row of teeth (not shown).

Conveniently, housing 2 is provided with a plurality of additional holes such as holes 12, to enable to discharge the liquid which may have entered the housing 2.

In the embodiment shown in Figures 4 to 7, the same concept is used, although the bands 9 are replaced by air cushions 20 or hollow flexible containers, inextensible along their respective longitudinal axes and filled with any suitable means such as air, gas or liquid. The tooth brush as such comprises in this embodiment a lid 21 forming the lower base of the housing 22 and which lid 21 (see Figures 3 and 7) may be provided with small ribs 23 which are arranged opposite partial longitudinal partitions 25 integral with the upper base portion 26 of the handle 27, thereby defining in this embodiment three channels into which the corresponding elongated resilient cushions 20 are located, which are inextensible along their longitudinal axes since the ends thereof engage the ends or the front and rear walls of the housing 22, but they are not inextensible and resilient in the same direction. The bristle holders 28 are small blocks each of which may be provided with a tubular projection 29, the height of which is sufficient to assure that they act as a bushing in the holes 30 of the base 26, so that the bristles 31 are not able to wedge the hole 30.

Alternatively, the upper base 26 may be of sufficient width, that the tubular projection becomes unnecessary.

The lid 21 may be withdrawn for cleaning purposes of the brush and for replacement of spare units of bristle assemblies.

As to the cleaning purposes only, the lid is obviously not necessary, since by means of the vent holes 12 it is possible to submerge the housing into a disinfectant liquid, which enters the housing and as soon as said housing is withdrawn from the disinfectant liquid, the latter is evacuated through said vent holes.

It is not considered necessary to enter further details as to the second embodiment shown in Figures 4 to 7

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in view of the foregoing description made in connection with the first embodiment corresponding to Figures 1 to 3. In case the brush is to be used for massages, each of the bristles 5 or 31 may be replaced by a massage pin 32 (see Figure 8), as will be apparent to those skilled in the art. These massage pins 32 are usually made of rubber or the like.

We claim:

1. A tooth-brush comprising a handle including a housing, a plurality of transversal partitions, dividing said housing into a number of longitudinal channels, a cover for said housing, a plurality of bristle assemblies slidably mounted along their respective longitudinal axes in said housing and projecting through said cover and with alternate bristle assemblies normally projecting to a different extent than the intermediate assemblies, a flexible inextensible band of greater length than said channels in each of said channels, each band having a varying support surface contour and two ends rigidly mounted in said housing, each bristle assembly including a U-shaped bristle holder straddling on one of said bands, said cover being removably mounted in said housing for cleaning and spare bristle assembly replacing purposes.

2. A tooth-brush comprising a handle including a housing having a lower base and an upper base, a lid for said housing forming the lower base, said upper base being integral with a plurality of transversal partitions projecting into said housing, said upper base further comprising a plurality of banks of holes arranged between said partitions, said lower base comprising a plurality of ribs dividing said housing into a plurality of longitudinal channels, a hollow elongated resilient cushion inextensible along its longitudinal axis and including a fluid housed in each of said channels, a plurality of bristle assemblies, each bristle assembly comprising a bristle holder and bristles projecting through one of said holes out of said housing, said bristle holders are resiliently resting on said cushions, means for discharging liquid which may enter said housing.

3. A tooth brush as claimed in claim 2, wherein each of said bristle holders includes a tubular projection supporting said bristles and adapted to slide in the corresponding hole of said housing.

4. A brush comprising a handle including a rigid housing, a plurality of elongated elements having substantially the same length positioned partially within the

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housing and projecting therefrom in a row, inextensible accommodating means having a varying support surface contour supporting said elongated elements for movement along the longitudinal axis of each element with alternate elements normally projecting to a different extent than the intermediate elements in said row of elements.

5. A tooth-brush as claimed in claim 2, wherein said housing includes a front wall and a rear wall, each of said cushions engaging by its ends said front and said rear walls.

6. A tooth-brush comprising a handle including a housing, a plurality of transversal partitions, dividing said housing into a number of longitudinal channels, a plurality of bristle assemblies slidably mounted along their respective longitudinal axes in said housing and projecting through said housing and with alternate bristle assemblies normally projecting to a different extent than the intermediate assemblies, a flexible inextensible band of greater length than said channels in each of said channels, each band having a varying support surface contour and having two ends rigidly mounted in said housing, and each bristle assembly resting on one of said bands.

7. A tooth-brush comprising a handle including a housing having a lower base and an upper base, said upper base being integral with a plurality of transversal partitions projecting into said housing, said upper base further comprising a plurality of banks of holes arranged between said partitions, said lower base comprising a plurality of ribs dividing said housing into a plurality of longitudinal channels, a hollow inextensible elongated resilient cushion inextensible along its longitudinal axis housed in each of said channels, a plurality of bristle assemblies, each bristle assembly comprising a bristle holder and bristles projecting through one of said holes out of said housing, said bristle holders are resiliently resting on said cushions.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

|           |          |                |
|-----------|----------|----------------|
| 1,657,450 | Barnes   | Jan. 31, 1928  |
| 1,688,581 | Glassman | Oct. 31, 1928  |
| 2,003,243 | Campbell | May 28, 1935   |
| 2,441,682 | Wybrants | May 18, 1948   |
| 2,482,928 | Neff     | Sept. 27, 1949 |
| 2,486,847 | Hokett   | Nov. 1, 1949   |
| 2,679,063 | Hoffman  | May 25, 1954   |