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Señores
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
Rad: 04-108748- -00004-0000
Fec: 2006-08-11 16:24:59 Dep. 2020 NUECREACIONES
Tra. 11 PATENTEIYII
Cve. 379 FASENACIONALII
Act 538 PETICION Folios: 2

REF.: Expediente No. 04 108.748 - solicitud de Patente FASE NACIONAL
Corresp. a la Solicitud Internacional PCT/US03/09754
a nombre de **COLGATE – PALMOLIVE COMPANY**
Titulada: CABEZA CONTORNEADA PARA CEPILLO DE DIENTES

JUAN PABLO CADENA SARMIENTO, vecino de Bogotá, portador de la tarjeta profesional No. 57492 del Consejo Superior de la Judicatura, obrando como apoderado de la Sociedad COLGATE – PALMOLIVE COMPANY, según lo acredita el documento de poder presentado en esa División, de acuerdo con el Artículo 44 de la Decisión 486 de la Comisión de la Comunidad Andina, me permito solicitar que se examine si la invención contenida en la solicitud en referencia es patentable.

De acuerdo con lo anterior, me permito allegar el recibo oficial de caja No. 06-11,597 por valor de $194.000.

Señor Superintendente,

JUAN PABLO CADENA SARMIENTO
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Cra. 7 No. 16-56 Piso 9

Bogotá, 11 de agosto de 2006
CHP/MEV/hsr.

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 06 - 11,597
FECHA : FEBRERO 10 DE 2006

C O N S I G N A C I O N

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
BRIGARD & CASTRO LTDA	CONSIGNACION	BANCO POPULAR	050-00110-6	45025821	10/02/2006	36,630,000.00

C O N C E P T O

CANT.	RENTISTICO	CONCEPTO		TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	114	PTC CAP-II EXAMEN DE PATENTIBILID	194,000.00
			TOTAL : $	194,000.00

SON: CIENTO NOVENTA Y CUATRO MIL PESOS

RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No._____

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Industria y Comercio
SUPERINTENDENCIA

DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 04-108748

EL EXTRACTO DE LA PRESENTE SOLICITUD DE **PATENTE DE INVENCIÓN**

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No **561** DE

FECHA **28 DE FEBRERO DE 2006** EL TÉRMINO HÁBIL SEÑALADO POR LA

LEY EXPIRA EL **30 DE MAYO DE 2006**

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI _____ NO ____X____

US006311358B1

(12) **United States Patent**
Soetewey et al.

(10) **Patent No.: US 6,311,358 B1**
(45) **Date of Patent: Nov. 6, 2001**

(54) **TOOTHBRUSH COMPRISING GUM-MASSAGING STICKS**

(75) Inventors: **Lode Soetewey; Lydie Beaugendre**, both of Paris (FR)

(73) Assignee: **Sanofi-Synthelabo**, Paris (FR)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/601,039**

(22) PCT Filed: **Jan. 21, 1999**

(86) PCT No.: **PCT/FR99/00121**

§ 371 Date: **Jul. 26, 2000**

§ 102(e) Date: **Jul. 26, 2000**

(87) PCT Pub. No.: **WO99/37181**

PCT Pub. Date: **Jul. 29, 1999**

(30) **Foreign Application Priority Data**

Jan. 26, 1998 (FR) 98 00797

(51) **Int. Cl.**[7] **A46B 9/06**
(52) **U.S. Cl.** **15/110**; 15/167.1; 15/188
(58) **Field of Search** 15/110, 167.1, 15/187, 188

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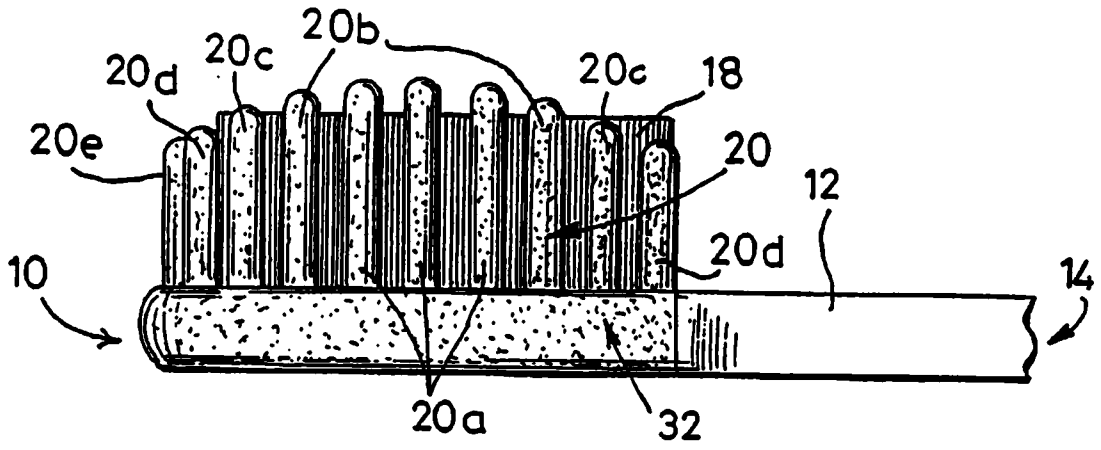
Primary Examiner—Randall E. Chin
(74) *Attorney, Agent, or Firm*—Young & Thompson

(57) **ABSTRACT**

The toothbrush includes a head which is placed at a front longitudinal end of a handle and which is equipped, on an upper face, with a bunch of parallel filaments and a series of rods made from elastomer material which each extend substantially parallel to the filaments and which are placed substantially in two longitudinal rows with one row on each side of the bunch of filaments. Each row of rods includes tall rods which are arranged longitudinally substantially in the center of the row and the length of which is longer than the length of the adjacent filaments and short rods which are arranged at the ends of the row and the length of which is shorter than the length of the adjacent filaments.

15 Claims, 1 Drawing Sheet



TOOTHBRUSH COMPRISING GUM-MASSAGING STICKS

FIELD OF THE INVENTION

The invention relates to a toothbrush including gum-massaging rods.

The invention relates more particularly to a toothbrush, of the type including a head which is placed at a front longitudinal end of a handle and which is equipped, on an upper face, with a bunch of parallel brushing filaments and of the type in which the brush includes a series of massaging rods made from elastomer material which each extend substantially parallel to the filaments and which are placed substantially in two longitudinal rows with one row on each side of the bunch of filaments.

BACKGROUND OF THE INVENTION

A brush of this type is disclosed in Document WO-A-97/16995. In this document, the toothbrush includes, on each of the longitudinal edges of the head, massaging filaments made from thermoplastic elastomer material which have the same height as that of the brushing filaments made from non-elastomeric plastic.

With this arrangement, it has been noticed that the action of massaging the gums could be insufficient, particularly when the elastomeric filaments are relatively flexible, either owing to the material from which they are made or owing to their diameter. Thus, when the filaments made from elastomer material flex, the filaments made from non-elastomer material are immediately in contact with the gum. In point of fact, as they are more rigid, these non-elastomeric filaments risk damaging the gum.

SUMMARY OF THE INVENTION

The object of the invention is therefore to propose a new design for a toothbrush which makes it possible both to carry out effective brushing of the teeth and massaging of the gums, whilst limiting the possibility of contact pressure between the filaments made from non-elastomer material and the gum on the one hand, but also while limiting the contact pressure of these filaments on the teeth.

To this end, the invention proposes a toothbrush of the type described above, characterized in that each row of rods includes tall rods which are arranged longitudinally substantially in the centre of the row and the length of which is longer than the length of the adjacent filaments, and short rods which are arranged at the ends of the row and the length of which is shorter than the length of the adjacent filaments.

According to further characteristics of the invention:

- the toothbrush includes tall rods of various lengths and short rods of various lengths;
- the tallest rods have a height which is greater than the height of the adjacent filaments by less than 25%;
- the shortest rods have a height which is less than the height of the adjacent filaments by at least 10%;
- over a row, the upper ends of the rods are arranged in a curve, the concave surface of which faces downwards;
- the rods are cylindrical in shape;
- the rods have a diameter which is substantially between 1 and 2.5 millimeters;
- the rows of rods extend towards the front beyond the bunch of filaments;
- the brush includes at least one short rod arranged in the longitudinal extension of the bunch of filaments;

- each rod is fastened to the head by means of a lower anchoring foot which is received in an anchoring hole made in a head body, the anchoring hole opens out at both its ends in upper and lower faces of the head body and the anchoring foot of the rod extends even with the lower face of the head body and is shaped so as to interact with the lower face in order for it to be impossible for the rod to be extracted upwards;
- upper and lower ends of the anchoring foot are arranged above and even with the upper and lower faces, respectively, of the head body, the ends of the anchoring foot are connected by a bridge of material which extends outside the anchoring hole around an outer lateral edge of the head body and, at the lower and upper ends of the anchoring foot, the bridge of material bears against the lower and upper faces of the head body to fasten the rod onto the head;
- the group of rods is produced by molding as a single component and the linking bridges of the rods form a protective bead made from elastomer material around the outer lateral edge of the head body;
- the protective bead is formed in a hollowed-out impression made in the head body so that the bead is flush with the level of the outer faces of the head body;
- the lower face of the head body is covered by a web of elastomer material which is produced as a single component together with the rods;
- the rods are produced from elastomeric silicone.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the invention will become apparent on reading the following detailed description, which may be understood with reference to the appended drawings, in which:

FIG. 1 is a side view of the head of a toothbrush in accordance with the teachings of the invention, seen from the side;

FIG. 2 is a top view of the head of the toothbrush in FIG. 1; and

FIG. 3 is a transverse sectional view along the line 3—3 in FIG. 2.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The figures show the head **10** of a toothbrush placed at a front longitudinal end **12** of a handle **14** of the brush.

The head **10** includes a head body **16**, for example made from a thermoplastic material such as a polyamide. The head body **16** has substantially a plate shape extending in a longitudinal plane and carries a bunch of parallel filaments **18** which extend perpendicular to the plane of the head body. These filaments, which are intended for brushing teeth, may, for example, be made from a thermoplastic material of the polyamide type or polyethylene type, but they may also consist of natural bristles.

These filaments may be fastened to the head body **16** in different ways. They may, for example, be grouped together in tufts of filaments folded in two and fixed in receptacles made in the upper face of the head body **16** with the aid of metallic inserts. The filaments may also, for example, be fastened by means of their lower end being embedded in the head body **16**.

In the example illustrated in the figures, the filaments **18** all have the same height, i.e. they all extend over the same

distance above the upper face of the head body **16**. The head body **16** has outer lateral edges **30**, the contour of which may be substantially similar to that of a racket, and it includes two substantially parallel upper and lower faces **26**.

As may be seen, in particular, in FIG. **2**, the filaments **18** are grouped together substantially in the centre of the upper face of the head, the edges of the latter being occupied by rods **20** made from elastomer material which extend parallel to the filaments **18** and which are more particularly intended for massaging the gums.

The rods **20** are, for example, made in the form of cylinders with a diameter substantially between 1 and 2.5 mm and they have a rounded upper end in the form of a spherical dome.

The rods **20** are thus uniformly distributed along the lateral edges of the upper face of the head body **16**. As the head body **16** in this case has a relatively elongate shape, the lateral edges **30** of the head **10** have only a relatively shallow curve in the plane of the head, except, of course, at their front end, which is substantially in the shape of an arc of a circle.

The rods **20** thus form, on each side of the central bunch of filaments **18**, two longitudinal rows placed close to the corresponding edge of the head **10**. The front end of the to head **10** also carries rods **20**.

In accordance with the teaching of the invention, and as may be seen more particularly in FIG. **1**, the rods **20** do not all have the same height and, in particular, they have a variable height in comparison with the height of the adjacent filaments **18**.

In the embodiment illustrated in the figures, the head **10** thus includes, in each of the two rows which flank the filaments **18** longitudinally, three rods **20***a*, the height of which is substantially greater than that of the adjacent filaments **18**. The rods **20***a* which are the tallest are preferably arranged longitudinally in the centre of each row and their height exceeds that of the filaments by not more than 25%.

When a row is viewed from the side, in a direction perpendicular to the longitudinal direction of the brush, this group of three rods **20***a* is flanked on each side by rods **20***b*, the height of which is between that of the filaments **18** and that of the tallest rods **20***a*.

The rods **20***b* are themselves flanked by rods **20***c*, the height of which is substantially equal to that of the filaments **18**.

Finally, the overall assembly formed by the rods **20***a*, **20***b*, **20***c* is itself flanked by rods **20***d*, the height of which is less than that of the adjacent filaments **18**.

When the head **10** is viewed from the side, the upper ends of the rods **20** are thus arranged in a substantially symmetrical curve, the curvature of which faces downwards.

Moreover, the toothbrush illustrated in the figures includes a rod **20***e* placed at the front end of the head **10**, the length of the rod being less than that of the rods **20***d*.

In all cases, the length of the shortest rods **20** will preferably be less than that of the adjacent filaments **18** by more than 10%.

Naturally, the total number of rods **20** may be less than or greater than that in the exemplary embodiment illustrated in the figures and, similarly, the curve joining the tops of the ends of the rods may have a greater or lesser curvature, this curve, however, being above the upper end of the filaments **18** in the centre of the head and below the longitudinal ends of the head. Provision may be made, for example, for six rods **20***a* instead of three:

This arrangement results in effective brushing of the teeth and massaging of the gums.

Indeed, when the toothbrush is applied to the lateral surfaces of the teeth, inside or outside, one of the two rows of rods is in contact, essentially by means of the tall rods **20***a*, **20***b*, with the gum, whilst the filaments **18** are applied to the teeth themselves.

However, when the brush is applied to the masticatory face of the teeth, the longitudinal direction of the brush then being substantially parallel to the direction of alignment of the teeth, the tallest rods **20***a*, **20***b* are located on either side of the teeth and thus do not interfere with the action of the filaments **18** which may thus clean the surface of the teeth and penetrate into the interdental spaces.

Moreover, the shortest rods and, in particular, those **20***d* and **20***e* placed at the front end of the head **10**, tend to limit squashing of the filaments **18** against the teeth.

The rods **20** are preferably made from elastomeric silicone, but it is also possible to produce them in a vulcanized rubbery material or with the aid of a thermoplastic elastomer material.

A further aspect of the invention is the means for fastening the rods **20** to the head body **16**.

Indeed, as may be seen, in particular, in FIG. **3**, the rods **20** include an anchoring foot **22** which extends inside a cylindrical anchoring hole **24** pierced in the head body **16**. Each anchoring hole **24** opens out in both the upper and lower faces of the head body so that the lower end of the anchoring foot **22** of the rod extends even with the lower face **26** of the head body **16**.

The lower end of the anchoring foot **22** which extends even with the lower face **26** has a cross section which is larger than that of the anchoring hole **24** so as to prevent any removal of the rod **20** upwards.

According to a particularly advantageous aspect of the invention, the rods **20** are produced by moulding and provision is made for a bridge of material **28**, made as a single component with each rod **20**, to join the lower and upper ends of the anchoring foot **22** of the rod **20**, following the exterior outer lateral edge **30** of the head body **16** around the outside.

At its junctions with the ends of the anchoring foot **22**, the bridge of material **28** bears against the upper and lower faces of the head body **16**. Thus, forming an integral part of the rod **20**, the bridge of material fastens the rod **20** perfectly in its anchoring hole **24**.

This characteristic is particularly advantageous when the rod **20** is made from elastomeric silicone of food-grade quality. Indeed, with such a material, it is impossible to produce a reliable chemical link between the rod **20** and the head body **16**.

Preferably, all the rods **20** are produced simultaneously by moulding and they are produced as a single component, connected together by means of their respective linking bridge **28**.

All the linking bridges **28** therefore form a continuous bead **32** made from elastomer material which completely encircles the contour of the head body **16** and whose purpose is to dampen impacts between the head body **16** and either the teeth or the gum.

Provision is preferably made for the bead **32** thus formed to extend into hollowed-out impressions formed in the upper and lower faces and in the lateral edges of the head body **16** in such a way that the outer surface of the bead **32** is in line with the external faces of the head body **16** and of the handle

14. However, provision may also be made for the bead to have a thickness which is greater at the front end of the head and for it thus to form a protuberance with a view to providing further protection for the teeth and gums.

In a variant, provision may also be made for a web made from elastomer material, covering the lower face **26** of the head body **16**, to be produced at the same time as the rods **20**.

What is claimed is:

1. Toothbrush comprising:

a handle having a front longitudinal end;

a head at said front longitudinal end of said handle and having a body with an upper face and a lower face;

a bunch of parallel filaments on said upper face; and

a series of rods made from elastomer material which each extend from said upper face substantially parallel to said filaments and which are placed substantially in two longitudinal rows with one row on each side of said bunch of filaments,

wherein each row of rods includes tall rods arranged longitudinally substantially in the center of the row and having a length longer than the length of said filaments, and short rods arranged at the ends of the row and having a length shorter than the length of said filaments.

2. Toothbrush according to claim **1**, wherein said tall rods have various lengths and said short rods have various lengths.

3. Toothbrush according to claim **2**, wherein at least one of said tall rods has a height greater than the height of said filaments by less than 25%.

4. Toothbrush according to claim **2**, wherein at least one of said short rods has a height which is less than the height of said filaments by at least 10%.

5. Toothbrush according to claim **1**, wherein said rods of each row, when viewed from the side of the head perpendicular to the length of the rods, have their upper ends arranged in a curve having a concave surface facing downwards.

6. Toothbrush according to claim **1**, wherein said rods are cylindrical in shape.

7. Toothbrush according to claim **1**, wherein said rods have a diameter between 1 and 2.5 millimeters.

8. Toothbrush according to claim **1**, wherein said rows of rods, at the front end of said head body, extend beyond said bunch of filaments.

9. Toothbrush according to claim **1**, wherein at least one of said short rods, at the front end of said head body, extends beyond said bunch of filaments.

10. Toothbrush according to claim **1**, further comprising each of said rods having a lower anchoring foot and anchoring holes made in said head body, each of said anchoring holes opens out at both its ends in said upper and lower faces of said head body and said anchoring foot of said rod is received in one of said anchoring holes and extends even with said lower face of said head body and is shaped so as to interact with said lower face in order to be impossible for said rods to be extracted upwards.

11. Toothbrush according to claim **10**, wherein upper and lower ends of said anchoring foot are arranged above and even with said upper and lower faces, respectively, of said head body, the ends of said anchoring foot are connected by a bridge of material which extends outside said anchoring hole around an outer lateral edge of said head body and at the lower and upper ends of said anchoring foot, said bridge of material bears against said lower and upper faces of said head body to fasten said rod onto said head.

12. Toothbrush according to claim **11**, wherein said rods are produced as a group by molding as a single component and linking bridges of said rods form a protective bead made from elastomer material around said outer lateral edge of said head body.

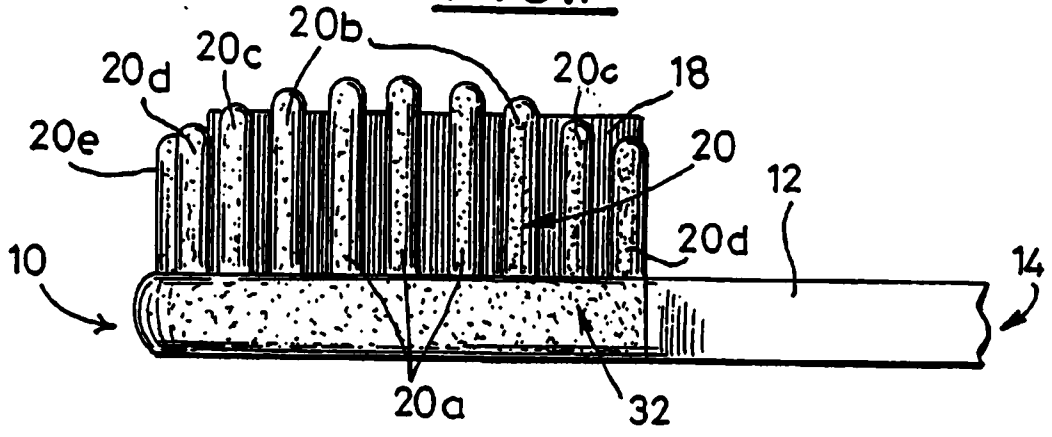
13. Toothbrush according to claim **12**, wherein said protective bead is formed in a hollowed-out impression made in said head body so that said bead is flush with said head body.

14. Toothbrush according to claim **12**, wherein said lower face of said head body is covered by a web of elastomer material which is produced as a single component together with said rods.

15. Toothbrush according to claim **1**, wherein said rods are produced from elastomeric silicone.

* * * * *

FIG.1



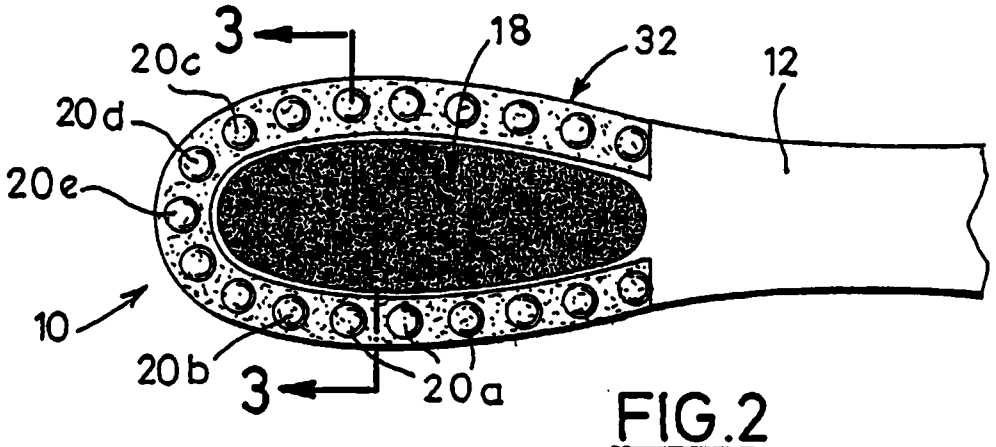


FIG.2

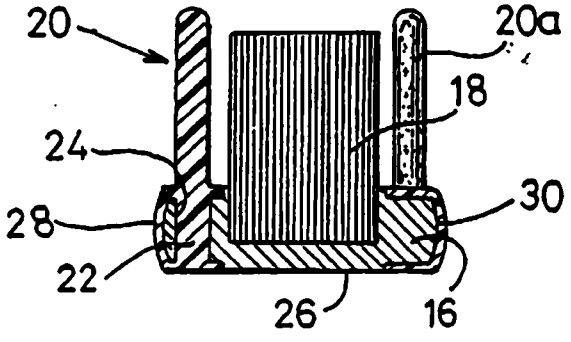


FIG.3

US006314606B1

(12) **United States Patent**
Hohlbein

(10) **Patent No.: US 6,314,606 B1**
(45) **Date of Patent: *Nov. 13, 2001**

(54) **CONTOURING TOOTHBRUSH HEAD**

(75) Inventor: **Douglas J. Hohlbein**, Pennington, NJ (US)

(73) Assignee: **Colgate-Palmolive Company**, Piscataway, NJ (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/422,953**

(22) Filed: **Oct. 22, 1999**

Related U.S. Application Data

(63) Continuation of application No. 09/351,178, filed on Jul. 12, 1999, now Pat. No. 6,073,299, which is a continuation of application No. 09/090,331, filed on May 29, 1998, now Pat. No. 5,991,958, which is a continuation of application No. 08/762,783, filed on Dec. 10, 1996, now Pat. No. 5,758,383.
(60) Provisional application No. 60/008,734, filed on Dec. 29, 1995, now abandoned.

(51) **Int. Cl.**[7] **A46B 9/04**
(52) **U.S. Cl.** **15/167.1**; 15/143.1; D4/104; 300/21
(58) **Field of Search** 15/143.1, 167.1, 15/172; D4/104

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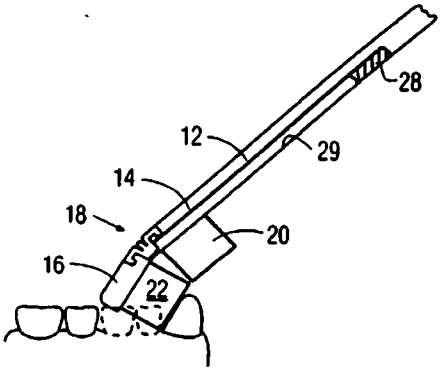
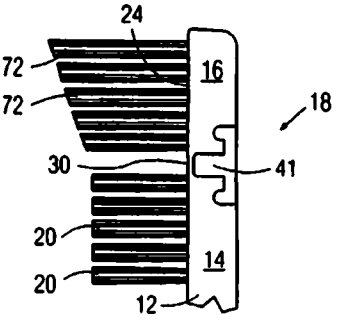
Primary Examiner—Terrence R. Till
(74) *Attorney, Agent, or Firm*—Henry S. Goldfine

(57) **ABSTRACT**

A toothbrush having two head sections, the sections being normally biased to assume an angle with respect to each other, to thereby define a generally concave bristle tip configuration. The two sections of the head have facing ends joined by a thin bridge section integral with the two heads. In one embodiment, there is one bridge section near the lower surface of the head. In another embodiment, there are two longitudinally spaced bridge sections each near the lower head surface. In a third embodiment, the bridge section is a thin integral connection between facing ends of the two sections. In other embodiments, the two head sections are normally aligned and are also joined by a thin, integral bridge section, with the bristles of the head section most remote from the handle being of uniformly different lengths. The space between the two facing ends is filled with an elastomer, typically SANTOPRENE (brand). The two head sections define an articulated head. In yet another embodiment, the bridge section is omitted.

18 Claims, 4 Drawing Sheets





CONTOURING TOOTHBRUSH HEAD

This application is a continuation of application Ser. No. 09/351,178, filed Jul. 12, 1999, which is now U.S. Pat. No. 6,073,299 a continuation of application Ser. No. 09/090,331, filed May 29, 1998, now U.S. Pat. No. 5,991,958 which is a continuation of application Ser. No. 08/762,783 filed Dec. 10, 1996, now U.S. Pat. No. 5,758,383, which claims priority under 35 U.S.C. § 119(e) of provisional application No. 60/008,734, filed Dec. 29, 1995, now abandoned, which applications are incorporated herein in their entireties.

BACKGROUND OF THE INVENTION

This invention relates to a toothbrush and more particularly to a toothbrush head construction wherein the head is designed and configured to yield a brushing surface conforming to curved sections of teeth and which is bendable to conform to straight teeth sections.

Prior toothbrush constructions include toothbrush heads having pivoted or articulated sections joined together in a variety of constructions, such as a resilient strip of metal or the like, and also include pivoted or hinged articulated sections to provide a curved bristle configuration.

A curved/angled bristle surface configuration offers improved access to hard-to-reach areas such as the lingual surfaces of the front teeth, and behind the rear molars, placing more bristles in contact with the outer surfaces of the front teeth.

Many current brushes which have rigidly mounted bristles and a rigid curved/angled bristle surface exhibit an inherent disadvantage when brushing both flat as well as concave tooth surfaces. Placing a curved/angled bristle surface on flat tooth surfaces results in fewer bristles making contact with the teeth. These fewer bristles must support the brushing forces applied through the handle, which will result in premature splaying of the bristles. Some current toothbrushes have a "power tip" configuration (elongated rigidly mounted tip bristles) which are claimed to have improved access benefits.

SUMMARY OF THE INVENTION

According to the invention, an articulated toothbrush head is defined by two head sections joined by one or more thin bridges of the same resin from which the toothbrush is formed, as by molding, to produce an integral construction. These thin bridges permit limited flexing between the two head sections, the two sections normally being at a small angle with respect to each other. That portion of the head between the two head sections may be, in one embodiment, in the general form of a 'I' shaped slot running transversely of the top surface of the head, from one side head side edge to another. The slot is filled, as by injection, with an elastomer to control and enhance flexing. The construction is such that the head section most remote from the handle is normally tilted with respect to the head section nearest the handle, the latter head section located at one end of the handle. In a second embodiment, the head section may assume the form of a narrow cylindrical portion, or in a third embodiment two thin bridges may be employed, both having elastomer.

An advantage of the present flexible configuration is, in addition to the above noted features of a curved configuration, its inherent gentleness on the gums. When one brushes along the gumline with a power tip configuration, one focuses much of the force through the concentrated area at the raised tip. With the present configuration, this force is more evenly distributed.

There are considerable manufacturing efficiencies with having the elastomer material of this invention used in the flex area being the same elastic material as that which may be used as a grip material in the handle area. Therefore, a configuration which allows flexing under the loads typically encountered during brushing with materials which are suitable for use as a grip would be desirable.

To achieve the flexibility described above, the cross section of elastomer may be convoluted, with one or more convolutes. To aid in fixing the elastomer to the toothbrush head sections, the elastomer may be configured to fit into one or more slots at both ends of the flexing area.

To minimize the gap between bristle tufts when the head is flexed into a flat configuration, it is desirable to position the plastic (resin) bridge between the tip and handle portions as near the bristle tips as possible. This bridge is straightened during flexing, and directly controls the gap between bristle tufts on each side of the flex area.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view illustrating the toothbrush head of this invention according to a first embodiment.

FIG. 2 is a top plan view of the toothbrush head shown at FIG. 1.

FIG. 3 is an elevational view showing the head and tufts of bristles as brushing the inside surfaces of the lower teeth.

FIG. 4 is a view similar to FIG. 1 and slows an second embodiment.

FIG. 5 is a view similar to FIG. 1 and shows a third embodiment.

FIG. 6 is a side elevational view of a fourth embodiment.

FIG. 7 is a side elevational view of a fifth embodiment.

FIG. 8 is a side elevational view of a sixth embodiment.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIG. 1, a side elevational view of a toothbrush embodying the features and construction of this invention is shown in a vertical position, with a portion of the handle designated as 12. While not completely shown, the reader will understand that the handle extends downwardly and has a longitudinal axis. That portion of the head nearest the handle is designated as section 14 and is collinear with the handle, while that portion of the head most remote from the handle is designated as section 16. An elastomer section or joint between facing ends of sections 14 and 16 is denoted generally as 18. A plurality of tufts of bristles 20 extends at right angles to section 14, while a similar plurality of tufts of bristles 22 extends at right angles from section 16. Tufts of bristles 22 are thus at right angles to lower surface 24 of head section 16, while tufts of bristles 20 are perpendicular to lower or bottom surface 26 of head section 14.

A generally T-shaped groove, in longitudinal cross section, is extends transversely across the upper or top surface of the head and is thus located between sections 14 and 16. The bottom of the central or main part of the groove is spaced from the lower surface of the composite head, leaving a thickness or bridge section designated as 30 which joins the lower portions of the two head sections. Bridge or zone 30 is typically of a thickness between 20 and 40 thousandths of an inch. The handle and head sections are molded from a plastic or resin such as polypropylene. The generally T shaped groove is filled with a resilient and soft thermoplastic elastomer. The T groove has two symmetrical

wing portions 32, each terminating in an enlarged portion 34, the latter extending towards respective groups of tufts of bristles. The middle of the T shaped resin insert section 18 includes an integral ridge 36, while the lower portion or base portion of the T section is designated as 38. The thermoplastic elastomer which forms section 18 may be a thermoplastic vulcanate (TPV) consisting of a mixture of polypropylene and EPDM (ethylene propylene diene monomers) which is available as SANTOPRENE (brand), described in U.S. Pat. No. 5,393,796 issued to Halberstadt et al, or VYRAM (brand), another TPV consisting of a mixture of polypropylene and natural rubber, both SANTOPRENE and VYRAM (brands) being elastomers marketed by Advanced Elastomer Systems. Other suitable elastomers include KRATON, a brand of styrene block copolymer (SBC) marketed by Shell, and DYNAFLEX G 2706 (brand), a thermoplastic elastomer marketed by GLS Corporation and which is made with KRATON (brand) polymer. These and other suitable elastomers have, typically, a Shore A hardness of from about 13 to 94, with about 29 being a preferred hardness. Grooves 40, on the top surface of the composite head, extend on both sides of raised rib or ridge 36, and border sections 32. FIG. 2 further illustrates the construction. It is seen that elastomer section 18 spans the width of the head sections.

In the normal configuration of the head, it is seen that head section 16 is tilted with respect to head section 14 at an angle, typically about 18°. Thus, a force exerted on the brush during brushing is required to tilt section 16 if it is to be more nearly or completely aligned with section 14. The two head sections may be molded in their angled configuration as shown at FIG. 1, with the elastomer then added. Alternatively, the two head sections may be molded aligned with each other and then angled upon locating or injecting the elastomer between them.

Referring now to FIG. 3, it is seen that the effective curvature of the two head sections 14 and 16 offers improved access to inner and rear surfaces of the teeth. Thus, handle 12 need not be inclined as much as otherwise in order for forward section 16 and its bristles 22 to engage interior surfaces of the lower front teeth. In brushing a straight section of teeth, the deformability of the elastomer section 18 permits section 16 to partially or completely align itself with handle 12 and section 14.

FIG. 4 illustrates a second embodiment of the invention, there shown as horizontally disposed, and similar to that of FIGS. 1 and 2 except for a different construction for angularly joining the two head sections. The elastomer joint is again denoted as 18, with the elastomer itself denoted as 50 and being of the same composition as previously set out, and extends across the width of the head, and is located between the facing ends of sections 14 and 16. A thin integral bridge connection centrally between the two sections is designated as 52, typically being of cylindrical form in transverse cross section. Each end is integral with a respective head section. The elastomer is seen as completely surrounding bridge 52. This bridge connection may be, in transverse cross section, of any desired form. A top plan view of the head would be similar to FIG. 2, except for the absence of grooves 40 and rib 36. As seen at FIG. 4, the extent of the elastomer along the toothbrush longitudinal axis is shorter than that of FIGS. 1 and 2. As also can be seen from FIG. 4, Integral connection or bridge 52 performs the spacing between the opposed facing ends varies as measured along the toothbrush longitudinal axis and the length of the elastomer between the facing ends correspondingly varies the same function as bridge 30 of FIG. 1, namely, integrally joining the two head sections

FIG. 5 shows a third embodiment, again shown as horizontal. There, the lower surfaces 24 and 26 of bristled head sections 14 and 16 are joined by an intermediate arcuate bottom surface 27 having tufts of bristles 23 extending orthogonally and downwardly therefrom. An elastomer section 18 is generally C shaped and has a bight part 60 and tips or ends 62, the latter located in respective complementary double troughs or double grooves which extend transversely across the head. The elastomer tips are separated by head portion 64, with thin bridges 66, again formed from the molded resin forming the toothbrush, joining the two head sections at the lower surface of the whole head. The C shaped elastomer thus surrounds portion 64 across the width of the head.

The second and third embodiments yield the same cleaning action as shown at FIG. 3. The thickness of bridges 52 and 66 is the same as that of bridge 30 of FIG. 1.

It is seen that the bridges 30, 52 and 66 of the respective embodiments inhibit longitudinal separation of the two head sections by resisting tensile or other forces which might result in such separation, while the elastomer also controls the degree of flexing when head section 16 is subject to brushing forces. The function of the bridges is thus to tether the two head sections together, as well as to set them at an initial angle. When the sections move toward straightening or alignment, each elastomer section is deformed. Such deformation is resisted by the elastomer and to a lesser extent by the resin (polypropylene) bridges so that the sections revert to their normal, angled relationship upon the cessation of brushing force on forwardmost section 16.

FIG. 6 illustrates a fourth embodiment which differs from that shown in FIG. 1 only in the absence of bridge 30 of FIG. 1. Instead of bridge 30, the two head sections are coupled by T shaped elastomer section 39, the latter being of the same form as that of section 38 of FIG. 1, except that it extends all the way to the lower surface of the head.

FIG. 7 shows a fifth embodiment, here the two head sections 14 and 16 being normally aligned. A generally T shaped elastomeric section 41 forms a joint 18 which fills the spaces between the ends of the two head sections 14 and 16, except for bridge 30, identical with bridge 30 of FIG. 1, which integrally tethers the two head sections together. Tufts of bristles 70 are slanted with respect to lower head surface 24 of head section 16, the slanting being towards handle 12. Tufts 70 are of successively different lengths, with the longest being near the most remote free end or tip of the head section 16. It is seen that the tips of bristle tufts 70 and 20 form a generally concave brushing surface which is at times, during brushing, flattened upon bending of joint 18.

FIG. 8 illustrates a sixth embodiment, similar to that of FIG. 7, and differs therefrom only in that the head section 16 tufts, here denoted as 72, extend orthogonally from surface 24. These latter tufts are, as tufts 70, of uniformly different lengths. The longest are near the free end of head section 16.

Again, the free ends of tufts 72 and 20 form a generally concave brushing surface which is at times, during brushing, flattened upon bending of joint 18.

Many toothbrushes available in the marketplace today are "dual component," by which is meant that an elastomeric material is used to a greater or lesser extent, particularly in the finger gripping portion of the brush 28, shown in FIG. 3. The method of manufacture of such dual component brushes by injection molding is thus exceedingly well known in the art today. The toothbrushes according to the present invention may be made by use of such conventional dual component technology. For example, in accordance with a first

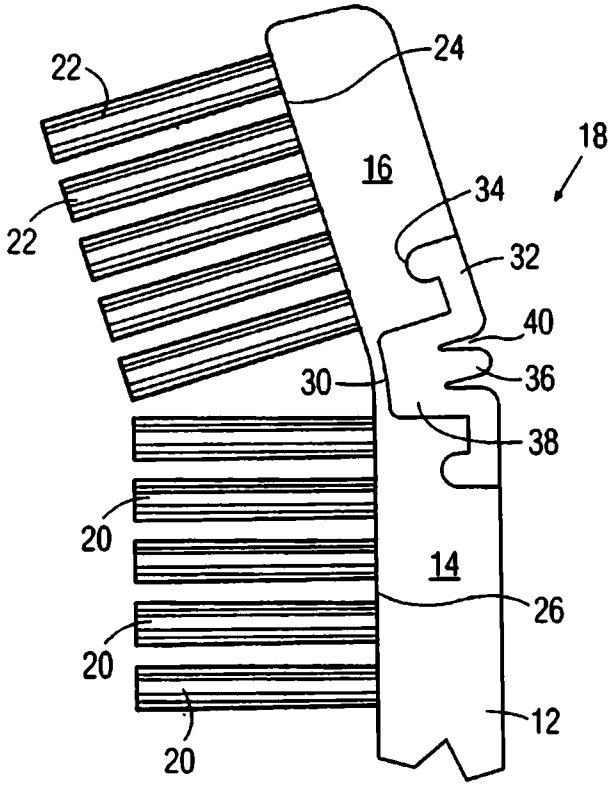


FIG. 1

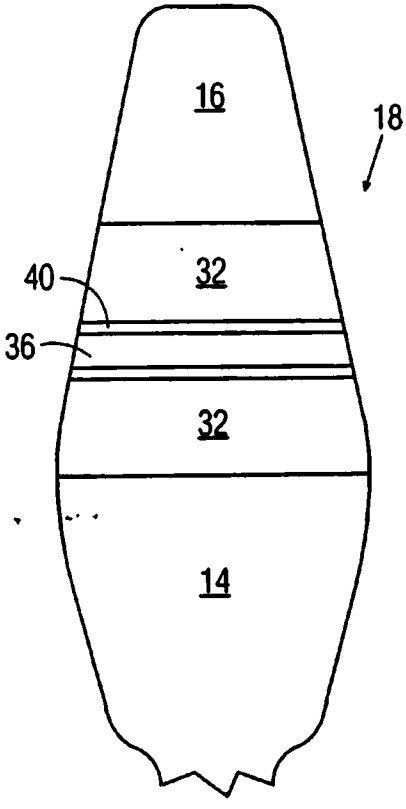


FIG. 2

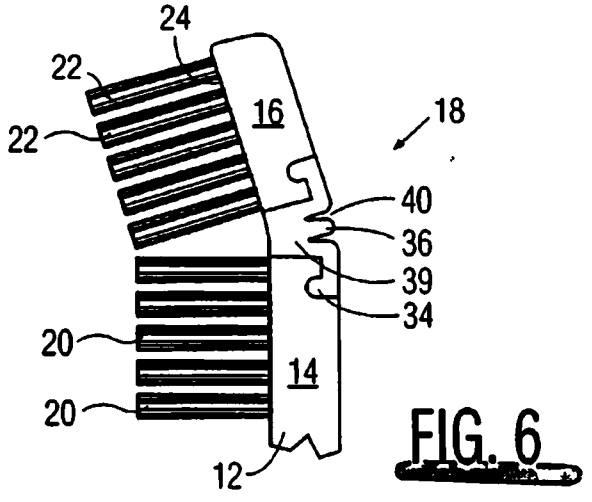


FIG. 6

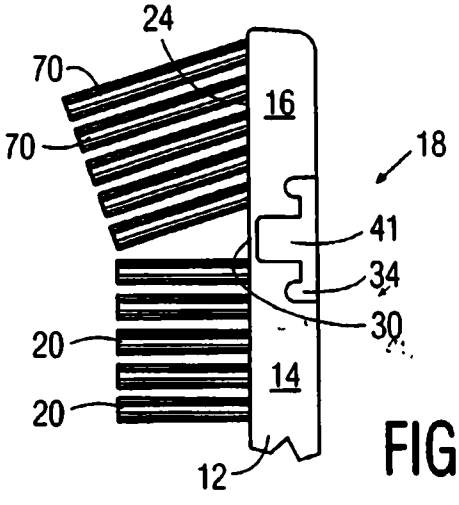


FIG. 7

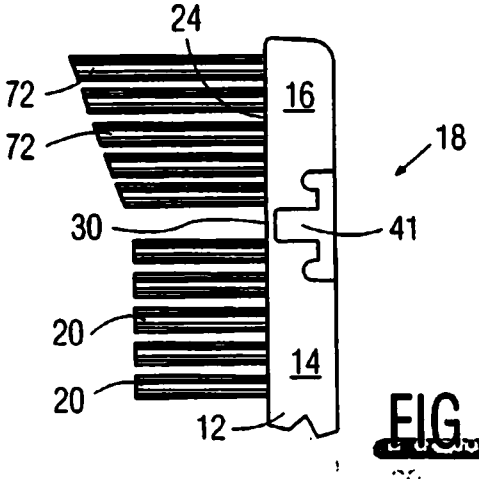


FIG. 8

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIRECCIÓN DE NUEVAS CREACIONES

2020
Bogotá, D.C.,

Abogado
JUAN PABLO CADENA SARMIENTO

ASUNTO	Radicación	04108748
	Trámite	011
	Evento	001
	Actuación	430
	Oficio	- 12567
	Folios	016

Patente de Invención	[x]	Patente de Modelo de Utilidad		[ ]	
Vía Nacional	[ ]				
Vía PCT (fase nacional)	[x]	Cap.I	[ ]	Cap. II	[x]

No. Sol. Internacional PCT / US03 / 09754
Fecha de Presentación Internal. 2003-03-31

Como resultado del examen de fondo, realizado con fundamento en el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le comunica:

1. Documentos estudiados

1.1. Descripción: Folios: 44 a 61 como se radicó inicialmente.

1.2. Reivindicaciones: Folios: 62 a 69 como se radicó inicialmente.

1.3. Dibujos: Folios: 25 a 38 como se radicó inicialmente.

1.4. Prioridad: 2002-04-01, US 01/109,637

2. Objeto de la invención

Título de la solicitud: "Cabeza contorneada para cepillo de dientes".

El objeto de la presente solicitud de patente de invención se refiere a un cepillo de dientes que tiene una cabeza articulada acoplada al mango.

El problema planteado en la presente solicitud se refiere a como mejorar el desempeño de pulido del cepillo de dientes.

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Para solucionar este problema técnico, la solicitud en estudio proporciona una cabeza de cepillo de dientes, definida por dos secciones unidas por uno o más puentes delgados de la misma resina de la cual se hace el cepillo, para producir una estructura integral por moldeo.

El objeto de la invención definido anteriormente se clasificó de acuerdo con el IPC así: A46B 9/04.

3. De la solicitud de Patente

3.1. Descripción *(artículo 28 D. 486)*

Se tomaron para el estudio de patentabilidad los dibujos de la solicitud original PCT, que obran del folio 25 al 38, como quiera que no fueran allegados con la traducción de la solicitud que entró en fase nacional, como han debido ser allegados. Se sugiere presentar un nuevo juego de dibujos, libres de rótulos o encabezados que hagan alusión a la solicitud PCT.

3.2. Reivindicaciones *(artículo 30 D 486)*

En el estudio del capítulo reivindicatorio se observa que el objeto reclamado en la solicitud está siendo definido en cuatro reivindicaciones independientes, 1, 13, 25, 38.

Se sugiere presentar un nuevo capítulo reivindicatorio, evitando múltiples reivindicaciones independientes y definir la materia a proteger mediante una sola reivindicación independiente.

Por otra parte se sugiere separar en forma clara el preámbulo de la parte característica de la invención. De acuerdo a esto, se sugiere utilizar en la reivindicación independiente el término "*caracterizado porque*" para efectos de mayor claridad y definición de las características novedosas de la invención.

Se observa que en la reivindicación 38 no es claro cuantas secciones conforman la cabeza del cepillo, por definirse el número de secciones como "(...) (...) *dicha cabeza tiene al menos dos secciones para definir así una cabeza compuesta que tiene una* (...) (...), *dichas al menos dos secciones tienen extremos respectivos separados* (...) (...)" . El término "*al menos*" no define de cuantas secciones está conformada la cabeza del cepillo, por lo que se sugiere evitar definir el objeto de la invención por este término.

Se observa que el objeto revindicado en la reivindicación independiente 25, difiere del objeto reivindicado en la reivindicación independiente 38, puesto que en la reivindicación 25 se define que la primera sección y la segunda sección de la cabeza del cepillo están moldeadas integralmente, diferente con lo definido en la reivindicación 38, en la que se menciona que las secciones que conforman la cabeza del cepillo tienen elementos elastómeros entre ellas.

La solicitud en estudio no cumple con el requisito de claridad y concisión de acuerdo al artículo 30 de la Decisión 486.

4. Determinación del Estado de la Técnica

La fecha que se ha tenido en cuenta para determinar el Estado de la Técnica es:

Fecha de presentación de la solicitud prioritaria, 2002-04-01.

Teniendo en cuenta la fecha indicada, se realizó la búsqueda en el estado de la técnica de documentos relacionados con la solicitud, encontrándose los siguientes documentos más relevantes:

Nº	Documento	Título	Fecha de publicación
D1	US 6314606	"Contouring toothbrush head "	2001-11-13
D2	US 6311358	"Toothbrush comprising gum-massaging sticks"	2001-11-06

4. Análisis de patentabilidad (artículo 14 D486)

Pese a que el capítulo reivindicatorio no cumple con el requisito de claridad y concisión de acuerdo al artículo 30 de la Decisión 486, se hizo un estudio de patentabilidad, comparando con el estado de la técnica las diferentes características revindicadas.

4.1. Novedad *(artículo 16 D486)*

4.1.1. Respecto a la solicitud en estudio:

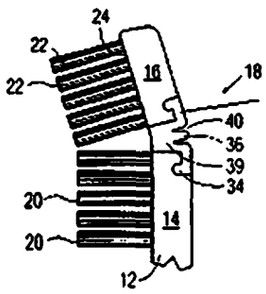
La reivindicación independiente número 38 enseña:

Un cepillo de dientes que comprende un mango y una cabeza articulada, dicha cabeza tiene al menos dos secciones para definir así una cabeza compuesta que tiene una superficie superior y una superficie inferior, dichas al menos dos secciones tienen extremos respectivos separados longitudinalmente que están uno frente al otro, cada una de dichas secciones de cabeza tiene una pluralidad de mechones de cerdas que se extienden desde una superficie inferior de la misma, dichos extremos enfrentados tienen un material elastomérico entre ellos, en donde, al menos algunos de los mechones que se extienden desde la superficie inferior de una de dichas secciones de cabeza son uniformemente de diferentes longitudes.

4.1.2. El documento **US 6314606** (nombrado de ahora en adelante como **D1**) se refiere a un cepillo de dientes que comprende:

un mango (12) y
una cabeza articulada,
la cabeza tiene dos secciones (14), (16), para definir así una cabeza compuesta, que tiene una superficie superior y una superficie inferior,
las dos secciones tienen extremos respectivos separados longitudinalmente que están uno frente al otro,
cada una de dichas secciones de cabeza tiene una pluralidad de mechones de cerdas (22) que se extienden desde una superficie inferior de la misma,
dichos extremos enfrentados tienen un material elastomérico entre ellos (18). *Ver el resumen, descripción detallada y figuras 6, 8, del documento D1, en folios 114 – 118.*

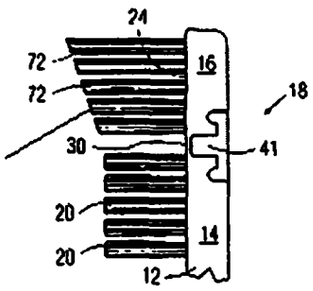
Figura 6 del documento D1 US 6314606



Las secciones de la cabeza tienen extremos respectivos separados longitudinalmente que están uno en frente del otro, dichos elementos enfrentados tienen un material elastomérico (18) entre ellos

Figura 8 del documento D1 : US 6314606

Algunos de los mechones que se extienden desde la superficie inferior de una de dichas secciones de cabeza son uniformemente de diferentes longitudes



4.1.3. Al comparar elemento por elemento de la invención, tal como está definida en la reivindicación independiente 38, con las enseñanzas del documento **D1**, se observa que todas las características de dicha reivindicación, fueron anticipadas por el documento **D1**. Por lo tanto, la reivindicación 38, tal y como está reivindicada, y sus dependientes, podrían verse afectadas por falta de novedad.

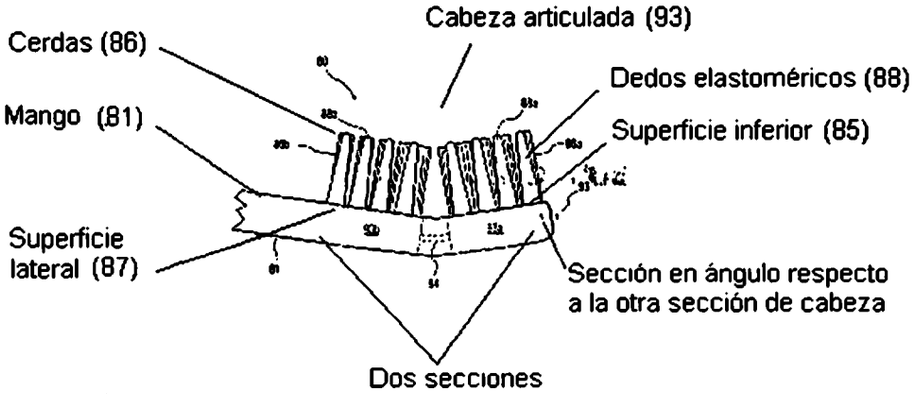
4.2. Nivel inventivo *(artículo18 D486)*

4.2.1. Respecto a la solicitud en estudio:

La reivindicación independiente número 1 enseña:

Un cepillo de dientes que comprende:
un mango; y
una cabeza articulada acoplada al mango(...) (...), al menos una de las secciones de cabeza incluye una pluralidad de dedos elastoméricos que define parcialmente la superficie lateral de esa sección de cabeza y que se extiende desde la superficie inferior de esa sección de cabeza, en donde la sección de cabeza más alejada del mango, en una configuración normal de cabeza articulada, está en ángulo respecto a la otra sección de cabeza.

Figura 20 de la solicitud en estudio



La reivindicación independiente número 13 enseña:

Un cepillo de dientes que comprende:
un mango; y
una cabeza articulada acoplada al mango, la cabeza articulada incluye dos secciones, (...) (...).

La reivindicación independiente número 25 enseña:

Un cepillo de dientes que comprende:
un mango; y
una cabeza articulada unida al mango, la cabeza articulada incluye una primera sección y una segunda sección, (...) (...), la primera pluralidad de mechones de cerdas se extiende generalmente ortogonal desde la primera sección y la segunda pluralidad de mechones de cerdas se extiende generalmente ortogonal desde la segunda sección, (...) (...), la segunda sección está unida a la primera sección por al menos un puente, (...) (...).

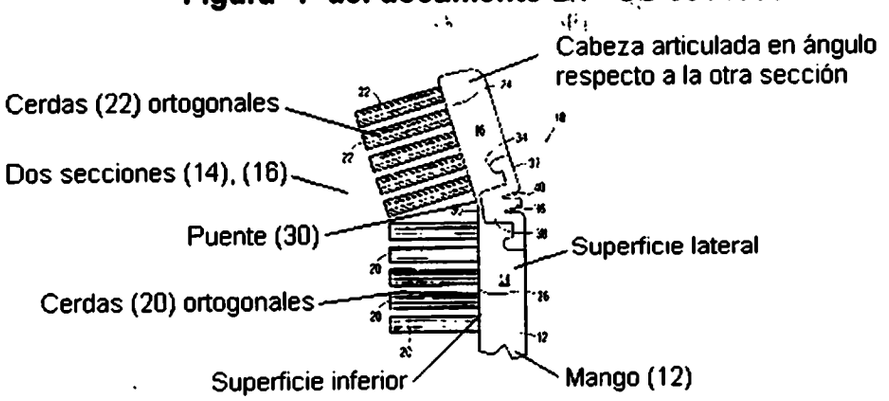
4.2.2. El documento **US 6314606** (nombrado de ahora en adelante como **D1**) se refiere a un cepillo de dientes que comprende:

un mango (12),
una cabeza articulada acoplada al mango, la cabeza articulada incluye dos secciones (14), (16),
cada una de las secciones de cabeza tiene una superficie inferior y una superficie lateral, cada una de las secciones de cabeza incluye una pluralidad de cerdas que se extienden desde la superficie inferior respectiva de la misma, en donde la sección de cabeza más alejada del mango, en una configuración normal de cabeza articulada, está en ángulo respecto a la otra sección de cabeza,

la primera pluralidad de mechones de cerdas (20) se extiende generalmente ortogonal desde la primera sección (14) y la segunda pluralidad de mechones de cerdas (22) se extiende generalmente ortogonal desde la segunda sección (16),
la segunda sección (16) está unida a la primera sección (14) por al menos un puente (30),

las secciones de la cabeza tienen extremos respectivos separados longitudinalmente que están uno en frente del otro,
dichos elementos enfrentados tienen un material elastomérico (18) entre ellos, en donde, al menos algunos de los mechones que se extienden desde la superficie inferior de una de dichas secciones de cabeza son uniformemente de diferentes longitudes. *Ver el resumen, la descripción detallada de la invención y las figuras 1, 6, 8, del documento D1, en folios 114 – 118.*

Figura 1 del documento D1 US 6314606



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La única diferencia de la presente solicitud con **D1**, es que la solicitud en estudio hace mención a: *"al menos una de las secciones de cabeza incluye una pluralidad de dedos elastoméricos que define parcialmente la superficie lateral de esa sección de cabeza y que se extiende desde la superficie inferior de esa sección de cabeza"*, ver reivindicación 1, folio 62.

4.2.3. El documento **US 6311358** (nombrado de ahora en adelante como **D2**) se refiere a:

Un cepillo de dientes que comprende una pluralidad de dedos elastoméricos que define parcialmente la superficie lateral de la cabeza del cepillo y que se extienden desde la superficie inferior de dicha cabeza. *Ver el resumen, la descripción detallada de la invención y las figuras 1, 2, del documento D2, folios 109 - 112.*

Figura 1 del documento D2 US 6311358

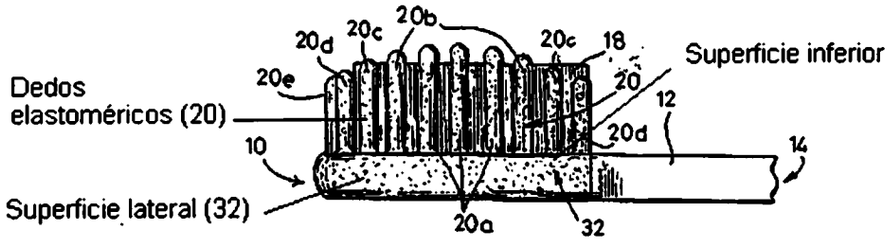
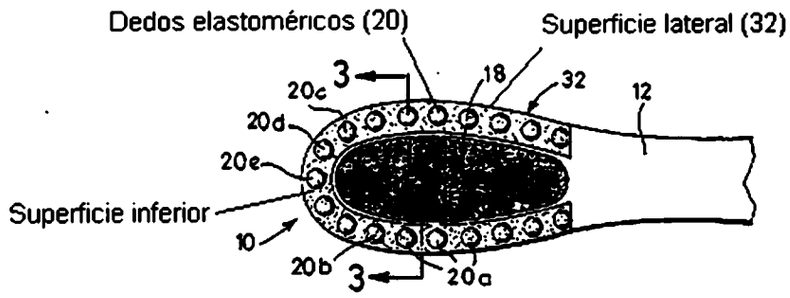


Figura 2 del documento D2 US 6311358



Siendo en el estado de la técnica el documento **D1** el más cercano al objeto de la invención de la presente solicitud, combinando la solución propuesta en **D1** con la solución expuesta en **D2**, que menciona un cepillo de dientes con una pluralidad de dedos elastoméricos que define parcialmente la superficie lateral de la cabeza del cepillo y que se extienden desde la superficie inferior de dicha cabeza, se observa que estas dos ideas en conjunto logran inspirar una solución de las mismas características a la propuesta por la solicitud en estudio.

Se concluye por lo tanto, que tomando los cepillos de dientes revelados en los documentos D1 y D2, una persona del oficio versada en la materia técnica correspondiente, motivada por el problema a solucionar, lograría la obtención de un cepillo de dientes de las características expuestas en las reivindicaciones 1, 13, 25 de la presente solicitud.

La reivindicación 1, 13, 25 y sus dependientes de la solicitud en estudio se ven afectadas por falta de nivel inventivo.

Se concluye también que las características de las reivindicaciones dependientes 39-40 que obran en combinación con las características de la reivindicación 38, podrían verse afectadas por falta de nivel inventivo de acuerdo a las enseñanzas de los documentos D1 y D2.

5. Conclusión:

Los requisitos de patentabilidad de la presente solicitud se encuentran afectados así:

N°	Documento N°	Reivindicaciones afectadas	Requisito que afecta
D1	US 6314606	38	Novedad
D1	US 6314606	1- 13- 25- 39- 40	Nivel inventivo
D2	US 6311358	1- 13- 25- 39- 40	Nivel inventivo

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta días contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.

ALIX CARMENZA CÉSPEDES DE VERGEL
Directora Nuevas Creaciones (C)

El anterior requerimiento fue notificado por fijación en lista, de fecha 13 NOV. 2009

CONCEPTO TÉCNICO No.	EXAMINADOR TÉCNICO
3596	Código No. 202065