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US 2010/0037408 A1
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ABSTRACT

BRUSHING DEVICE

In the present subject matter, a device for
brushing is disclosed, which includes a hollow head
5 including a major upper surface and a major lower
surface. The major upper surface is provided with a
plurality of holes. The major upper surface is
detachably mounted on the hollow head. One or more
cleaning elements extend longitudinally and laterally
10 from the plurality of holes to at least partially cover
the major upper surface; and a hollow tube having a
proximal end and a distal end. The hollow tube is
connected to the hollow head via the proximal end.

A BRUSHING DEVICE

FIELD OF INVENTION

[0001] The present invention relates, in general to a device for brushing, and particularly relates to a brushing device for teeth and performing oral cleaning.

BACKGROUND

[0002] Toothbrushes have been commonly used for removing plaque and detritus from various surfaces of teeth. The toothbrushes in combination with tooth cleaning gels or pastes are further used to clean the teeth more effectively. The toothbrushes with different designs and different bristle profiles are used to target cleaning of teeth from various angles and various positions or from interdental areas.

BRIEF DESCRIPTION OF DRAWINGS

[0003] Exemplary embodiments disclosed herein may be more completely understood in consideration of the following detailed description in connection with the following figures. The figures are not necessarily drawn to scale. Like numerals used in the figures refer to like components. When pluralities of similar elements are present, a single reference numeral may be assigned to each plurality of similar elements with a small letter designation referring to specific elements. When referring to the elements collectively or to a non-specific one or more of the elements, the small letter designation may be eliminated. However,

it will be understood that the use of a numeral to refer to a component in a given figure is not intended to limit the component in another figure labelled with the same number.

5 [0004] FIG. 1 illustrates a schematic view of a device for brushing, in accordance with an embodiment of the present subject matter; and

[0005] FIG. 2 illustrates a schematic view of a single bristle from one or more cleaning elements of FIG. 1, in accordance with an embodiment of the present subject matter.

DETAILED DESCRIPTION OF DRAWINGS

[0006] In the following description, reference is made to the accompanying figures that form a part thereof and in which various embodiments are shown by way of illustration. It is to be understood that other embodiments are contemplated and may be made without departing from the scope or spirit of the present disclosure. The following detailed description, therefore, is not to be taken in a limiting sense. In the following disclosure, the following definitions are adopted.

[0007] As recited herein, all numbers should be considered modified by the term "about". As used herein, "a," "an," "the," "at least one," and "one or more" are used interchangeably.

[0008] In general, toothbrushes may be manufactured to function as an object for taking care of oral hygiene. A conventional toothbrush (hereinafter referred to as the "toothbrush") may be provided with

an adjustable handle or an adjustable head that may suit the cleaning requirements of teeth. Further the toothbrush may be provided with different tufts of bristles. The tufts of bristles may be configured such that one or more profiles, like a flat profile, a zig-zag profile etc. of the bristles may target effective cleaning of various teeth surfaces, such as occulsal, incisal, buccal, lingual, mesial, and distal.

[0009] Further, an electronic toothbrush may also be used with a similar or same configuration of the conventional toothbrush. To save time and effort the electronic toothbrush may be provided with an electrical motor to facilitate cleaning of teeth from one or more of the above mentioned teeth surfaces.

[0010] However, such conventional toothbrushes (electronic and non-electronic), while going through a manufacturing stage at original equipment manufacturer (OEM) level, may be mostly focused upon effective cleaning performance of teeth. Therefore, the conventional toothbrushes may have limitations in terms of life cycle of the bristles. The wearing out of the bristles is one of the most significant factor in discarding the usage of a toothbrush (interchangeably referred to as "the waste toothbrush"). The worn out bristles not only negatively impact the cleaning of the teeth, but also leads to a drastic collection of waste toothbrushes. All over the world every year, over a billion waste toothbrushes create a plastic wastage of millions of tonnes.

[0011] Considering an alarming increase in the environmental pollution over a past decade, it becomes highly imperative to significantly reduce the collection of the waste toothbrushes.

5 [0012] The present subject matter discloses a device for brushing, which includes a hollow head including a major upper surface and a major lower surface. The major upper surface is provided with a plurality of holes. The major upper surface is detachably mounted
10 on the hollow head. One or more cleaning elements extend longitudinally and laterally from the plurality of holes to at least partially cover the major upper surface; and a hollow tube having a proximal end and a distal end. The hollow tube is connected to the hollow
15 head via the proximal end.

[0013] The device of the present disclosure is provided with hollow configurations that enable the accommodation of additionally lengthy one or more cleaning elements, such that worn out of ends of the
20 one or more cleaning elements may be cut off to expose fresh ends for a continuous usage of the one or more cleaning elements. The device is designed to detachably accommodate the major upper surface, such that the major upper surface holding the one or more
25 cleaning elements may be replaced upon a consummation of the one or more cleaning elements. The continuous usage of the one or more cleaning elements and an ability of replacing the major upper surface with the one or more cleaning elements may ensure everlasting
30 usage of the device, thereby significantly contributing in the reduction of the plastic wastage.

[0014] Referring to figures now, FIG. 1 shows a schematic view of a device 100 for brushing, in accordance with an embodiment of the present subject matter. The device 100 includes a hollow head 102
5 having a major upper surface 104 and a major lower surface 106. In some embodiments, the major upper surface 104 and the major lower surface 106 may also generally refer to a top portion and a bottom portion of the hollow head 102 respectively. The major upper
10 surface 104 is provided with a plurality of holes 108. In some embodiments, the plurality of holes 108 may be a group of see-through cavities. The major upper surface 104 is detachably mounted on the hollow head 102. In an example implementation of the present
15 subject matter, the major upper surface 104 may be mounted and removed from the hollow head 102 by a sliding mechanism (not shown). The detachable mounting may facilitate a replacement of the major upper surface 104 with pre-configured set of bristles upon
20 consummation. In some embodiments, each of the major upper surface 104 and the major lower surface 106 includes at least one of a substantially planar configuration and a curved configuration. Specifically in the embodiment of FIG. 1, the major upper surface
25 104 and the major lower surface 106 lie in separate planes substantially parallel to and spaced apart from each other. In some embodiments, the major lower surface 106 includes a coarse profile on an outer side thereof. In other words, an exterior portion of the
30 major lower surface 106 may have an operationally rough profile. In an example, the operationally rough

profile may be used to clean a user's tongue by rubbing the major lower surface 106 on a surface of the tongue.

[0015] The device 100 further includes one or more
5 cleaning elements (also depicted as a single unit in
FIG. 2) 110 extending longitudinally and laterally
from the plurality of holes 108 to at least partially
cover the major upper surface 104. In some
embodiments, the one or more cleaning elements 110 may
10 be configured to completely cover the major upper
surface 104 by laterally extending upto a contour of
an external periphery of the major upper surface 104.
In some embodiments, the one or more cleaning elements
110 are made of a synthetic fiber, such as nylon. In
15 some embodiments, the plurality of holes 108 may have
different patterns that may allow different
configurations of the one or more cleaning elements
110, where different configurations may correspond to
different application attributes. For example, the
20 plurality of holes 106 may have a particular pattern
for creating a zig-zag configuration of the one or
more cleaning elements 110 to facilitate interdental
cleaning. In some embodiments, the plurality of holes
108 includes an anti-slippage element (not shown) to
25 partially secure the one or more cleaning elements 110
on the plurality of holes 108 and allow bi-directional
movement of the one or more cleaning elements 110. In
other words, the one or more cleaning elements 110 are
held in the plurality of holes 108, such that a user
30 is able to pull out the one or more cleaning elements
110.

[0016] The device 100 further includes a hollow tube 112 having a proximal end 112a and a distal end 112b. The hollow tube 112 is connected to the hollow head 102 via the proximal end 112a. The hollow tube 112 may also act as a holding element for the device 100. In some embodiments, the hollow head 102 is detachably connected to the hollow tube 112. Further the connection state between the hollow head 102 and the hollow tube 112 is flexible. The flexible connection state ensures that hollow head is moveable while in usage for brushing and function, which enables to control the tension on the one or more cleaning elements 110. In some embodiments, the device 100 further includes a latch mechanism (not shown) to secure the connection state between the hollow head 102 and the hollow tube 112. Further, the hollow tube 112 is provided with an opening and closure mechanism.

[0017] In some embodiments, the one or more cleaning elements 110 are longitudinally accommodated inside the hollow tube 112 corresponding to at least partial length of the hollow tube 112. In other words, additionally lengthy one or more cleaning elements 110 are used in the device 100. Further, specifically in the embodiment of FIG. 1, the hollow tube 112 acts as a storage space for the one or more cleaning elements 110. Further, the one or more cleaning elements 110 may be spread upto partial or entire length of the hollow tube 112. One of the advantages of the device 100 is that the size and dimensions of the, hollow head 102, the hollow tube 112 may be varied to accommodate as desired lengthy cleaning elements,

which may further add to the life of the device 100. In some embodiments, each of the hollow head 102 and the hollow tube 112 contains at least one of a fluid or a substance. In an example, the fluid or the substance may include but not limited to toothpaste, a teeth medication fluid, an anti-bacterial liquid, mouth rinsing liquid etc. In some embodiments, a portion of the hollow tube 112 is soft and bendable to enable a pumping action. In an example implementation of the present subject matter, the pumping action may be performed by pressing the hollow tube 112 to exert a positive pressure inside the hollow tube 112. In an example implementation of the present subject matter, the hollow tube 112 may be made of a elastomeric material. In some embodiments, each of the one or more cleaning elements 100 has a hollow structure, to allow the at least one of the fluid or the substance travel through the hollow structure. In other words, the pumping action of the hollow tube 112 may create the positive pressure to pass the fluid or the substance through the hollow structure. In an example, while brushing, the user may press the hollow tube 112 to have the toothpaste come out of the hollow structure and on exposed ends of the one or more cleaning elements 110.

[0018] In some embodiments, hollow tube 112 is provided with a gripping element (not shown) at least partially surrounding an outer surface 112c of the hollow tube 112 and spread along at least partial length of the hollow tube 112. In some embodiments, the gripping element is made of an elastomeric

material. The gripping element may assist the holding of the device 100 by palms of the user. Further, the cleaning elements probably at least one of: bristle clusters and wires. Furthermore, the one or more
5 cleaning elements are made of a synthetic fiber or nylon or polyester or a natural material or a man-made material.

[0019] The hollow head 102 of device 100 is detachably connected to the major upper surface 104,
10 which enables the user to replace the major upper surface 104 holding the one or more cleaning elements 110 upon consummation. Further a hollow structure of the hollow head 102 and the hollow tube 112 enable the accommodation of additionally lengthy one or more
15 cleaning elements 110, such that worn out of ends of the one or more cleaning elements 110 may be cut off to expose fresh ends for a continuous usage of the one or more cleaning elements 110, thereby increasing the overall life cycle of the device 100.

[0020] Although specific embodiments have been
20 illustrated and described herein, it will be appreciated by those of ordinary skill in the art that a variety of alternate and/or equivalent implementations can be substituted for the specific
25 embodiments shown and described without departing from the scope of the present disclosure. This application is intended to cover any adaptations or variations of the specific embodiments discussed herein. Therefore, it is intended that this disclosure be limited only by
30 the claims and the equivalents thereof.

We claim:

1. A device (100) for brushing, the device (100) comprising:

5 a hollow tube (112) having a proximal end (112a) and a distal end (112b);

a hollow head (102) including a major upper surface (104) and a major lower surface (106), the major upper surface (104) being provided with a plurality of holes (108),

10 wherein the hollow tube (112) is detachably connected to the hollow head (102) at the proximal end (112a); and

one or more cleaning elements (110) longitudinally accommodated inside the hollow tube (112) corresponding to at least partial length of the hollow tube (112), the one or more cleaning elements (110) being constituted so as to be pullable from the hollow tube (112) in a predetermined manner,

20 wherein one or more cleaning elements (110) extend longitudinally and laterally from the plurality of holes (108) to cover the major upper surface (104) at least partially.

2. The device as claimed in claim 1, wherein each of the upper major surface and the major lower surface includes at least one of a substantially planar configuration and a curved configuration.

3. The device as claimed in claim 1, wherein the major lower surface includes a coarse profile on an outer side thereof.

4. The device as claimed in claim 1, wherein the major upper surface is detachably mounted on the hollow head.

5 5. The device as claimed in claim 1, wherein the device comprises a fastener mechanism to secure a connection state between the hollow head and the upper surface.

10 6. The device as claimed in any one of the preceding claims 1 to 5, wherein the hollow head is detachably connected to the hollow tube, and wherein the connection state between the hollow head and the hollow tube is flexible.

15 7. The device as claimed in claim 1, wherein the plurality of holes comprises an anti-slippage element to secure the one or more cleaning elements in the plurality of holes.

20 8. The device as claimed in claim 1, wherein each of the hollow head and the hollow tube contains at least one of a fluid or a substance.

25 9. The device as claimed in claim 1, wherein a portion of the hollow tube is soft and bendable to enable a pumping action.

30 10. The device as claimed in one of claims 1 to 10, wherein each of the one or more cleaning elements has a hollow structure, to allow the at least one of the fluid or the substance travel through the hollow structure.

11. The device as claimed in claim 1, wherein the hollow tube is provided with a gripping element at least partially surrounding an outer surface of the hollow tube and spread along at least partial length of
5 the hollow tube.

12. The device as claimed in claim 11, wherein the gripping element is made of an elastomeric material.

10 13. The device as claimed in claim 1, wherein the cleaning elements is at least one of: bristle clusters and wires.

14. The device as claimed in claim 1, wherein the one
15 or more cleaning elements are made at least one of a synthetic fiber, nylon, polyester, a natural material, and a man-made material.

15. The device as claimed in claim 1, wherein the
20 hollow tube is provided with an opening and closure mechanism.

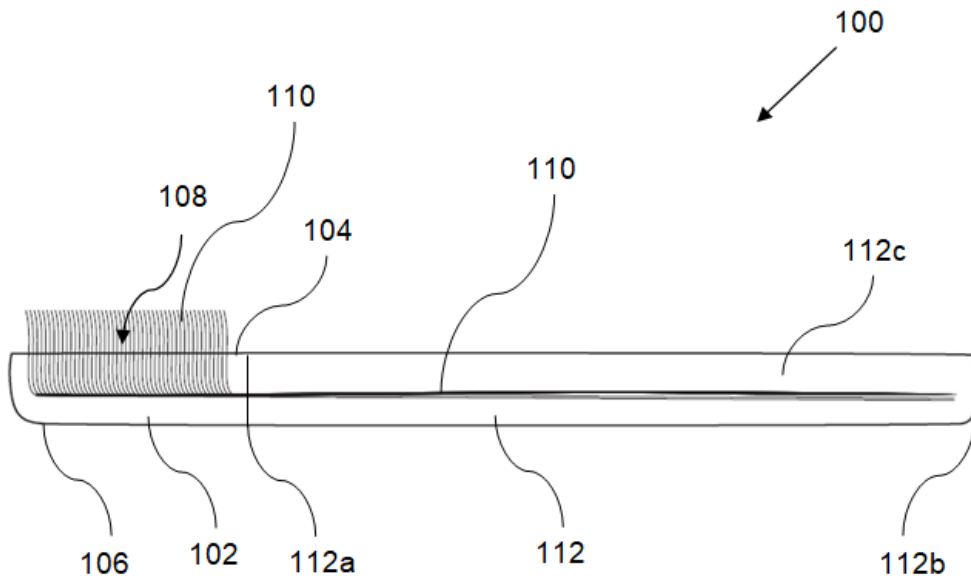


FIG. 1

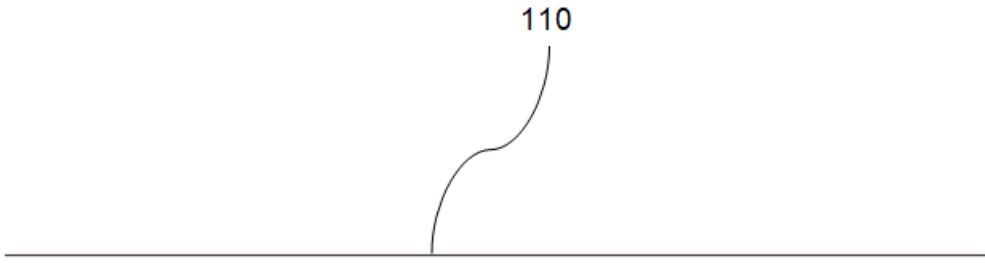


FIG. 2