FLEXIBLE TIP TOOTHBRUSH HANDLE
ZAHNBÜRSTENHANDGRIFF MIT BIEGSAMER SPITZE
MANCHE DE BROSSE À DENTS À POINTE SOUPLE

Designated Contracting States:
AT BE CH DE DK ES FI FR GB IE IT LI NL SE

Priority: 06.03.1998 US 36379

Date of publication of application:
03.01.2001 Bulletin 2001/01

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Description

[0001] Invention relates to toothbrushes and, in particular, to toothbrushes having an ergonomically designed handle.

[0002] There is an ongoing endeavor in the art to design toothbrushes which are more effective, easier to use, or more comfortable. An example is Patent No. 4,672,706 which discloses a handle of rectangular cross section twisted about its longitudinal axis to fit into the palm of a person’s hand. However, the handle is essentially straight and made of a hard material.

[0003] In PCT Application WO 96/21400, published January 10, 1995, there is disclosed a toothbrush having a curved end which is rotatably separable with respect to the portion of the handle accommodating the brush.

[0004] The toothbrushes of U.S. Patent 4,283,808 and GB. Patent 2,167,995 both incorporate a handle portion encased in a surrounding gripping portion of relatively resilient material. The surrounding gripping portion of U.S. Patent 4,283,808 may be replaceable and serves to provide an improved holding surface. The sleeve of GB Patent 2,167,995, on the other hand, is intended for biting and gum massage.

[0005] The present invention provides an improved toothbrush having a handle which is advantageous in providing good comfort to the palm of the hand when applying force at the end of the toothbrush.

[0006] According to the present invention, there is provided a toothbrush including a handle member having proximal and distal ends, and a head member affixed to said proximal end, said head member incorporating a brush and elongated neck portion connecting said brush to said proximal end of said handle member, said handle member being, rigid from said proximal end to said distal end, characterized in that said toothbrush further includes a flexible handle extension affixed to and extending beyond said distal end, whereby said handle member and flexible handle extension are gripping by the user so that said flexible handle extension is in contact with the heel of the palm of the user to flex when force is applied by the user to the handle member, and in that an insert is disposed approximately at the mid-point of the handle member and is constructed to accommodate either the thumb or index finger of the user.

[0007] Thus, the important areas of contact of the hand with the brush, which comprise the thumb, index finger, and heel of the palm, are all in contact with a corresponding rubber portion on the brush handle member.

[0008] Other features and advantages of the invention will be apparent from the description of the preferred embodiment with reference to the accompanying drawings.

FIG. 1 is a perspective view of an embodiment of a toothbrush of the invention.

FIG. 2 is a partial cross-sectional view of an embodiment of a toothbrush of the invention showing, in silhouette, the hand of the user.

[0009] Referring to FIG. 1, a toothbrush (10) includes a plastic body having a handle (12) and a head (13) to which is attached a bristle portion (14).

[0010] The body of the toothbrush is formed by conventional methods well known in the art. The handle is shaped to be grasped by a hand. The configuration of the head (13) may vary and may be rectangular, oval, diamond shaped, or any other suitable shape, with bristles which are trimmed flat, serrated, V-shaped, convex, or any other desired tooth geometry as is well known in the art. The portion of the handle (12) adjacent to the head (13) forms a neck of smaller circumferential dimension than the remainder of the handle. The shape and size of the handle (12) and head (13) may vary and the axes of the handle and head may be on the same or different plane. The distal end of the handle is affixed to a flexible portion (15) extending beyond the distal end and made of a rubberized material to assist in the gripping of the toothbrush. The flexible portion is oval in cross-section for added comfort and security for gripping. There is also a rubberized insert (16) located approximately at the mid-point of the handle, which is also made of a rubberized material and is intended to accommodate the index finger of the holder. On the opposite side of the handle from the insert (16), there is a rubberized portion (17) which is an extension of the rubberized distal end (15). The portion (17) is intended to accommodate the thumb of the user when gripping the toothbrush.

[0011] Referring to FIG. 2, there is shown a partial cross-section of the toothbrush (10) being held, in silhouette, by a user. The handle (12) is shown to accommodate the bristle portion (14) at its proximal end. At the distal end, it forms a core surrounded by the flexible portion (15). The handle (12), however, either does not extend all the way to the tip of the flexible portion (15) as a core or has a core that is thin enough to be flexible in one or more directions. The rubberized surface of the distal end (15) extends toward the mid-point of the handle to form inserts (17) and (18) which are flush with the surface of the handle (12). This forms areas of contact within the palm of the hand for a more secure grip. The insert (16) is also shown which is placed approximately mid-point on the handle (12) and in a location where it can accommodate either the thumb or index finger of the holder, depending on which way the bristles (14) are pointed. The rubberized flexible portions 15, 16, 17 and 18 are preferably a thermoplastic elastomer (TPE). A typical useful elastomer is kraton rubber (a hydrogenated or unhydrogenated oil-filled block copolymer of styrene and butadiene or isoprene having a Shore A hardness in the range of about 5 to about 95. Other suitable materials include injection or reactive injection molded foams, rubber vulcanates and silicone vulcanates.

[0012] An advantage of the present invention is that when by gripping the hand 12 and/or by applying force at the head (13) against the interior of the oral cavity, an opposite force is applied at the distal end (15) of the toothbrush against the heel of the hand of the user. The flexible...
distal end not only eases the pressure of an otherwise hard surface against the hand but also flexes to accommodate the curvature of the heel of the hand. Accordingly, the toothbrush is ergonomically comfortable to the user.

**Claims**

1. A toothbrush (10) including a handle member (12) having proximal and distal ends, and a head member (13) incorporating a brush (14) and elongated neck portion connecting said brush (14) to said proximal end of said handle member (12), said handle member (12) being rigid from said proximal end to said distal end, characterized in that said toothbrush (10) further includes a flexible handle extension (15) affixed to and extending beyond said distal end, whereby said handle member (12) and flexible handle extension (14) are grippable by the user so that said flexible handle extension (15) is in contact with the heel of the palm of the user to flex when force is applied by the user to the handle member (12) and in that an insert (16) is disposed approximately at the mid-point of the handle member (12) and is constructed to accommodate either the thumb or index finger of the user.

2. A toothbrush according to claim 1, characterized in that gripping inserts (17,18) are provided on said handle member (12) and are made of flexible rubberized material to assist in the gripping by the user.

3. A toothbrush according to claim 2, characterized in that gripping insert (17) is an extension of the flexible handle extension (15).

4. A toothbrush according to claim 1, characterized in that the flexible handle extension (15) has an oval cross-section.

5. A toothbrush according to claim 1, characterized in that said handle member (12) is of a greater circumferential dimension that said neck portion.

6. A toothbrush according to claim 1, characterized in that said distal end receives grippable inserts (17,18) extending from the handle extension (15).

7. A toothbrush according to claim 1, characterized in that said flexible handle extension (15) comprises a material having a shore A hardness in the range of from 5 to 95.

8. A toothbrush according to claim 2, characterized in that said gripping inserts (17,18) comprise a material having a shore A hardness in the range of from 5 to 95.

9. A toothbrush according to claim 7 or claim 8, characterized in that said material comprises a thermoplastic elastomer.

10. A toothbrush according to claim 7 or claim 8, characterized in that said material comprises an injection molded foam, reactive injection molded foam, rubber vulcanite, or silicone vulcanite.

**Patentansprüche**

1. Zahnbürste (10) mit einem Handgriffelement (12) mit proximalen und distalen Enden, und mit einem Kopfelement (13), das an dem genannten proximalen Ende angebracht ist, wobei das genannte Kopfelement (13) eine Bürste (14) aufweist, und mit einem elongierten Halsabschnitt, der die genannte Bürste (14) mit dem genannten proximalen Ende des genannten Handgriffelements (12) verbindet, wobei das genannte Handgriffelement (12) von dem genannten proximalen Ende zu dem genannten distalen Ende starr ist, dadurch gekennzeichnet, dass die genannte Zahnbürste (10) ferner eine flexible Handgriffverlängerung (15) aufweist, die an dem genannten distalen Ende angebracht ist und sich über dieses hinaus erstreckt, wodurch das genannte Handgriffelement (12) und die genannte Handgriffverlängerung (15) von dem Benutzer gegriffen werden können, so dass sich die genannte flexible Handgriffverlängerung (15) in Kontakt mit dem Ansatz der Handfläche des Benutzers befindet, so dass sie sich biegt, wenn durch den Benutzer Kraft auf das Handgriffelement (12) ausgeübt wird, und wobei ein Einsatz (16) ungefähr an dem Mittelpunkt des Handgriffelements (12) angeordnet und so konstruiert ist, dass er entweder den Daumen oder den Zeigefinger des Benutzers aufnehmen kann.

2. Zahnbürste nach Anspruch 1, dadurch gekennzeichnet, dass Greifeinsätze (17,18) an dem genannten Handgriffelement (12) bereitgestellt sind und aus einem flexiblen, gummierten Material bestehen, um das Greifen durch den Benutzer zu unterstützen.


4. Zahnbürste nach Anspruch 1, dadurch gekennzeichnet, dass die flexible Handgriffverlängerung einen ovalen Querschnitt aufweist.

5. Zahnbürste nach Anspruch 1, dadurch gekennzeichnet, dass das genannte Handgriffelement (12) eine größere umfängliche Abmessung als der ge-
Revendications

1. Brosse à dents (10) comportant un élément poignée (12) ayant des extrémités proximale et distale et un élément tête (13) fixé à ladite extrémité proximale, ledit élément tête (13) comportant une brosse (14) et une partie col allongée reliant ladite brosse (14) à ladite extrémité proximale dudit élément poignée (12), ledit élément poignée (12) étant rigide de ladite extrémité proximale à ladite extrémité distale, caractérisée en ce que ladite brosse à dents (10) comporte en outre un prolongement de poignée souple (15) fixé à ladite extrémité distale et s’étendant au-delà de celle-ci, ledit élément poignée (12) et le prolongement de poignée souple (15) pouvant ainsi être saisis par l’utilisateur de façon telle que ledit prolongement de poignée souple (15) est en contact avec le bord de la paume de l’utilisateur pour se fléchir lorsqu’une force est appliquée par l’utilisateur à l’élément poignée (12) et en ce qu’une pièce rapportée (16) est disposée approximativement au point central de l’élément poignée (12) et est conçue de façon à recevoir soit le pouce, soit l’index de l’utilisateur.

2. Brosse à dents selon la revendication 1, caractérisée en ce que des pièces rapportées de prélèvement (17, 18) sont prévues sur ledit élément poignée (12) et sont en un matériau caoutchouté souple pour faciliter la prélèvement par l’utilisateur.

3. Brosse à dents selon la revendication 2, caractérisée en ce que la pièce rapportée de prélèvement (17) est un prolongement du prolongement de poignée souple (15).

4. Brosse à dents selon la revendication 1, caractérisée en ce que le prolongement de poignée souple (15) a une coupe transversale ovale.

5. Brosse à dents selon la revendication 1, caractérisée en ce que ladite extrémité distale loge des pièces rapportées (17, 18) pouvant être saisies, s’étendant à partir du prolongement de poignée (15).

6. Brosse à dents selon la revendication 1, caractérisée en ce que ladite extrémité distale loge des pièces rapportées (17, 18) pouvant être saisies, s’étendant à partir du prolongement de poignée souple (15) comprend un matériau ayant une dureté Shore A de l’ordre de 5 à 95.

7. Brosse à dents selon la revendication 2, caractérisée en ce que lesdites pièces rapportées (17, 18) comprennent un matériau ayant une dureté Shore A de l’ordre de 5 à 95.

8. Brosse à dents selon la revendication 7 ou la revendication 8, caractérisée en ce que ledit matériau comprend un élastomère thermoplastique.

9. Brosse à dents selon la revendication 7 ou la revendication 8, caractérisée en ce que ledit matériau comprend une mousse de moulage par injection, une mousse de moulage réactif par injection, de la vulcanite de caoutchouc ou de la vulcanite de silicome.
REFERENCES CITED IN THE DESCRIPTION

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