



A DOUBLE-HEADED TOOTHBRUSH

TECHNICAL FIELD

The invention relates generally to toothbrushes, and more particularly to a novel construction of a toothbrush with one brushhead on either end of an element, half of the element being slidably concealed in a pear-shaped receptacle cover.

BACKGROUND ART

Toothbrushes for cleaning teeth, with the bristle-carrying brushhead aligned with the handle, are commonly known objects. Though it is universally recognised that the most efficient way to clean the teeth is to move the brush up and down, presently available toothbrushes from the market do not facilitate this movement, the axis of the brushhead being in line with the axis of the handle.

US Patent No. 611788 of October 4 1898 by Isaac N Lincoln disclosed a folding toothbrush, with a jointed handle, one part provided with bristles, and the other part consisting of a receptacle for tooth powder, a series of perforations extending longitudinally from either end of the receptacle.

US Patent No. 4033007 and 4370773 respectively dated July 5 1979 and February 1 1983 by Joseph Hadery disclosed a toothbrush with an upright, self support handle having a

diametrically enlarged hollow base of a size to receive and store a brushhead therein.

Australian Patent No. AU-A-58049/86 by Raymond Ernest and Stephen J Ginsberg dated December 3, 1987 disclosed a modular oral hygiene system with a handle comprising generally parallel front and rear portions connected by a middle portion which forms an angle of about 30 to about 50 degrees with said front and rear portions.

US Patent No. 5165135 and UK Patent No. 2224928 dated respectively November 24 1992 and April 8 1992 by Chan Boon Su disclosed a toothbrush comprising essentially: an elongate handle, an elongate bristle-carrying head on the distal end of the said handle, a suitable means of turning the brushing head about an axis parallel to the longitudinal axis of the brushing head, and the longitudinal axis of the head forming an angle to the longitudinal axis of said handle.

The subject of this disclosure is a toothbrush having one brushhead attached to either end of an elongate element, with each half of the element further comprising an outer portion and a holder portion integrally connected by a middle portion shaped like a goose-neck.

This Sheet Has Been Replaced



The longitudinal axis of the bristle-carrying brushhead is disposed at an angle to the longitudinal axis of the adjacent outer section of the element; and the plane containing the longitudinal axis of the outer section of the
05 element is disposed at an angle to the plane containing the longitudinal axis of the holder section of the element. The first half of the element with an attached brushhead turned in one direction is the mirror-image of the second half with an attached brushhead turned in the opposite
10 direction, and the element substantially assumes an extended "M" shape.

SUMMARY OF THE INVENTION

It is an object of the invention to encourage brushing the teeth in an up and down manner.

15 It is another object of the invention to provide a toothbrush capable of efficiently brushing the buccal and lingual surfaces of the teeth.

It is another object of the invention to provide a toothbrush that is easy and economical to manufacture and that
20 lends itself to mass production.

It is yet another object of the invention to avoid turning the brushhead.

This Sheet Has Been Replaced


These objects are achieved by three working models disclosed in the following description. To those skilled in the art, other models and modifications are possible following the disclosure of this invention. In one preferred
05 model, a bristle-carrying brushhead is attached at either end of an elongate element, half of the element with the brushhead being slidably concealed within a cavity formed therein a receptacle cover which pivotally supports said element at its centre. The longitudinal axis of the
10 bristle-carrying brushhead is disposed at an angle to the longitudinal axis of the adjacent portion of the element.

In another model, the elongate element with two bristle-carrying brushheads is used directly without the receptacle cover.

15 Yet another model comprises separately one half of the element with its brushhead turned in one direction, and the other half of the element with its brushhead turned in the opposite direction.

SPECIFIC EXAMPLE

20 The foregoing and other objects and advantages will be apparent from the description below of the two models: one provided with a receptacle cover and the other without.

This Sheet Has Been Replaced



The characteristics and the purposes will be clearly seen in the accompanying drawings.

Figure (1a) shows the front view of a toothbrush made according to the invention comprising an elongate element
05 (10) carrying a bristle-carrying brushhead at either end.

Figure (1b) shows the back view of the element as shown in Figure (1a).

Figure (1c) shows a first side view of the element as shown in Figure (1a).

10 Figure (1d) shows a second side view of the element as shown in Figure (1a).

Figure (2a) shows the side cross section view of a first asymmetrical half representing the front half of the receptacle cover.

15 Figure (2b) shows the side cross section view of the second asymmetrical half representing the back half of the receptacle cover.

Figure (2c) shows the side view of a fully assembled receptacle cover.

20 Figure (2d) shows the back view of the cover as shown in Figure (2c).

This Sheet Has Been Replaced



Figure (2e) shows the front view of the cover as shown in Figure (2c).

Figure (3a) shows the front view of the preferred model according to the invention, in first alternate position,
05 with half of the elongate element concealed in a receptacle cover.

Figure (3b) shows the back view of the toothbrush as shown in Figure (3a).

Figure (3c) shows a first side view of the toothbrush as
10 shown in Figure (3a).

Figure (3d) shows a second side view of the toothbrush as shown in Figure (3a).

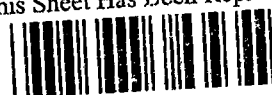
Figure (4a) shows the front view of the toothbrush according to the invention, in second alternate position, with
15 the element rotated a full turn.

Figure (4b) shows the back view of the toothbrush as shown in Figure (4a).

Figure (4c) shows a first side view of the toothbrush as shown in Figure (4a).

20 Figure (4d) shows a second side view of the toothbrush as shown in Figure (4a).

This Sheet Has Been Replaced



For the sake of convenience and clarity, common numerals are used to refer to common parts or components described in the invention. Where it is necessary to differentiate them, a suffix "a" or "b" is added to the common numerals.

05 With reference to Figures (1a), (1b), (1c), and (1d), the element (10) in one model of the toothbrush according to the invention is elongate. The element (10) comprises one curved portion (10a) integrally moulded with a second mirror-image curved portion (10b), so that the element (10)
10 looks similar to an extended "M" shape. Substantially at the junction of the two portions (10a, 10b), there is provided a central hole (11) whereby a pivoting element from a receptacle cover (not shown) is applied, when it is desirable to cover half of the element (10). Otherwise, as
15 in another model, the central hole (11) is not provided and the element (10) with double brushheads (20, 30) will be used directly as a handle of the toothbrush.

The curved portion (10a, 10b) of the element further comprises outer (14) and holder (12) sections connected integrally with a middle section (13) which forms generally a
20 goose-neck with said outer (14) and holder (12) sections. The goose-neck middle section (13) allows for smooth brushing unhampered by the confines of the mouth.

This Sheet Has Been Replaced



The extreme end (15) of said outer (14) section is enlarged and flattened. A bristle-carrying brushhead (20, 30) is ultrasonically attached to this enlarged and flattened end (15), such that a substantial section of the bristle-carry-
05 ing brushhead (20, 30) projects away from the adjacent outer section (14). It is therefore important for the brushhead (20, 30) and the enlarged end (15) to be made of the same plastic material.

The longitudinal axis of the enlarged end (15) and the
10 brushhead (20, 30) is preferably at an angle "x" to the longitudinal axis of the adjacent outer section (14) of the element (10). The angle "x" is preferably about 100 to 175 degrees from the longitudinal axis of the outer section (14) of the element (10). The plane containing the longi-
15 tudinal axis of the enlarged end (15) and the brushhead (20, 30) is also disposed at a sloping angle "y" to the plane containing the longitudinal axis of the holder section (12) of the element (10). The angle "y" is preferably about 100 to 175 degrees from the plane containing the
20 longitudinal axis of the holder section (12) of the element (10).

Now referring to Figures (2a), (2b), (2c), (2d), and (2e), a receptacle cover (40) is formed from two asymmetrical halves (41, 42) which is ultrasonically fused at its mating



edges (46, 47). There is preferably provided a squarish window (45) towards its base on the first half (41), to expose the brushhead inside the receptacle cover (40) for the convenience of applying tooth paste. The first half
05 (41) is conveniently described as the front half of the cover. Towards the narrow end of the first front half (41), there is integrally and inwardly provided a short protrusion which acts as a pivot element (43). There is no window (45) on the second half (42). The second half (42)
10 can be conveniently described as the back half of the cover. An opening (44) is provided at a corresponding position towards the narrow end of the back half (42), in order to receive the end of the pivot element (43).

When the element (10) is provided with the receptacle cover
15 (40) as shown in Figures (3a), (3b), (3c), (3d), (4a), (4b), (4c) and (4d), this pivot element (43) connects, the two halves of the cover (41, 42). One brushhead (20, 30) is exposed while the other brushhead (30, 20) is slidably concealed in the cavity (48) formed between the two asym-
20 metrical halves (41, 42) when they are fused together. The first and second halves (41, 42) are preferably pear-shaped. To allow for free rotation of the curved portions (10) of the element in and out of the cover, the sides of the cover (40) are advantageously open.



CLAIMS

1. A toothbrush having one brush head provided at each end of an elongate element, and the part of the element leading to each brush head comprising an outer portion connected to the brush head and a holder portion connected to the outer portion, the longitudinal axis of each bristle-carrying brush head being disposed at a first obtuse angle to the longitudinal axis of the adjacent outer portion of the element; and the plane containing the longitudinal axis of each outer portion of the element being disposed at a second obtuse angle to the plane containing the longitudinal axis of the adjacent holder portion of the element.

2. A toothbrush as claimed in claim 1, wherein each outer portion is integrally connected to the adjacent holder portion through a goose-neck middle portion.

3. A toothbrush as claimed in claim 1 or claim 2, wherein a first part of the element with an attached brush head turned in one direction is the mirror-image of the second half with an attached brush head turned in the opposite direction, and the element therefore substantially assumes an extended "M" shape.





4. A toothbrush as claimed in claim 1, 2 or 3,
wherein each bristle-carrying brush head is attached
to the adjacent portion of the element by ultrasonic
means.

5. A toothbrush as claimed in any preceding
claim, wherein the brush heads and the element are
made of similar plastics material.

6. A toothbrush as claimed in any preceding
claim, wherein the extreme end of each said outer
portion is enlarged and flattened and a substantial
section of the bristle-carrying brush head projects at
an angle away from the adjacent outer portion.

7. A toothbrush as claimed in any preceding
claim, wherein the said first angle is about 100 to
175 degrees from the longitudinal axis of the outer
portion of the element.

8. A toothbrush as claimed in any preceding
claim, wherein the said second angle is about 100 to
175 degrees from the plane containing the longitudinal
axis of the holder portion of the element.

9. A toothbrush comprising two brush heads





connected by a connecting part, each brush head being at an angle to the axis of the adjacent portion of the connecting part such that when looking at the ends of the bristles of one brush head with the brush head upright the axis of the adjacent portion is closer in angle to one diagonal of the brush head than to the other diagonal and when looking at the ends of the bristles of the other brush head with the brush head upright the axis of the adjacent portion is closer in angle to the other diagonal of that brush head than to the said one diagonal.

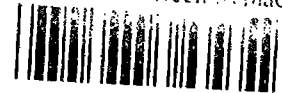
10. A toothbrush as claimed in claim 9, wherein each adjacent portion is connected to a corner of each brush head.

11. A toothbrush as claimed in claim 9 or claim 10, wherein the connecting part is an elongate element with one of said brush heads provided at each end.

12. A toothbrush as claimed in claim 11, wherein the brush heads face to the same side of the elongate element.

13. A toothbrush as claimed in any preceding claim, wherein a receptacle is provided to receive at least one of the brush heads of the toothbrush.





14. A toothbrush as claimed in claim 13, wherein the receptacle receives one half of the toothbrush.

5 15. A toothbrush as claimed in claim 14, wherein said receptacle pivotally supports said element at its middle portion, so that one half of said element and corresponding brush head is rotatably concealed in the cavity defined in the receptacle while the other half
10 of the element and corresponding brush head is exposed.

16. A toothbrush as claimed in any of claims 13, 14 and 15, wherein the receptacle comprises two
15 asymmetrical halves.

17. A toothbrush as claimed in any of claims 13 to 16, wherein the receptacle comprises two halves, defining a cavity therein which is accessible from
20 both sides of the receptacle.

18. A toothbrush as claimed in claim 17, wherein there is provided a window in one half, through which the underlying brush head is accessible.

25 19. A toothbrush according to any preceding claim, wherein one half of the elongate element with



one attached brush head is turned in one direction,
the other half of the element with one attached brush
head is turned in the opposite direction, and each
holder portion of the element is straight and used as
a handle.

5

20. A toothbrush substantially as described
herein with reference to the accompanying drawings.

This Sheet Has Been Replaced

