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SOLICITUD

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ENTRADA EN FASE NACIONAL

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71. SOLICITANTE COLGATE - PALMOLIVE COMPANY

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22. SANTAFE DE BOGOTA, D.C.

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FORMULARIO ÚNICO DE SOLICITUD DE PATENTE PCT ENTRADA EN FASE NACIONAL

1

SOLICITUD DE:

☒ Patente de Invención.

☐ Patente de Modelo de Utilidad.

☒ Capítulo I.

☐ Capítulo II.

2

SOLICITANTE
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Número _____

3

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Número 80.410.337 TP 57492

4

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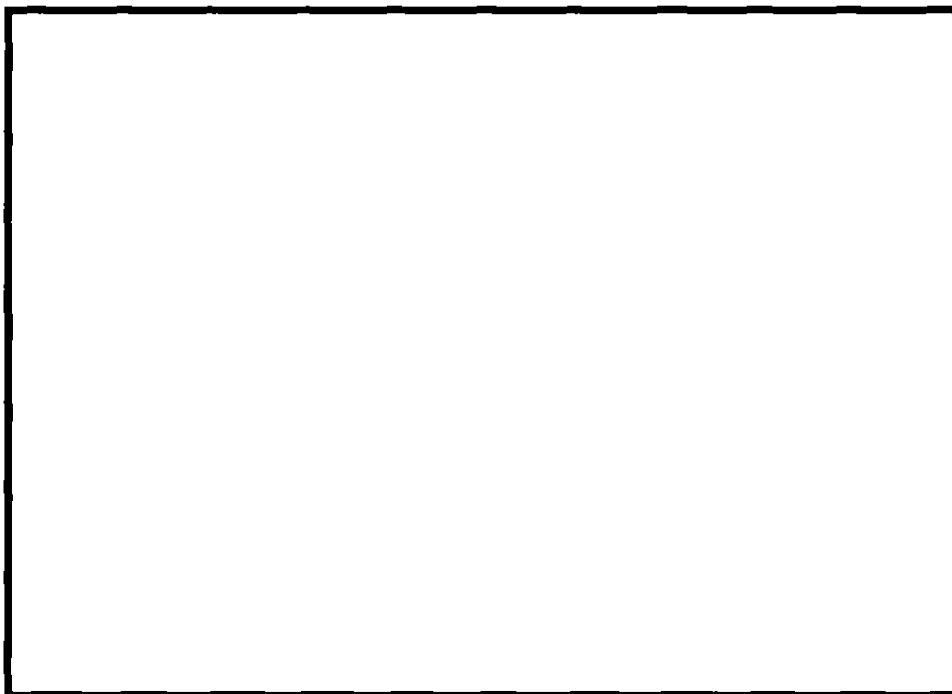
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Instrucciones para el diligenciamiento del presente formulario, ver reverso de esta página.

2020-F08 (01-11-15)

- ☒ Comprobante de pago de la tasa de presentación de la solicitud. \$463.000
- ☒ Documento que acredite la existencia y representación legal cuando el solicitante sea persona jurídica.
- ☒ Poderes, si fue el caso. Fotocopia autenticada.
- ☒ Documento de cesión del inventor al solicitante o a su causante.
- ☐ Declaraciones.
- ☒ Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos)
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- ☒ Otros: Tarjeta de Propietarios
Extrato para Publicación y Tarjeta de Archivo Temático

11 FIGURA CARACTERÍSTICA:



12 Solicito la concesión de la patente,

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MIT : 800176089-2

CONSIGNACION

***** C O N C E P T O *****

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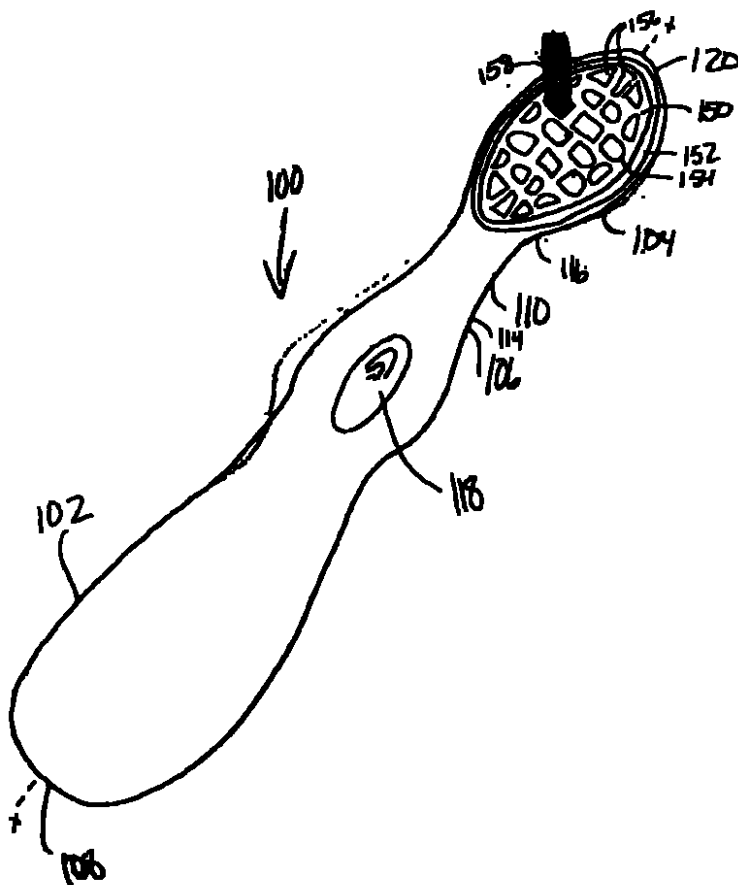
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(81) Designated States (unless otherwise indicated, for every
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(54) Title: FLEXIBLE TOOTHBRUSH HEAD



(57) Abstract: A head for use with a
toothbrush and method for forming the
same, comprising an outer perimeter portion
formed of a rigid material. The rigid
material is adapted to allow the head to be
sonically welded. The head also comprises
a tuft field positioned within the outer
perimeter portion. The tuft field is formed
of a flexible elastomer. The tuft field defines
one or more apertures to receive one or
more bristle tufts. The head is sonically
welded into place in the toothbrush.



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

FLEXIBLE TOOTHBRUSH HEAD
BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to toothbrushes, and more particularly, to a
5 toothbrush being formed using an Anchor Free Tufting (AFT) process.

2. Discussion of Related Art

Toothbrushes provide many oral hygiene benefits. For example, toothbrushes
remove plaque and food debris to help avoid tooth decay and disease. They remove
stained pellicle from the surface of each tooth to help whiten the teeth. Also, the bristles
10 combined with the brushing motion massage the gingival tissue for stimulation and
increased health of the tissue.

A toothbrush head should provide both proper support for the bristles, and be
flexible enough during use to allow the bristles to conform to the shape of a user's mouth
or teeth. Additionally, construction techniques should be inexpensive, versatile and
15 consistent.

In an attempt to meet these criteria, a process known as "Anchor Free Tufting"
("AFT") has been used in the formation of toothbrush heads. In such an AFT process, a
head plate for holding toothbrush bristles, and for eventual insertion into a toothbrush
body, is typically formed of a rigid plastic that is conducive to sonic welding. The head
20 plate is formed with a solid perimeter and defines a field of variously shaped and sized
holes within this perimeter. Fibers that are to form the tufts are then placed in the holes in
the field of the head plate, and the backs of the tufts are melted together to fix their
position relative to one another.

The tufted head plate is then inserted into a predefined receiving portion of the
25 head portion of a toothbrush handle and is sonically welded into place. The brush is then
end-rounded and packaged for sale as a traditional toothbrush.

However, this manufacturing process results in a toothbrush with a very rigid head
that does not easily conform to the physical characteristics of a user when brushing.
Therefore, it would be desirable to provide a toothbrush that can be conveniently
30 manufactured by the above process, but provides the desired flexibility of the head of the
toothbrush during use.

SUMMARY OF THE INVENTION

To improve a user's overall brushing experience, the inventors of the present invention have determined a softer, flexible head would be desired for use by a user. Such a head would flex under normal brushing conditions. The above AFT process could still be used to fix the relative positions of the bristles, and therefore provide a commercially appealing toothbrush. However, the inventors of the present invention have determined that such a head plate formed of elastomeric material is unable to be sonically welded to the head portion of the handle. This is because the elastomeric material absorbs and dissipates the vibrational energy imparted to the head plate during sonic welding.

Therefore, in order to overcome this drawback, the present invention is directed to a head plate for a toothbrush formed of two materials. A first rigid material is used to form the perimeter portion of the head plate. Such a material, such as for example polypropylene, is easily sonically welded. The tuft field is formed of a flexible elastomer (preferably having a hardness of 90 Shore A or less) that allows the field, and therefore the head plate and bristles to move or flex under the pressure of normal brushing. Thus, such a head plate is able to flex, thus allowing the tuft field and bristles to move under normal brushing conditions, while providing a perimeter of structural rigidity that is able to be sonically welded.

According to another embodiment of the present invention, a method for forming a head for use with a toothbrush is provided, comprising the steps of forming an outer perimeter portion of a rigid material, said rigid material being adapted to allow said head to be sonically welded; positioning a tuft field within said outer perimeter portion, said tuft field being formed of a flexible elastomer, said tuft field defining one or more apertures to receive one or more bristle tufts; placing a bristle tuft within at least one corresponding aperture in said tuft field; melting a portion of bristles in said bristle tuft to secure said bristle tuft in said aperture in said tuft field; and sonically welding said tuft field into place in said toothbrush.

Other features and advantages of the present invention will be apparent from the foregoing detailed description when read in conjunction with the accompanying drawings.

The invention accordingly comprises the several steps and the relation of one or more of such steps with respect to each of the others, and the apparatus embodying features of construction, combination(s) of elements and arrangement of parts that are

adapted to effect such steps, all as exemplified in the following detailed disclosure, and the scope of the invention will be indicated in the claims.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

For a more complete understanding of the invention, reference is made to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of a toothbrush including a head constructed in accordance with a preferred embodiment of the invention; and

Figure 2 is a top plan view of the head of figure 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures 1 and 2, an exemplary toothbrush including a head plate according to the invention is illustrated and generally indicated at 100.

Toothbrush 100 includes a handle 102 at a proximal end thereof, and a brush section 104 that is defined by a neck 110 that terminates in a head 120 at a distal end of toothbrush 100. Handle 102 has a free proximal end 108 and an opposite neck end 106. Neck 110 generally includes a first end 114 and a second end 116 with first end 114 being located at neck end 106 of handle 102 and the second end 116 being located at head 120. In other words, neck 110 is the portion of toothbrush 100 that extends between handle 102 and head 120. Head 120 is preferably generally aligned with the longitudinal axis x-x of toothbrush 100.

Neck 110 and handle 102 may be constructed as a unitary member by forming neck 110 integral to handle 102 at neck end 106 of handle 102, or may be formed detachable from handle 102 at the neck end 106. In accordance with this detachable embodiment, the combined neck 110 and head 120 can be removed from handle 102 to permit cleaning, servicing and/or interchanging of either handle 102 or the combined neck 110 and head 120 (brush section 104). When neck 110 is formed to be detachable from handle 102, first neck end 114 preferably includes a connector linkage (not shown) that is adapted to be detachably joined to handle 102 using traditional techniques. It will also be appreciated that the point of detachment may be between head 120 and neck 110 such that head 120 is of a refill head type.

It will further be appreciated that the illustrated shapes of handle 102 and neck 110 are merely exemplary in nature and handle 102 and/or neck 110 can be formed to have any

number of shapes. Preferably, the shapes of handle 102 and neck 110 are ergonomically pleasing to a user of toothbrush 100 and provide a toothbrush that is easily gripped and held and easily manipulated by a user. For example, handle 102 may include a slightly recessed finger section 118 which is formed on handle 102. The recessed finger section 118 is designed to receive the thumb of one hand to thereby assist a user in proper placement of toothbrush 100 in a user's hand. Recessed finger section 118 may include ribs or another type of roughened surface to assist a user in gripping toothbrush 100 at recessed finger sections 118. Of course other patterns for providing recessed finger sections may be employed

The head plate for the bristles is formed with a solid perimeter and defines a field of variously shaped and sized holes within this perimeter. Fibers that are to form the tufts are then placed in the holes in the field of the head plate, and the backs of the tufts are melted together to fix their position relative to one another.

The tufted head plate is then inserted into a predefined receiving portion of the head portion of a toothbrush handle and is sonically welded into place. The brush is then end rounded and packaged for sale as a traditional toothbrush.

As is shown in Figures 1 and 2 of the present invention, a head plate 150 is provided, and is fixed to head 120 of toothbrush 100, preferably by sonic welding, although any other appropriate attachment technique may be employed. Head plate 150 is formed of at least two materials. A first rigid material is used to form the perimeter portion 152 of the head plate. Such a material, such as for example polypropylene, is easily sonically welded. A tuft field 154 is formed of a flexible elastomer (preferably having a hardness of 90 Shore A or less).

A process known as "Anchor Free Tufting" (AFT) is used in the formation of head 150. In such an AFT process, head plate 150 is used for holding toothbrush bristles in their proper orientation. When the bristles are placed in their proper orientation through the corresponding holes in the head plate 150, the head plate 150 is placed in the head plate cavity formed in the front face of the head section 104 of the brush, and for insertion into a toothbrush.

As is best shown in Fig. 2, head plate 150 is formed with a solid perimeter and defines a field of variously shaped and sized apertures or holes 156 within the flexible elastomer tuft field 154. Fibers that are to form one or more bristle tufts 158 are then placed in the holes in field 154 of head plate 150, and the backs of tufts 158 are melted

together to fix their position relative to one another. Thus, such a head plate is able to flex, thereby allowing the tuft field and bristles to move under normal brushing conditions, while providing a perimeter of structural rigidity that is able to be sonically welded.

Therefore, the head plate and bristles move or flex under the pressure of normal brushing.

5 While bristles 158 are shown, elastomeric members may also be used in place of these tufts. Furthermore, while a particular tuft field pattern is shown, any desirable tuft field pattern may be employed. Furthermore, the bristle material need not be the same for all of the tufts, and indeed varying materials for performance color or indication of life remaining in the brush head, may be used exclusively, or in combination as desired.

10 The toothbrush according to the various embodiments disclosed herein can be made from any number of materials that are suitable for use in oral care products, such as toothbrushes, etc. For example, many of the components that are included in toothbrush are formed of plastic materials. Accordingly, the handle and head of the powered toothbrush may be molded from polyolefins such as polypropylenes and polyethylenes, 15 polyamids such as nylons, and polyesters such as polyethylene terephthalate. Other suitable materials include polymethylmethacrylate, styrene acrylonitrile and cellulose esters, for example cellulose propionate.

When the tooth care elements are in the form of tufts of bristles, the bristles of can be made from a flexible material suitable for dental hygiene. Generally, materials suitable 20 for bristles are polyamides such as nylon or polyesters such as polybutylene terephthalate. When the tooth care elements are in the form of elastomeric members, they can be made from any number of suitable elastomeric materials, such as a block copolymer. Preferred block copolymers include styrenes (for example styrene ethylene butadiene styrene, or styrene butadiene styrene), polyolefins (for example polypropylene/ethylene propylene diamine modified systems (i.e. synthetic rubber)), polyamides (for example polyamide (2 25 or polyamide 6), polyesters (for example polyester ester or polyether ester), polyurethanes (for, example polyesterurethane, polyetherurethane or polyesteretherurethane).

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, because certain changes may 30 be made in carrying out the above method and in the construction(s) set forth without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description and shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

WHAT IS CLAIMED IS:

1. A head for use with a toothbrush, comprising:
an outer perimeter portion formed of a rigid material, said rigid material being
5 adapted to allow said head to be sonically welded; and
a tuft field positioned within said outer perimeter portion and being formed of a
flexible elastomer, said tuft field defining one or more apertures to receive one or more
bristle tufts, said head being sonically welded into place in said toothbrush.
2. The head of claim 1, wherein said rigid material comprises polypropylene.
- 10 3. The head of claim 1, wherein said flexible elastomer has a hardness of 90
shore A or less.
4. The head of claim 1, wherein during normal brushing conditions both said
tuft field and said one or more bristle tufts move.
5. The head of claim 1, wherein during normal brushing conditions said tuft
15 field flexes.
6. The head of claim 1, wherein said tuft field flexes upon the application of
pressure thereto.
7. The head of claim 1, wherein said one or more bristle tufts are secured
within each corresponding aperture in said tuft field by melting a portion of the bristles
20 forming each of said bristle tufts.
8. The head of claim 7, wherein said bristle tufts are melted adjacent a back
surface of said tuft field that is to be positioned facing said toothbrush.
9. A method for forming a head for use with a toothbrush, comprising the
steps of:

forming an outer perimeter portion of a rigid material, said rigid material being adapted to allow said head to be sonically welded; and

positioning a tuft field within said outer perimeter portion, said tuft field being formed of a flexible elastomer, said tuft field defining one or more apertures to receive one
5 or more bristle tufts;

placing a bristle tuft within at least one corresponding aperture in said tuft field;

melting a portion of bristles in said bristle tuft to secure said bristle tuft in said aperture in said tuft field; and

sonically welding said tuft field into place in said toothbrush.

10 10. The method of claim 9, wherein said rigid material comprises polypropylene.

11. The method of claim 9, wherein said flexible elastomer has a hardness of 90 shore A or less.

12. The method of claim 9, wherein during normal brushing conditions both
15 said tuft field and said one or more bristle tufts move.

13. The method of claim 9, wherein during normal brushing conditions said tuft field flexes.

14. The method of claim 9, wherein said tuft field flexes upon the application of pressure thereto.

20 15. The method of claim 9, further comprising the step of securing said one or more bristle tufts within each corresponding aperture in said tuft field by melting a portion of the bristles forming each of said bristle tufts.

16. The method of claim 15, wherein said bristle tufts are melted adjacent a back surface of said tuft field that is to be positioned facing said toothbrush.

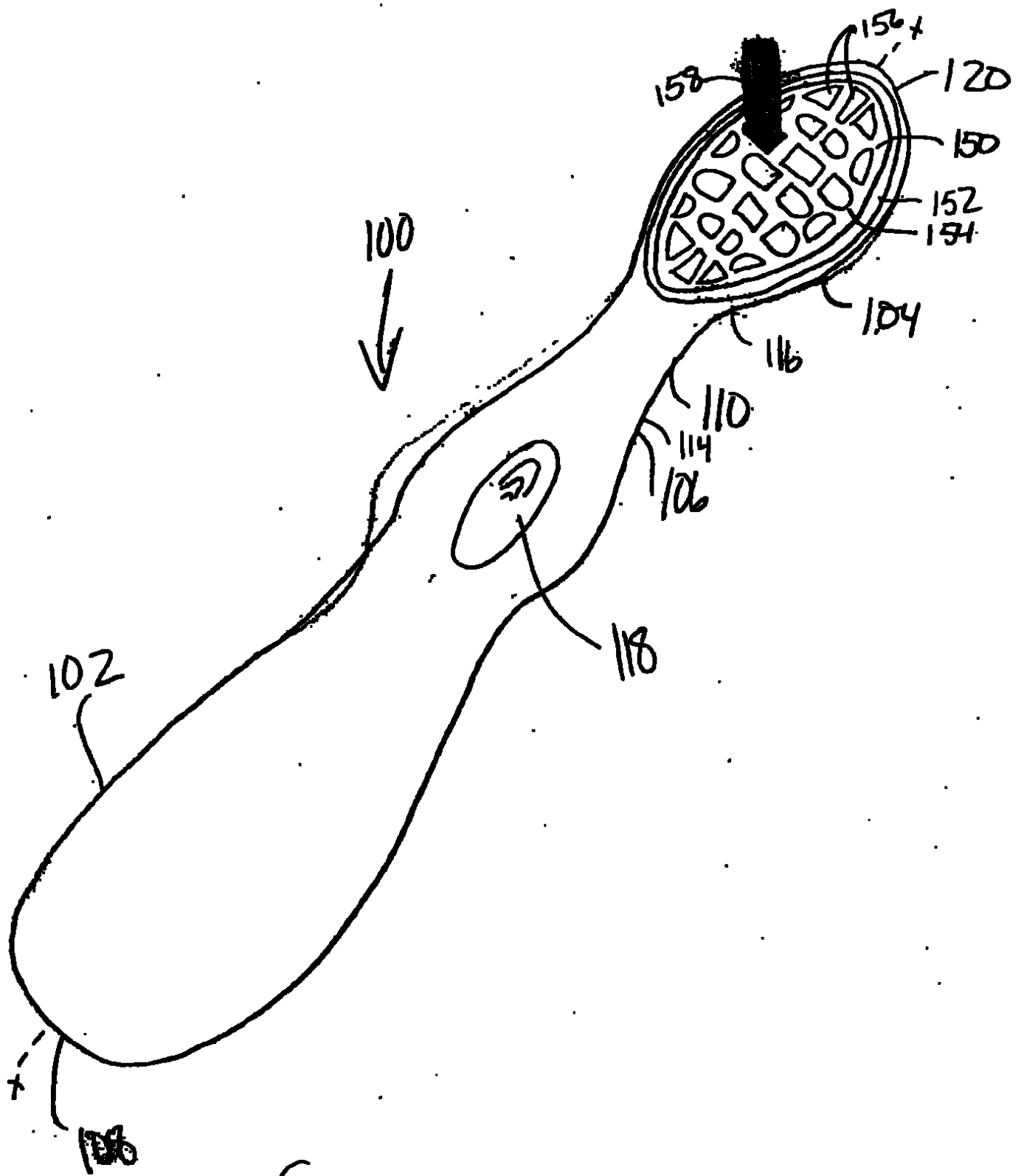


Figure 1

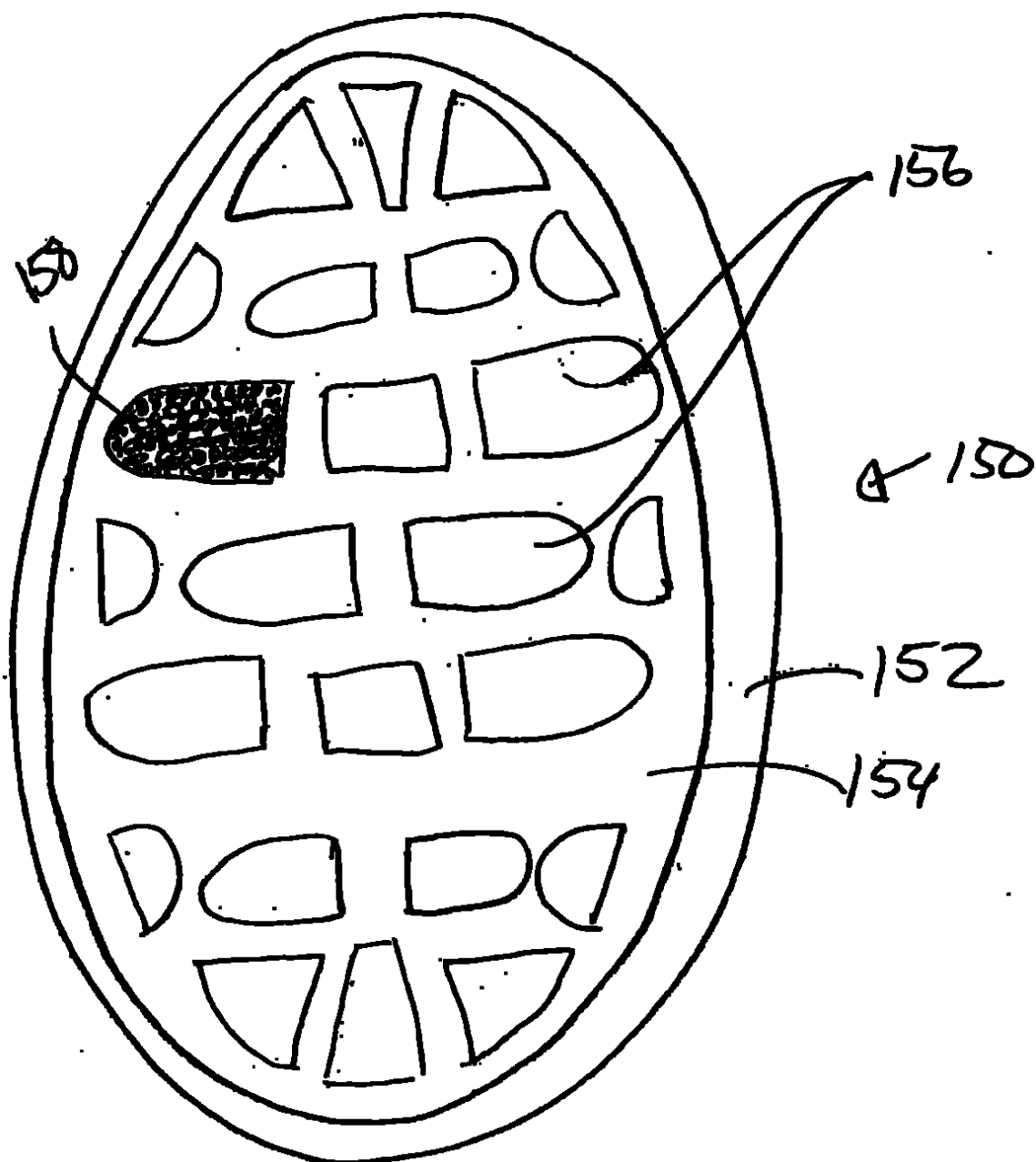


Figure 2

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US2004/031461

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A46B7/06 A46B9/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A46B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 325 560 A (VENDITTI JOHN A ET AL) 5 July 1994 (1994-07-05) column 2, line 61 - column 3, line 15	1-8
A	WO 00/40115 A (PARK KYOUNG SIK) 13 July 2000 (2000-07-13) the whole document	1-8
A	US 2003/094848 A1 (SHIA CHIH-YUAN ET AL) 22 May 2003 (2003-05-22) paragraph '00291 - paragraph '00401	1-8
A	EP 0 613 636 A (LINGNER & FISCHER GMBH) 7 September 1994 (1994-09-07) column 6, line 4 - line 19	1-8
-/-		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

'A' document defining the general state of the art which is not considered to be of particular relevance

'E' earlier document but published on or after the international filing date

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'O' document referring to an oral disclosure, use, exhibition or other means

'P' document published prior to the international filing date but later than the priority date claimed

'T' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

'Z' document member of the same patent family

Date of the actual completion of the international search

13 December 2004

Date of mailing of the international search report

29/12/2004

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

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International Application No
PCT/US2004/031461

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/017003 A1 (HALM HANS ET AL) 14 February 2002 (2002-02-14) abstract	1-8
A	US 2003/084533 A1 (MORGAN KIRSTIE JANE ET AL) 8 May 2003 (2003-05-08) the whole document	1-16

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US2004/031461

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5325560	A	05-07-1994	NONE
WO 0040115	A	13-07-2000	KR 2000047379 A 25-07-2000 AU 1895200 A 24-07-2000 WO 0040115 A1 13-07-2000
US 2003094848	A1	22-05-2003	NONE
EP 0613636	A	07-09-1994	EP 0613636 A1 07-09-1994 EP 0756836 A2 05-02-1997 GR 3031911 T3 29-02-2000 AT 152590 T 15-05-1997 AT 186820 T 15-12-1999 AT 200960 T 15-05-2001 AU 667806 B2 18-04-1996 AU 1373792 A 02-11-1992 AU 700097 B2 24-12-1998 AU 6050496 A 05-09-1996 BR 9205849 A 08-11-1994 CA 2106991 A1 28-09-1992 CZ 9301992 A3 12-04-1995 DE 69219608 D1 12-06-1997 DE 69219608 T2 02-10-1997 DE 69230340 D1 30-12-1999 DE 69230340 T2 30-03-2000 DE 69231824 D1 13-06-2001 DE 69231824 T2 15-11-2001 DK 604425 T3 16-06-1997 DK 613636 T3 05-06-2000 WO 9217092 A1 15-10-1992 EP 0604425 A1 06-07-1994 ES 2103936 T3 01-10-1997 ES 2141192 T3 16-03-2000 ES 2158208 T3 01-09-2001 FI 934205 A 24-09-1993 FI 990535 A 11-03-1999 GR 3024148 T3 31-10-1997 HK 1007267 A1 09-04-1999 HK 1011270 A1 08-03-2002 HK 1011271 A1 25-08-2000 HU 65683 A2 28-07-1994 IE 920955 A1 07-10-1992 JP 3392864 B2 31-03-2003 JP 6505895 T 07-07-1994 KR 210638 B1 15-07-1999 MX 9201360 A1 01-11-1992 NO 933418 A 24-09-1993 NZ 242121 A 27-08-1996 NZ 264908 A 27-08-1996 PL 170488 B1 31-12-1996 PT 100292 A ,B 29-04-1994 SG 49902 A1 15-06-1998 SK 94893 A3 11-05-1994 US 5813079 A 29-09-1998 ZA 9202162 A 15-10-1993
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

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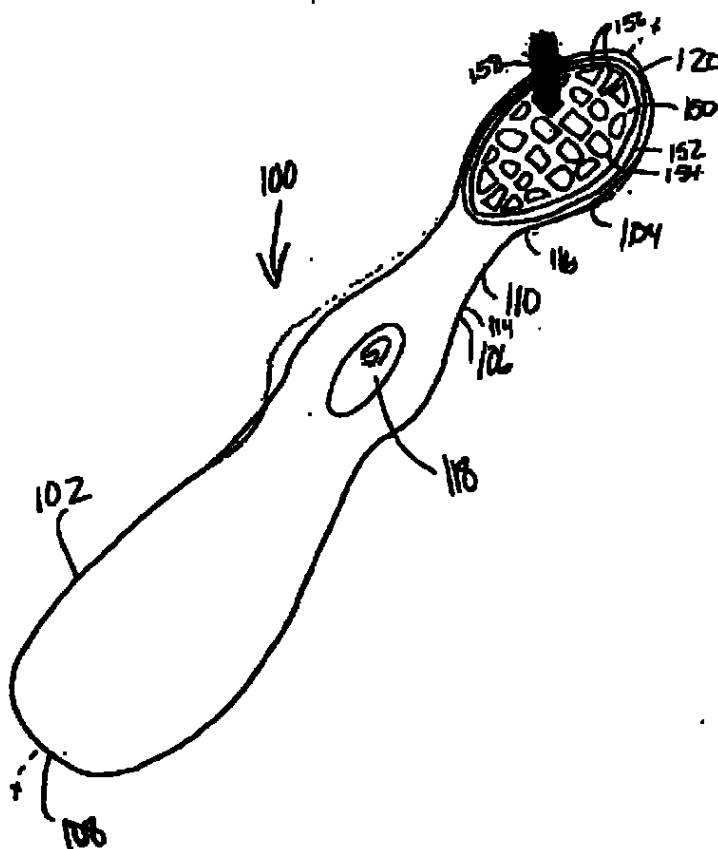
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(54) Título: CABEZA DE CEPILLO DE DIENTES FLEXIBLE



(57) Resumen: Una cabeza para usarse con un cepillo de dientes y un método para formar la misma, que comprende una porción de perímetro exterior formada de una material rígido. El material rígido se adapta para permitir que la cabeza se suelde sònicamente. La cabeza también comprende un campo de mechones posicionado dentro de la porción de perímetro externo. El campo de mechones esta formado de un elastómero flexible. El campo de mechones define una o más aberturas para recibir uno o más mechones de cerdas. La cabeza se suelda sònicamente en su lugar en el cepillo de dientes.

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MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Patente
Euroasática (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
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EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, RO,
SE, SK, TR), Patente OAPI (BF, BJ, CF, CG, CI, CM,
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CABEZA DE CEPILLO DE DIENTES FLEXIBLE**ANTECEDENTES DE LA INVENCION****1. Campo de la invención**

La presente invención se refiere a cepillos de dientes y, más específicamente, a un cepillo de dientes que se forma usando un proceso de formación de penachos libres de anclaje ("anchor free tufting" – "AFT").

2. Descripción del arte relacionado

Los cepillos de dientes proporcionan muchos beneficios relacionados con la limpieza oral. Por ejemplo, los cepillos de dientes eliminan la placa y los restos alimenticios, lo cual ayuda a evitar el deterioro de las piezas dentales y enfermedades. También ayudan a eliminar de la superficie de cada diente la película de color ayudando a blanquearlos. Asimismo, las cerdas en combinación con el movimiento del cepillado masajean el tejido gingival estimulándolo y aumentando su salud.

La cabeza de un cepillo de dientes debe proporcionar un soporte apropiado para las cerdas, y debe ser suficientemente flexible durante el uso para permitir que las cerdas se adapten a la forma de los dientes o la boca del usuario. Asimismo, las técnicas de construcción deberían ser económicas, versátiles y consistentes.

En un intento por cumplir con estos criterios, en la formación de las cabezas de los cepillos de dientes se ha usado un proceso conocido como "Formación de penachos libres de anclaje" ("AFT"). En tal proceso AFT, típicamente se forma una placa frontal para sostener las cerdas del cepillo

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de dientes, y para la eventual inserción en el cuerpo del cepillo de dientes, a partir de un plástico rígido que permite la soldadura sónica. La placa frontal se forma con un perímetro sólido dentro del cual se define un sector de orificios con diversas formas y tamaños. Las fibras que formarán los penachos se colocan luego en los orificios del área de placa frontal, y las partes posteriores de los penachos se funden conjuntamente para fijar su posición entre sí.

La placa frontal con penachos se inserta luego en una parte receptora predefinida de la porción frontal del mango de un cepillo de dientes y se suelda sónicamente en el lugar. Luego se redondean los extremos del cepillo y se envasa para la venta como un cepillo de dientes tradicional.

No obstante, este proceso de fabricación da como resultado un cepillo de dientes con una cabeza muy rígida que no se adapta fácilmente a las características físicas del usuario cuando se realiza el cepillado. Por lo tanto, sería deseable proporcionar un cepillo de dientes que pueda fabricarse convenientemente mediante el proceso citado, pero que provea la flexibilidad deseada a la cabeza del cepillo de dientes durante el uso.

SÍNTESIS DE LA INVENCION

Para mejorar la experiencia general de cepillado del usuario, los inventores de la presente invención determinaron que sería deseable para el usuario una cabeza flexible más blanda. Dicha cabeza se flexionaría en las condiciones del cepillado normal. El proceso AFT precedente todavía podría usarse para fijar las posiciones relativas de las cerdas y, por ende, proporcionar un cepillo de dientes comercialmente atractivo. Sin embargo, los inventores de la presente invención han determinado que tal placa

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frontal formada de material elastomérico no puede soldarse sónicamente a la parte frontal del mango. Esto se debe a que el material elastomérico absorbe y disipa la energía vibratoria impartida a la placa frontal durante la soldadura sónica.

Por lo tanto, para resolver este inconveniente, la presente invención se refiere a una placa frontal para un cepillo de dientes formado por dos materiales. Un primer material rígido se usa para formar la parte de perímetro de la placa frontal. Tal material, como por ejemplo polipropileno, se funde sónicamente con facilidad. El área de penachos se forma de un elastómero flexible (preferentemente con una dureza Shore A de 90 o menos) que le permite al área y, por lo tanto, a la placa frontal y a las cerdas moverse o doblarse bajo la presión del cepillado normal. Por lo tanto, tal placa frontal es capaz de doblarse, lo que permite que el área de penachos y cerdas se mueva bajo las condiciones de cepillado normal, mientras se proporciona un perímetro de rigidez estructural que es capaz de ser soldado sónicamente.

Conforme a otra realización de la presente invención, se proporciona un método para formar una cabeza que se utiliza con un cepillo de dientes, el cual comprende las etapas de formar una parte de perímetro externo de un material rígido, estando dicho material rígido adaptado para permitir la soldadura sónica de la cabeza; ubicar un área de penachos dentro de la parte de perímetro exterior, estando formada tal área de penachos de un elastómero flexible, que define una o más aberturas para recibir uno o más penachos de cerdas; colocar un penacho de cerdas dentro de por lo menos una abertura correspondiente en dicha área de penachos; fundir una porción

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de cerdas en dicho penacho de cerdas para asegurarlo en la abertura de dicha área de penachos; y soldar sónicamente dicha área de penachos en el lugar en dicho cepillo de dientes.

Otras características y ventajas de la presente invención serán evidentes a partir de la lectura conjunta de la descripción detallada precedente y los dibujos adjuntos.

Por consiguiente, la invención comprende las diversas etapas y la relación existente entre una o más de dichas etapas con respecto a cada una de las otras, y el aparato que abarca las características de la construcción, combinaciones de elementos y disposición de las partes que se adaptan para llevar a cabo tales etapas, todo ello según se ejemplifica en la siguiente descripción detallada, y el alcance de la invención se indicará en las reivindicaciones.

BREVE DESCRIPCIÓN DE LAS FIGURAS DE LOS DIBUJOS

Para una comprensión más completa de la invención, se hace referencia a la siguiente descripción y a los dibujos adjuntos, en los cuales:

la Figura 1 es una vista en perspectiva de un cepillo de dientes que incluye una cabeza construida conforme con una realización preferida de la invención; y

la Figura 2 es una vista en planta superior de la cabeza de la Figura 1.

DESCRIPCIÓN DETALLADA DE LA REALIZACIÓN PREFERIDA

En relación con las Figuras 1 y 2, se ilustra un cepillo de dientes de ejemplo que incluye una placa frontal conforme a la invención, generalmente indicado con el número 100.

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El cepillo de dientes 100 incluye un mango 102 en un extremo próximo del mismo, y una sección de cepillo 104 que está definida por un cuello 110 que termina en una cabeza 120 en un extremo distal del cepillo de dientes 100. El mango 102 tiene un extremo próximo libre 108 y un extremo de cuello opuesto 106. El cuello 110 generalmente incluye un primer extremo 114 y un segundo extremo 116 con el primer extremo 114 ubicado en el extremo del cuello 106 del mango 102, y el segundo extremo 116 ubicado en la cabeza 120. En otras palabras, el cuello 110 es la parte del cepillo de dientes 100 que se extiende entre el mango 102 y la cabeza 120. La cabeza 120 en general está preferentemente alineada con el eje longitudinal x-x del cepillo de dientes 100.

El cuello 110 y el mango 102 pueden construirse como un miembro unitario al formar el cuello 110 de modo integral con el mango 102 en el extremo de cuello 106 del mango 102, o puede formarse de manera separable del mango 102 en el extremo de cuello 106. Conforme a esta realización separable, el cuello combinado 110 y la cabeza 120 pueden sacarse del mango 102 para permitir la limpieza, la reparación y/o el intercambio del mango 102 o del cuello combinado 110 y la cabeza 120 (sección de cepillo 104). Cuando el cuello 110 se forma para que se pueda separar del mango 102, el primer extremo de cuello 114 preferentemente incluye una articulación conectora (no mostrada) que está adaptada para quedar unida separablemente al mango 102 utilizando técnicas tradicionales. También se observará que el punto de separación puede estar entre la cabeza 120 y el cuello 110 de modo que la cabeza 120 es una cabeza del tipo que se rellena.

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Asimismo, se observará que las formas ilustradas del mango 102 y el cuello 110 son meramente de naturaleza ejemplificativa, y el mango 102 y/o el cuello 110 pueden formarse para que tengan una cantidad de formas. Preferentemente, las formas del mango 102 y el cuello 110 son ergonómicamente placenteras para un usuario del cepillo de dientes 100 y proporcionan un cepillo de dientes que el usuario puede agarrar, sostener y manipular con facilidad. Por ejemplo, el mango 102 puede incluir una sección para el dedo levemente ahuecada 118 que se forma sobre el mango 102. Esta sección 118 está diseñada para recibir al pulgar de la mano para así ayudar al usuario a colocar el cepillo de dientes 100 correctamente en su mano. La sección levemente ahuecada 118 puede incluir resaltos u otro tipo de superficie rugosa para ayudar al usuario a agarrar el cepillo de dientes 100 en las secciones para dedo ahuecadas 118. Por supuesto se pueden utilizar otros patrones para proporcionar secciones para dedo ahuecadas.

La placa frontal para las cerdas está formada con un perímetro sólido y define dentro de éste un área de orificios de diversas formas y tamaños. Las fibras que formarán los penachos se colocan luego en los orificios en el área de la placa frontal y las partes posteriores de los penachos se funden conjuntamente para fijar su posición entre sí.

La cabeza con penachos se inserta luego en una porción receptora predefinida de la porción frontal del mango del cepillo de dientes y se suelda sónicamente en el lugar. Los extremos del cepillo luego se redondean y se empaqueta para la venta como un cepillo de dientes tradicional.

Como se ilustra en las Figuras 1 y 2 de la presente invención, se

proporciona una placa frontal 150 y se fija a la cabeza 120 del cepillo de dientes 100, preferentemente mediante soldadura sónica, aunque se puede emplear cualquier otra técnica de unión apropiada. La placa frontal 150 se forma de al menos dos materiales. Se usa un primer material rígido para formar la porción de perímetro 152 de la placa frontal. Tal material, como por ejemplo polipropileno, se suelda sónicamente con facilidad. Un área de penachos 154 se forma de un elastómero flexible (preferentemente con una dureza Shore A de 90 o menos).

En la formación de la cabeza 150 se usa un proceso conocido como "Formación de penachos libres de anclaje" ("Anchor Free Tufting - AFT"). En tal proceso AFT, la placa frontal 150 se usa para mantener las cerdas del cepillo de dientes en su orientación adecuada. Cuando las cerdas se colocan en su orientación adecuada a través de los correspondientes orificios de la placa frontal 150, la placa frontal 150 se coloca en la cavidad de la placa frontal formada en la cara delantera de la sección superior 104 del cepillo, para la inserción en un cepillo de dientes.

Como se muestra mejor en la Figura 2, la placa frontal 150 se forma con un perímetro sólido y define un área de aberturas u orificios 156 de diversas formas y tamaños dentro del área de penachos elastoméricos flexibles 154. Las fibras que formarán uno o más penachos de cerdas 158 luego son colocadas en sus orificios en el área 154 de la placa frontal 150, y las partes posteriores de los penachos 158 se funden para fijar su posición recíproca. De este modo, tal placa frontal es capaz de flexionarse, con lo cual permite que el área de penachos y cerdas se mueva bajo las condiciones normales de cepillado, mientras se proporciona un perímetro

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de rigidez estructural que puede soldarse sónicamente. Por lo tanto, la placa frontal y las cerdas se mueven o flexionan bajo la presión del cepillado normal. Aunque se muestran las cerdas 158, también se pueden usar miembros elastoméricos en lugar de estos penachos. Asimismo, aunque se ilustra un patrón de área de penachos particular, se puede emplear cualquier otro patrón de área de penachos deseable. Por otra parte, el material de cerda no necesita ser el mismo para todos los penachos, y por cierto se pueden usar, de forma exclusiva o en combinación, según se desee, materiales variados para el color del rendimiento o para indicar qué vida útil le queda a la cabeza del cepillo.

El cepillo de dientes conforme a las diversas realizaciones descritas en la presente puede hacerse de una cantidad de materiales que son adecuados para el uso en productos para el cuidado oral, tal como los cepillos de dientes, etc. Por ejemplo, muchos de los componentes incluidos en el cepillo de dientes están formados de materiales plásticos. Por consiguiente, el mango y la cabeza del cepillo de dientes eléctrico pueden estar moldeados de poliolefinas, tal como polipropilenos y polietilenos, poliamidas tales como nylon, y poliésteres tal como tereftalato de polietileno. Otros materiales adecuados incluyen polimetilmetacrilato, acroilonitrato de estireno y ésteres de celulosa, por ejemplo, propionato de celulosa.

Cuando los elementos para el cuidado de los dientes están en forma de penachos de cerdas, las cerdas pueden estar hechas de un material flexible adecuado para la higiene dental. Generalmente, los materiales adecuados para cerdas son las poliamidas tales como el nylon o poliésteres

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tales como el tereftalato de polibutileno. Cuando los elementos para el cuidado de los dientes están en forma de miembros elastoméricos, pueden estar hechos de una cantidad cualquiera de materiales elastoméricos apropiados, tal como un copolímero en bloque. Los copolímeros en bloque preferidos incluyen estirenos (por ejemplo, estireno etileno butadieno estireno, o estireno butadieno estireno), poliolefinas (por ejemplo, sistemas modificados de polipropileno/etileno propileno diamina (es decir, caucho sintético)), poliamidas (por ejemplo, poliamida 2 o poliamida 6), poliésteres (por ejemplo, éster poliéster o éster poliéter), poliuretanos (por ejemplo, poliesteruretano, polieteruretano o poliestereteruretano).

De este modo, se observará que los objetos mencionados precedentemente, entre aquellos que son evidentes a partir de la descripción anterior, se logran eficazmente y, como se pueden realizar ciertos cambios para llevar a cabo el método y la construcción citados sin apartarse del espíritu y el alcance de la invención, la intención es que todas las cuestiones contenidas en la descripción precedente y mostradas en los dibujos adjuntos se interpreten de modo ilustrativo y no limitativo.

También se deberá entender que las siguientes reivindicaciones tratan de cubrir todas las características genéricas y específicas de la invención descritas en la presente, así como todas las declaraciones del alcance de la invención, las cuales, como una cuestión de lenguaje, podría decirse que están comprendidas en las mismas.

REIVINDICACIONES

1. Una cabeza que se utiliza con un cepillo de dientes, caracterizada porque comprende:

una porción de perímetro externo formada de un material rígido, estando dicho material rígido adaptado para permitir que dicha cabeza se suelde sónicamente; y

un área de penachos ubicada dentro de dicha porción de perímetro externo y que está formada de un elastómero flexible, dicha área de penachos define una o más aberturas para recibir uno o más penachos de cerdas, dicha cabeza está soldada sónicamente en el lugar en dicho cepillo de dientes.

2. La cabeza de acuerdo con la reivindicación 1, caracterizada porque dicho material rígido comprende polipropileno.

3. La cabeza de acuerdo con la reivindicación 1, caracterizada porque dicho elastómero flexible tiene una dureza Shore A de 90 o menos.

4. La cabeza de acuerdo con la reivindicación 1, caracterizada porque durante las condiciones normales de cepillado, tanto dicha área de penachos como dichos uno o más penachos de cerdas se mueven.

5. La cabeza de acuerdo con la reivindicación 1, caracterizada porque durante las condiciones normales de cepillado, dicha área de penachos se flexiona.

6. La cabeza de acuerdo con la reivindicación 1, caracterizada porque el área de penachos se flexiona cuando se le aplica presión.

7. La cabeza de acuerdo con la reivindicación 1, caracterizada porque uno o más penachos de cerdas están fijados dentro de cada abertura

correspondiente en dicha área de penachos mediante la fusión de una porción de las cerdas que forman cada uno de dichos penachos de cerdas.

8. La cabeza de acuerdo con la reivindicación 7, caracterizada porque dichos penachos de cerdas están fundidos de manera adyacente a la superficie posterior de dicha área de penachos que se ubicará enfrentada a dicho cepillo de dientes.

9. Un método para formar una cabeza que se utiliza con un cepillo de dientes, caracterizado porque comprende las siguientes etapas:

formar una porción de perímetro externo de un material rígido, estando dicho material rígido adaptado para permitir la soldadura sónica de dicha cabeza; y

ubicar un área de penachos dentro de dicha porción de perímetro externo, dicha área de penachos está formada de un elastómero flexible, dicha área de penachos define una o más aberturas para recibir uno o más penachos de cerdas;

colocar un penacho de cerdas dentro de al menos una abertura correspondiente en dicha área de penachos;

fundir una porción de cerdas en dicho penacho de cerdas para asegurar dicho penacho de cerdas en dicha abertura de dicha área de penachos; y

soldar sónicamente dicha área de penachos en el lugar en dicho cepillo de dientes.

10. El método de acuerdo con la reivindicación 9, caracterizado porque dicho material rígido comprende polipropileno.

11. El método de acuerdo con la reivindicación 9, caracterizado

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porque dicho elastómero flexible tiene una dureza Shore A de 90 o menos.

12. El método de acuerdo con la reivindicación 9, caracterizado porque durante las condiciones de cepillado normal, tanto dicha área de penachos como dichos uno o más penachos de cerdas se mueven.

13. El método de acuerdo con la reivindicación 9, caracterizado porque durante las condiciones de cepillado normal, dicha área de penachos se flexiona.

14. El método de acuerdo con la reivindicación 9, caracterizado porque dicha área de penachos se flexiona cuando se le aplica presión.

15. El método de acuerdo con la reivindicación 9, caracterizado porque comprende además la etapa de asegurar dichos uno o más penachos de cerdas dentro de cada abertura correspondiente en dicha área de penachos mediante la fusión de una parte de las cerdas que conforman cada uno de dichos penachos de cerdas.

16. El método de acuerdo con la reivindicación 15, caracterizado porque dichos penachos de cerdas están fundidos de modo adyacente a la superficie posterior de dicha área de penachos que se ubicará enfrentada a dicho cepillo de dientes.

BUENOS AIRES, SEPTIEMBRE DE 2004.

RESUMEN

CABEZA DE CEPILLO DE DIENTES FLEXIBLE

Una cabeza para utilizar con un cepillo de dientes y un método para formar la misma, que comprende una porción de perímetro externo formada de un material rígido. El material rígido está adaptado para permitir la soldadura sónica de la cabeza. La cabeza comprende, asimismo, un área de penachos ubicada dentro de la porción de perímetro externo. El área de penachos está formada de un elastómero flexible. El área de penachos define una o más aberturas para recibir uno o más penachos de cerdas. La cabeza está soldada sónicamente en el lugar en el cepillo de dientes.

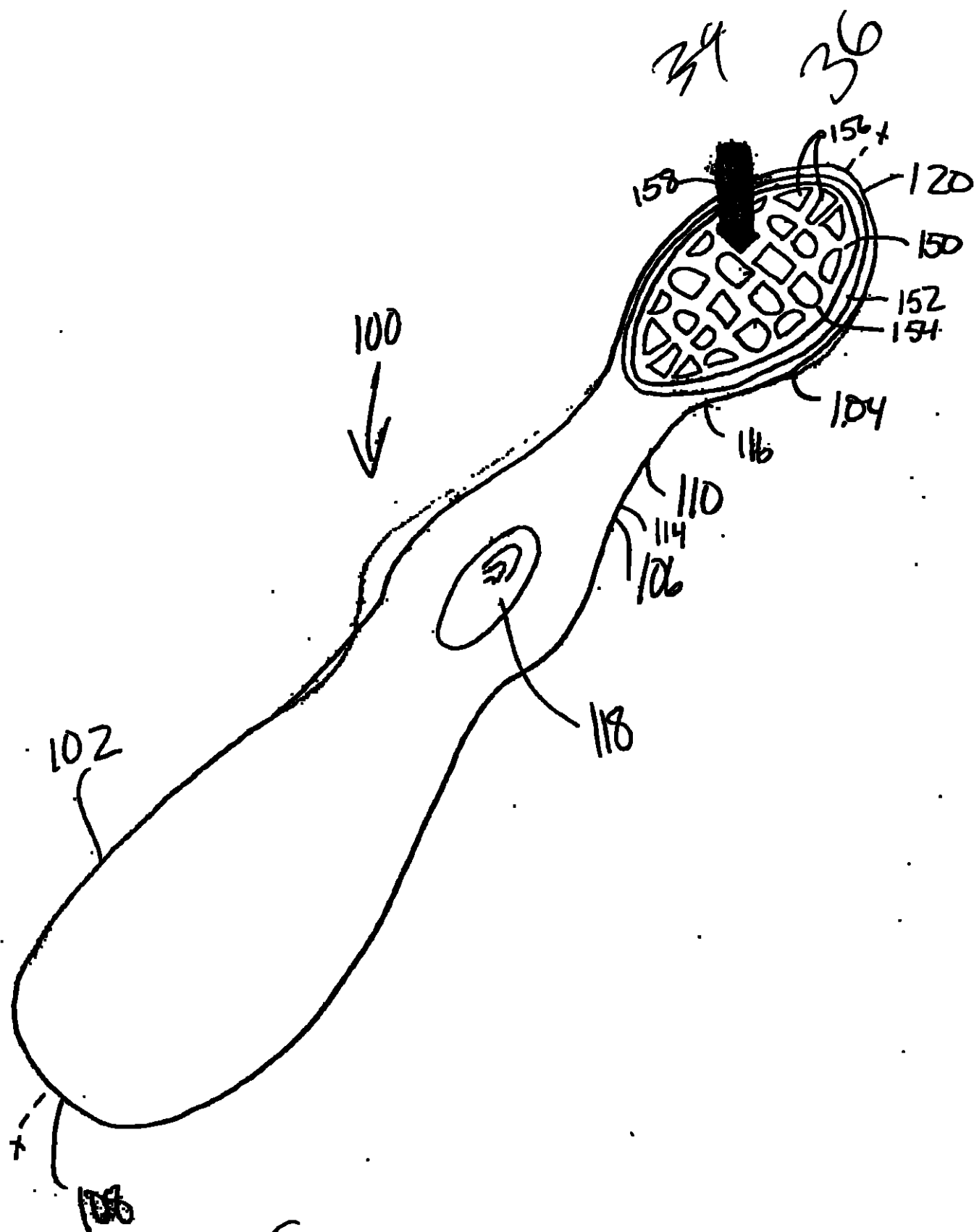


Figure 1

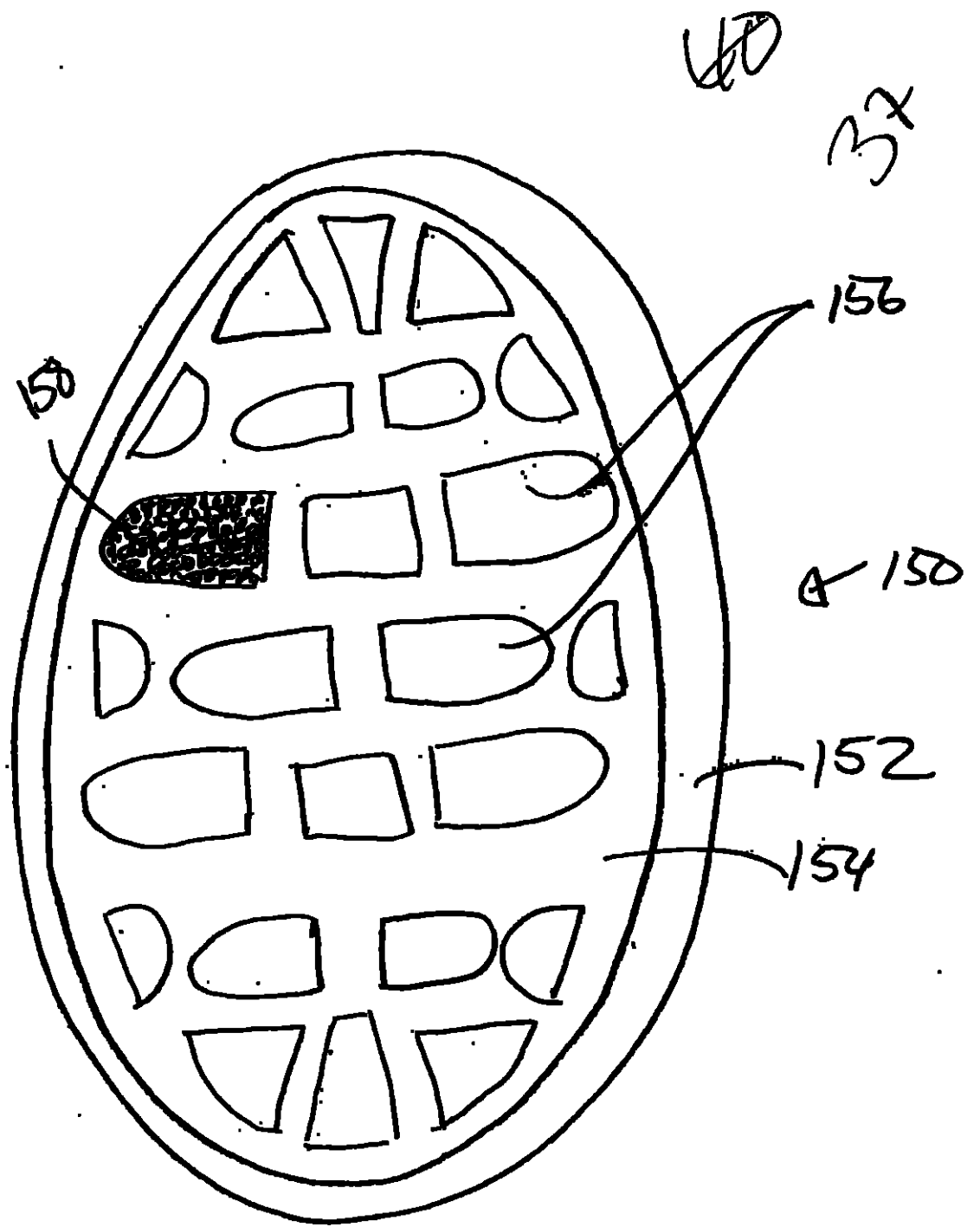


Figure 2

PATENT COOPERATION TREATY

Handwritten marks: a large 'X' and the number '30'.

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
COLGATE-PALMOLIVE COMPANY
Attn. Wolin, Harris A.
909 River Road
P.O. Box 1343
Piscataway, NJ 08855
UNITED STATES OF AMERICA

JAN - 4 2005

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

Handwritten signature and date: 12/10

(PCT Rule 44.1)

Date of mailing (day/month/year)		29/12/2004
Applicant's or agent's file reference 7127-00		FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US2004/031461		International filing date (day/month/year) 24/09/2004
Applicant COLGATE-PALMOLIVE COMPANY		

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
 - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 18 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 18 months.

See the Annex to Form PCT/ISA/301 and, for details about the applicable time limits, Office by Office, see the PCT Applicant's Guide, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentstein 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3018	Authorized officer Aline Thumser
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NOTES TO FORM PCT/ISA/220

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These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the letter to be published for the purpose of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 18 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 48.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 48.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 208(h)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

43 20

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 18 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 48.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Office, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PCT

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 7127-00	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2004/031461	International filing date (day/month/year) 24/09/2004	(Earliest) Priority Date (day/month/year) 26/09/2003
Applicant COLGATE-PALMOLIVE COMPANY		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US2004/031481A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A46B7/06 A46B9/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A46B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 325 560 A (VENDITTI JOHN A ET AL) 5 July 1994 (1994-07-05) column 2, line 61 - column 3, line 15	1-8
A	WO 00/40115 A (PARK KYOUNG SIK) 13 July 2000 (2000-07-13) the whole document	1-8
A	US 2003/094848 A1 (SHIA CHIH-YUAN ET AL) 22 May 2003 (2003-05-22) paragraph '0029! - paragraph '0040!	1-8
A	EP 0 613 636 A (LINGNER & FISCHER GMBH) 7 September 1994 (1994-09-07) column 6, line 4 - line 19	1-8
	-/-	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"Z" document member of the same patent family

Date of the actual completion of the international search

13 December 2004

Date of mailing of the international search report

29/12/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5018 Patentkan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 851 epo nl,
Fax (+31-70) 340-3018

Authorized officer

Cardan, C

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/031461

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/017003 A1 (HALM HANS ET AL) 14 February 2002 (2002-02-14) abstract	1-8
A	US 2003/084533 A1 (MORGAN KIRSTIE JANE ET AL) 8 May 2003 (2003-05-08) the whole document	1-16

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US2004/031461

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5325560	A	05-07-1994	NONE
WO 0040115	A	13-07-2000	KR 2000047379 A AU 1895200 A WO 0040115 A1
US 2003094848	A1	22-05-2003	NONE
EP 0613636	A	07-09-1994	EP 0613636 A1 EP 0756836 A2 GR 3031911 T3 AT 152590 T AT 186820 T AT 200960 T AU 667806 B2 AU 1373792 A AU 700097 B2 AU 6050496 A BR 9205849 A CA 2106991 A1 CZ 9301992 A3 DE 69219608 D1 DE 69219608 T2 DE 69230340 D1 DE 69230340 T2 DE 69231824 D1 DE 69231824 T2 DK 604425 T3 DK 613636 T3 WO 9217092 A1 EP 0604425 A1 ES 2103936 T3 ES 2141192 T3 ES 2158208 T3 FI 934205 A FI 990535 A GR 3024148 T3 HK 1007267 A1 HK 1011270 A1 HK 1011271 A1 HU 65683 A2 IE 920955 A1 JP 3392864 B2 JP 6505895 T KR 210638 B1 MX 9201360 A1 NO 933418 A NZ 242121 A NZ 264908 A PL 170488 B1 PT 100292 A , B SG 49902 A1 SK 94893 A3 US 5813079 A ZA 9202162 A
US 2002017003	A1	14-02-2002	US 6178582 B1 US 5651158 A

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/031461

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002017003 A1		AT 3615 U2	26-06-2000
		AT 3362 U1	25-02-2000
		AT 3477 U1	25-04-2000
		AT 216853 T	15-05-2002
		AT 244526 T	15-07-2003
		AU 714961 B2	13-01-2000
		AU 6927796 A	19-03-1997
		BR 9610399 A	06-07-1999
		CA 2227923 A1	06-03-1997
		CN 1195972 A ,B	14-10-1998
		CZ 9800547 A3	14-10-1998
		DE 1240846 T1	28-05-2003
		DE 29623517 U1	22-10-1998
		DE 29623581 U1	22-10-1998
		DE 29623840 U1	02-03-2000
		DE 29623868 U1	02-03-2000
		DE 29624402 U1	06-02-2003
		DE 69621025 D1	06-06-2002
		DE 69621025 T2	12-12-2002
		DE 69629062 D1	14-08-2003
		DE 69629062 T2	24-12-2003
		DK 845956 T3	19-08-2002
		DK 990401 T3	13-10-2003
		EA 980157 A1	29-10-1998
		WO 9707707 A1	06-03-1997
		EP 1240846 A2	18-09-2002
		EP 0845956 A1	10-06-1998
		EP 0990401 A1	05-04-2000
		ES 2176488 T3	01-12-2002
		ES 2203008 T3	01-04-2004
		HK 1028169 A1	16-04-2004
		HU 9802452 A2	01-02-1999
		JP 11511343 T	05-10-1999
		JP 3535176 B2	07-06-2004
		NO 980769 A	17-04-1998
		NZ 316926 A	28-01-2000
		NZ 500625 A	28-01-2000
		PL 325151 A1	06-07-1998
		PT 845956 T	31-10-2002
		PT 990401 T	28-11-2003
		SK 23298 A3	04-11-1998
		TW 414034 Y	01-12-2000
		US 2001014991 A1	23-08-2001
		ZA 9607180 A	24-10-1997
		US RE38521 E1	25-05-2004
US 2003084533 A1	08-05-2003	US 2001013151 A1	16-08-2001
		US 6219874 B1	24-04-2001
		AT 249765 T	15-10-2003
		AU 706139 B2	10-06-1999
		AU 2969895 A	16-02-1996
		BR 9508399 A	26-05-1998
		CA 2194054 A1	01-02-1996
		CN 1150748 A ,B	28-05-1997
		DE 69531786 D1	23-10-2003
		DE 69531786 T2	15-07-2004
		EP 1300096 A2	09-04-2003
		EP 0769920 A1	02-05-1997

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/031461

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003084533	A1	ES 2202367 T3	01-04-2004
		HU 77207 A2	02-03-1998
		JP 10502846 T	17-03-1998
		KR 253963 B1	01-05-2000
		PL 318155 A1	12-05-1997
		RU 2158101 C2	27-10-2000
		TR 960054 A2	21-06-1996
		WO 9602165 A1	01-02-1996
		ZA 9505833 A	21-02-1996

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From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2004/031461

International filing date (day/month/year)
24.09.2004

Priority date (day/month/year)
26.09.2003

International Patent Classification (IPC) or both national classification and IPC
A46B7/06, A46B9/04

Applicant
COLGATE-PALMOLIVE COMPANY

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:  European Patent Office D-80298 Munich Tel. +49 89 2369 - 0 Tx: 523656 epmu d Fax: +49 89 2369 - 4465	Authorized Officer Cardan, C Telephone No. +49 89 2369-8115 
--	--

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No. **PCT/US2004/031461**

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/031461

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☐ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-16
Inventive step (IS)	Yes: Claims	
	No: Claims	1-16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

1. Document US 5 325 560 A (D1), considered as the most relevant prior art, discloses a toothbrush having a head made of an outer perimeter portion (c 2/1 17/Fig. 7) formed of a rigid material and a tuft field positioned within the outer perimeter, said field having apertures for the bristles (c 3/1 8-15) and being made of a flexible elastomer (c 2/1 61-63).
D1 does not disclose a sonical welding of the head to a brush, however nor is this disclosed as an essential feature in claim 1.
Hence, the subject-matter of claim 1 cannot be considered as fulfilling the requirements of Art. 33(2) PCT.
2. Independent claim 9 is unclear. The last step disclosed by the method claim 9 is '...sonically welding said tuft filed into place in said toothbrush' whereas the applicant states in the description that an elastomeric plate cannot be sonically welded to a head portion (p 2/1 6-8).
3. The dependent claims 2 to 8 do not add any further technical features, to the independent claim 1, which are not already disclosed in the prior art cited in the search report and that in combination with those of claim 1 could lead to a novel and inventive subject-matter.
4. Independent claim 1 is not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
5. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

APOSTILLE

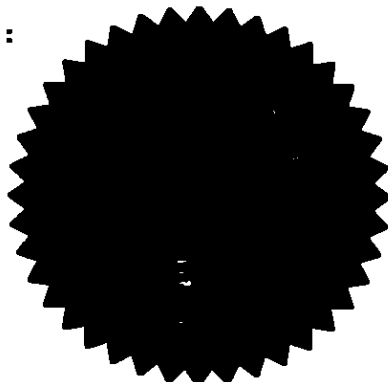
57

(CONVENTION DE LA HAYE DU 5 OCTOBRE 1961)

1. COUNTRY: UNITED STATES OF AMERICA
2. THIS PUBLIC DOCUMENT HAS BEEN SIGNED BY:
ELAINE M FLYNN
3. ACTING IN THE CAPACITY OF:
COUNTY CLERK
4. BEARS THE SEAL/STAMP OF:
COUNTY OF MIDDLESEX

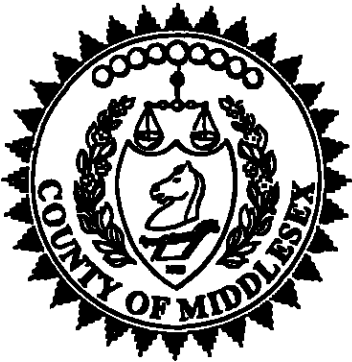
CERTIFIED

5. AT TRENTON, NEW JERSEY
6. THE 13TH DAY OF JANUARY 2006
7. BY: John E McCormac, CPA, NEW JERSEY TREASURER
8. NO. A248838
9. SEAL/STAMP:
10. SIGNATURE



John E McCormac

STATE OF NEW JERSEY }
County of Middlesex } ss.



I, BLAINE M. FLYNN, Clerk of the County of Middlesex, do hereby certify that

CAROL M. STANLEY

whose name is subscribed to the universal certificate or proof of acknowledgment of the annexed instrument was at the time of taking the same a

NOTARY PUBLIC OF NEW JERSEY

acting in and for said county, duly commissioned and sworn, and qualified to act as such; that as such

NOTARY PUBLIC OF NEW JERSEY

he was duly authorized by the laws of the State of New Jersey to take and certify depositions; to administer oaths and affirmations; to take affidavits and certify the acknowledgment and proof of deeds and other written instruments for lands, tenements and hereditaments to be used in evidence or recorded in this state; and further, that I am well acquainted with the handwriting of such

NOTARY PUBLIC OF NEW JERSEY

and verify that the signature to such proof or acknowledgment is genuine.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of the County of Middlesex, this 10th day of January 2006

Blaine M. Flynn CLERK

COUNTY OF MIDDLESEX

STATE OF NEW JERSEY

UNITED STATES OF AMERICA

I, Katherine M. Lally, of COLGATE-PALMOLIVE COMPANY, do hereby declare that the copy attached hereto is a true photocopy of the assignment in support of U.S. Serial No. 10/672,815 filed September 26, 2003.


Katherine M. Lally
Patent Administrator
Colgate-Palmolive Company

Subscribed and sworn to
before me this 4 day
of January, 2006.


Carol M. Stanley
Notary Public of New Jersey
My Commission Expires November 22, 2010

Columbian

ASSIGNMENT

WHEREAS, I (we), Robert A. Moskovich and Michael Rooney (below referred to as ASSIGNOR(S)), residing, respectively, as set forth hereinafter, have made an invention for which application for Letters Patent of the United States is being filed herewith (was filed) in the United States Patent and Trademark Office as Application Serial No. 10/672,815, filed September 26, 2003, naming the ASSIGNOR(S) as an inventor, and entitled FLEXIBLE TOOTHBRUSH HEAD; and

WHEREAS, Colgate-Palmolive Company, a corporation duly organized and existing under the laws of the State of Delaware, United States of America and having its principal office and place of business at 300 Park Avenue, New York, New York 10022, and offices and place of business at 909 River Road, Piscataway, New Jersey 08855 (below referred to as "ASSIGNEE"), is desirous of obtaining the entire right, title and interest in and to the aforesaid invention and patent application and corresponding patent rights worldwide;

NOW, THEREFORE, in consideration of good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, ASSIGNORS, by these presents do sell, assign and transfer to ASSIGNEE, the full and exclusive right, title and interest in and to the aforesaid invention, the aforesaid U.S. and all corresponding foreign patent applications, all divisional, continuation, continuation-in-part, reissue and reexamination applications of the aforesaid U.S. application, and all Letters Patent or comparable rights issuing thereon in the United States and in all foreign countries, together with the right of priority under the International Convention for the Protection of Industrial Property, Inter-American Convention Relating to Patents, Designs and Industrial Models, and any other international agreements to which the United States of America adheres, and the ASSIGNORS hereby authorize and request the U.S. Commissioner of Patents and Trademarks and all foreign Patent Offices to issue all Letters Patent or comparable rights issuing on any application as aforesaid to ASSIGNEE, or to its successors, assigns or legal representatives;

ASSIGNORS hereby covenant that ASSIGNORS have full right to convey the entire interest herein assigned, and that ASSIGNORS have not executed, and will not execute, any agreement in conflict herewith;

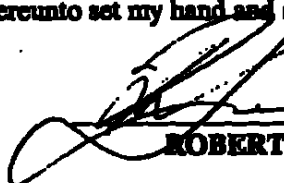
ASSIGNORS agree to communicate to ASSIGNEE or to its successors, assigns or legal representatives any and all facts known to them or any of them respecting said invention, and without further remuneration to testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, continuation-in-part, reissue and reexamination applications, make all rightful oaths and generally do all lawful acts to aid ASSIGNEE or its successors, assigns or legal representatives to obtain and enforce proper patent protection for said invention in all countries and to enhance or perfect ASSIGNEE's title in and to the invention and patent rights therein.

ASSIGNORS hereby authorize attorneys for ASSIGNEE to enter on this document any applicable serial numbers and filing dates after ASSIGNORS' execution of this document.

This Assignment is effective as of September 26, 2003.
(Date of Filing)

(Assignment cont)

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 24 day of MARCH 2004.


ROBERT A. MOSKOVICH

Address: 20 Jensen Street
East Brunswick, NJ 08816

State of New Jersey
County of Middlesex

On this 24 day of March 2004, before me, a Notary Public in and for the State and County aforesaid, personally appeared the above signatory, known to me to be the person of that name, who executed the foregoing instrument in my presence.

CAROL M. STANLEY
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES NOV. 18, 2005


NOTARY PUBLIC

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 24 day of March 2004.


MICHAEL C. ROONEY

Address: 63 Locust Avenue
Millburn, NJ 07041

State of New Jersey
County of Middlesex

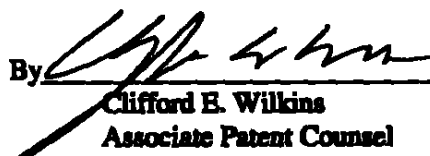
On this 24 day of March 2004, before me, a Notary Public in and for the State and County aforesaid, personally appeared the above signatory, known to me to be the person of that name, who executed the foregoing instrument in my presence.

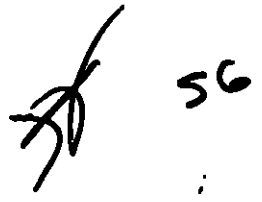
CAROL M. STANLEY
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES NOV. 18, 2005


NOTARY PUBLIC

Colgate-Palmolive Company accepts this Assignment.

COLGATE-PALMOLIVE COMPANY

By 
Clifford E. Wilkins
Associate Patent Counsel



**TRADUCCIÓN AL ESPAÑOL del documento de cesión de solicitud de patente a
Colgate-Palmolive Company, firmado por los cedentes y el cesionario.**

APOSTILLA

(Convención de La Haya del 5 de Julio de 1961)

- 1. PAÍS: ESTADOS UNIDOS DE AMERICA**
- 2. ESTE DOCUMENTO PÚBLICO HA SIDO FIRMADO POR:
ELAINE M. FLYNN**
- 3. ACTUANDO EN CAPACIDAD DE:
FUNCIONARIO DEL CONDADO**
- 4. LLEVA EL SELLO/TIMBRE DE:
CONDADO DE MIDDLESEX**

CERTIFICADO

- 5. EN TRENTON, NEW JERSEY**
- 6. EL 13 DE ENERO DE 2006**
- 7. POR John E. McCormac, CPA, TESORERO DE NEW JERSEY**
- 8. NO. A248838**
- 9. SELLO/TIMBRE**
- 10. FIRMA**

John McCormac (Firma)

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CONDADO DE MIDDLESEX

ESTADO DE NEW JERSEY

ESTADOS UNIDOS DE AMERICA

Yo Katherine M. Lally, de COLGATE-PALMOLIVE COMPANY, declaro que la copia anexa al presente es una fotocopia verdadera de la cesión como base de U.S. número de serie 10/672,815 presentada el 26 de septiembre de 2003.

(Firma)
Katherine M. Lally
Administrador de Patentes
Colgate Palmolive Company

Suscrito y jurado
Ante mi este 4
de enero de 2006.

Carol M. Stanley (Firma)
Carol M. Stanley
Notario Público de New Jersey
Mi comisión expira el 22 de Noviembre de 2010.

ESTADO DE NEW JERSEY
Condado de Middlesex

Yo, Elaine M. Flinn, Funcionario del Condado de Middlesex, certifico que

Carol M. Stanley

Cuyo nombre aparece suscrito al certificado de prueba de reconocimiento del instrumento adjunto era al momento de tomar el mismo un

NOTARIO PUBLICO DE NEW JERSEY

Actuando en y para dicho condado, debidamente comisionada y juramentada, y calificada para actuar como tal; que como tal

NOTARIO PUBLICO DE NEW JERSEY

Estaba debidamente autorizada por las leyes del Estado de New Jersey para tomar y certificar declaraciones; para administrar juramentos y promesa solemnes; para tomar declaraciones juradas por escrito y certificar el reconocimiento y la prueba de instrumentos jurídicos y otros instrumentos escritos para tierras, arrendamientos y herencias ser leídos como evidencia o registrados en este estado; y además, que estoy familiarizada con la firma de tal

NOTARIO PUBLICO DE NEW JERSEY

Y verifico que la firma de tal prueba o reconocimiento es genuina.

EN TESTIMONIO DE LO CUAL, e firmado el presente y fijado el sello del Condado de Middlesex este 10 de enero de 2006.

Elaine M. Flinn (Firma)

CESIÓN

CONSIDERANDO QUE, nosotros, Robert A. Moskovich y Michel Rooney (referidos debajo como CEDENTES), residiendo, respectivamente, como se establece adelante, hemos hecho una invención para la cual se presentó (presentó) solicitud de patente de Estados Unidos en la Oficina de Marcas y patentes de Estados Unidos como solicitud con número de serie 10/672,815, presentada el 26 de septiembre de 2003, nombrando a los CEDENTES como inventores, y titulada CABEZA FLEXIBLE DE CEPILLO DE DIENTES; y

CONSIDERANDO QUE, Colgate-Palmolive Company, una corporación debidamente organizada y existente bajo las leyes del Estado de Delaware, Estados Unidos de América y que tiene sus oficinas principales y lugar de operación en 300 Park Avenue, New York, New York 10022, y oficinas y lugar de operación en 909 River Road, Piscataway, New Jersey 08855 (referido debajo como CESIONARIO), tiene deseos de obtener la totalidad del derecho, título e intereses en y para la invención y solicitud de patente mencionadas arriba y los correspondientes derechos de patente alrededor del mundo.

AHORA, POR LO TANTO, en consideración de la consideración buena y valiosa, el recibo y la suficiencia de la cual se reconocen, los CEDENTES, por la presente venden, ceden y transfieren al CESIONARIO el derecho, título e interés completo y exclusivo en y para la invención arriba mencionada, la solicitud de patente de los Estados Unidos arriba mencionada y todas las solicitudes de patente extranjeras correspondientes, todas las solicitudes de división, continuación, continuación parcial, reemisión y reexaminación de la solicitud de patente de los Estados Unidos arriba mencionada, y todas las Patentes o derechos comparables emitidos sobre la misma en los Estados Unidos y en todos los países extranjeros, junto con el derecho de prioridad bajo la Convención Internacional para la Protección de la Propiedad Industrial, la Convención Interamericana Relacionada con Patentes, Diseños y Modelos Industriales, u cualquier otro acuerdo internacional al cual se adhieran los Estados Unidos, y los CEDENTES por la presente autorizan y solicitan al Comisionado de Marcas y Patentes de los Estados Unidos y a todas las Oficinas de Patentes extranjeras a emitir todas las patentes o derechos comparables que puedan surgir de cualquier solicitud al CESIONARIO, o sus sucesores, cesionarios o representantes legales;

Los CEDENTES garantizan que los CEDENTES tienen pleno derecho para comunicar la totalidad del interés aquí cedido, y que los CEDENTES no han ejecutado, y no ejecutarán, ningún acuerdo en conflicto con el presente;

Los CEDENTES acuerdan comunicar al CESIONARIO o a sus sucesores, cesionarios o representantes legales cualquiera y todos los hechos conocidos por ellos o por cualquiera de ellos respecto a dicha invención, y sin remuneración adicional testificar en cualquier proceso legal, firmar todos los papeles legales, ejecutar todas las solicitudes de división, continuación, continuación parcial, reemisión y reexaminación, hacer todos los juramentos correctos y en general hacer todos los actos legales para ayudar al CESIONARIO o sus sucesores, cesionarios o representantes legales a obtener y hacer valer la protección de patente para dicha invención en todos los países y a mejorar o perfeccionar el derecho del CESIONARIO en y para la invención y los derechos de patente de la misma.

Los CEDENTES por la presente autorizan a los abogados del CESIONARIO a ingresar en este documento cualquier número de serie y fecha de presentación aplicable después que el CEDENTE ha ejecutado este documento.

Esta cesión es efectiva desde Septiembre 26 de 2003
(Fecha de presentación)



EN TESTIMONIO DE LO CUAL he puesto mi firma y fijado mi sello este 24 de marzo de 2004

(Firma)
ROBERT A. MOSKOVICH

Dirección: 20 Jensen Street
East Brunswick, NJ 08816

Estado de New Jersey
Condado de Middlesex

Este 24 de marzo de 2005, ante mi, un notario público en y para el Estado y Condado arriba mencionados, apareció personalmente el arriba firmante, a quien conozco como la persona de ese nombre quien ejecutó el instrumento anterior en mi presencia.

CAROL M. STANLEY
NOTARIO PÚBLICO DE NEW JERSEY
MI COMISIÓN EXPIRA NOV. 18 DE 2005

(Firma)
NOTARIO PUBLICO

EN TESTIMONIO DE LO CUAL he puesto mi firma y fijado mi sello este 24 de marzo de 2004

(Firma)
MICHAEL C. ROONEY

Dirección: 63 Locust Drive
Milburn, NJ 07041

Estado de New Jersey
Condado de Middlesex

Este 24 de marzo de 2005, ante mi, un notario público en y para el Estado y Condado arriba mencionados, apareció personalmente el arriba firmante, a quien conozco como la persona de ese nombre quien ejecutó el instrumento anterior en mi presencia.

CAROL M. STANLEY
NOTARIO PÚBLICO DE NEW JERSEY
MI COMISIÓN EXPIRA NOV. 18 DE 2005

(Firma)
NOTARIO PUBLICO

Colgate-Palmolive Company acepta esta Cesión.

COLGATE-PALMOLIVE COMPANY

Por: (Firma)
Clifford E. Wilkins
Abogado Asociado de Patentes

10

NEW YORK COUNTY Form 1
252373

I, NORMAN GOODMAN, County Clerk and Clerk of the Supreme Court of the State of New York, in and for the County of New York, a Court of Record, having by law a seal, DO HEREBY CERTIFY pursuant to the Executive Law of the State of New York, that

Rosie S. Dizon

whose name is subscribed to the annexed affidavit, deposition, certificate of acknowledgment or proof, was at the time of taking the same a NOTARY PUBLIC in and for the State of New York duly commissioned, sworn and qualified to act as such; that pursuant to law, a commission or a certificate of his official character, with his autograph signature has been filed in my office; that at the time of taking such proof, acknowledgment or oath, he was duly authorized to take the same; that I am well acquainted with the handwriting of such NOTARY PUBLIC or have compared the signature on the annexed instrument with his autograph signature deposited in my office, and I believe that such signature is genuine.

IN WITNESS WHEREOF, I have hereunto set my hand affixed my official seal this

OCT 30 2001

FEE PAID \$3.00

Norman Goodman
County Clerk and Clerk of the Supreme Court of the State of New York, County of New York

En la No. 111, Ciudad de San Francisco, California, el 14 de FEB. 2006
Copia certificada de un original que se le ha dado a la nota.
NOTARIO CUARENTA
Agencia Casado Zapata
San Francisco, CA, Estados Unidos

Apostille

(Convention de La Haye du 5 Octobre 1961)

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1. Country: **United States of America**

This public document

2. has been signed by **Norman Goodman**

3. acting in the capacity of **County Clerk**

4. bears the seal/stamp of the county of **New York**

Certified

5. At New York, New York 6. the 30th day of October 2001

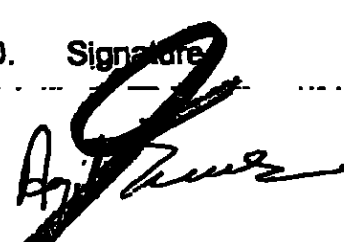
7. by Special Deputy Secretary of State, State of New York

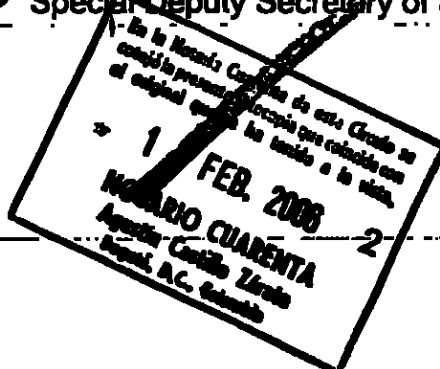
8. No. NYC-9786540B

9. Seal/Stamp

10. Signature




Asif M. Qureshi
Special Deputy Secretary of State



Brigard & Castro

SANTA FE DE BOGOTA - COLOMBIA

PODER

POWER OF ATTORNEY

Yo (nosotros)

domiciliado(s) en

Nombre(amos) a: RAMIRO CASTRO DUQUE y/o JUAN PABLO CADENA SARMIENTO y/o BEATRIZ JARAMILLO S.

de Santafé de Bogotá, Colombia, apoderados verdaderos y legales con poder especial, amplio y suficiente, para recabar de las oficinas y autoridades colombianas administrativas, judiciales y de policía, en cualquier instancia o recurso, la obtención de patentes de invención, registros de marcas, diseños industriales, modelos de utilidad, depósitos de nombres comerciales y ensaños, registros de derechos de autor y contratos sobre los mismos, obtención de certificados de obtentor de variedades vegetales, así como sus prórrogas, renovaciones, anotaciones de traspaso, cambios de nombre y/o domicilio; elaborar, tramitar y registrar contratos de licencia y licencias de cualesquiera clases; intervenir como demandante o como demandado en cualquier instancia y recurso ante cualquier juez, corporación, funcionario público o autoridad en acciones judiciales, administrativas y de policía tales como: oposiciones al registro de marcas; acciones de caducidad, cancelación y nulidad; acciones reivindicatorias, acciones derivadas de la obtención o explotación de licencias; acciones de competencia desleal; demandas penales; acciones de indemnización de perjuicios, reclamos y observaciones a solicitudes de patentes, diseños industriales, modelos de utilidad, en el ejercicio de medidas cautelares y en otras acciones o medidas similares.

A este efecto, lo(s) facuto(amos) para elevar solicitudes, formular descripciones, enmiendas, protestas, declaraciones, oposiciones, cancelaciones, nulidades, apelaciones y reclamos; pagar impuestos, cuotas y gravámenes prescritos por la ley; renunciar o desistir a derechos concedidos o en curso de concesión; recibir toda clase de documentos y valores, dando el descargo respectivo, y, en general, para dar ante dichas autoridades todos los pasos necesarios al efecto indicado y tomar todas las medidas que creyeren conducentes al resguardo de mis (nuestros) intereses, con todas las demás facultades legales necesarias.

Este poder comprende la facultad de ratificar o confirmar en mi (nuestro) nombre o actuado como la facultad de desistir, transigir, comprometer y la de sustituirlo en todo o en parte y hacer sustituciones. Asimismo nombro(amos) a: RAMIRO CASTRO DUQUE y/o JUAN PABLO CADENA SARMIENTO y/o BEATRIZ JARAMILLO S. domiciliado(s) en la Carrera 7 No. 16-56 Piso 9, mis (nuestros) apoderados en Colombia, con facultades para recibir notificaciones y designar apoderados judiciales o extrajudiciales.

I (We)

COLGATE-PALMOLIVE COMPANY, a Delaware corporation, of 300 Park Avenue, New York, New York 10022, U. S. A.

Hereby appoint RAMIRO CASTRO DUQUE and/or JUAN PABLO CADENA SARMIENTO and/or BEATRIZ JARAMILLO S.

of Santafé de Bogotá, Colombia, my (our) true and lawful attorneys with special, ample and sufficient power to obtain from the Colombian administrative, judicial and police offices and authorities, in any instance, privileges of patents of invention, registration of trademarks, industrial designs and utility models; registration of commercial names and emblems, registration of copyright and contracts related thereto, certificates of obtainers of vegetable varieties, as well as extensions, renewals and recordal of assignments and changes of name and domicile related to the above; to prepare, prosecute and register licenses of any kind; to act as plaintiff or defendant in any instance or recourse, and before any judge, corporation, public official or authority in judicial, administrative and police actions, such as: oppositions to the registration of trademarks; caducity, cancellation and nullity actions; claim actions derived from the obtaining or exploitation of licenses, action of unfair competition; penal demands, actions of indemnities for damages; claims or observations on patent applications, models, industrial designs and utility models; in the exercise of preventive measures; and in other actions or similar proceedings.

To that effect they are hereby empowered to file applications, formulate descriptions, amendments, protest, declarations, oppositions, cancellations, nullities, appeals and claims; to pay taxes, quotas and assessments prescribed by law, renounce or waive the rights granted or in the process of granting; to receive all kind of documents and valuables, giving the respective release of receipt, and, in general, to take before said authorities the necessary steps to such effect, and any measures that they may deem appropriate to the safeguard of my (our) interest(s). I hereby grant them all the other necessary legal powers.

This power includes the faculty to ratify or confirm descriptions and compromise on my (our) behalf, and to substitute this power in whole or in part and to make substitutions. At the same time I (We) hereby appoint RAMIRO CASTRO DUQUE and/or JUAN PABLO CADENA SARMIENTO and/or BEATRIZ JARAMILLO S.

domiciled in Carrera 7 No. 16-56, Piso 9, my (our) attorney(s) in fact, with powers to receive notifications and to designate judicial and extrajudicial attorneys.

Otorgado y firmado en

hoy de

Firma

Nombre

VICE PRESIDENT &
ASSOCIATE GENERAL COUNSEL
TRADEMARK

Granted and signed in New York, N.Y.

this OCT 29 2001 day of 2001

Signature

Name

CERTIFICADO NOTARIAL (SOCIEDAD)

NOTARIAL CERTIFICATE (CORPORATION)

Hoy de de
personalmente compareció ante mí

a quien conozco, y de quien me consta que firmó el
anterior documento, debidamente juramentado declaró
y dijo que él es

de

Sociedad legalmente constituida para un período de
duración que aún no ha terminado; que el declarante
está autorizado por dicha compañía para conferir este
poder; que el sello estampado por él al pie de tal poder,
en nombre y representación de la expresada compañía,
es el sello oficial de ella; y que el objeto para el cual se
confiere este instrumento está comprendido dentro del
de la sociedad.

El suscrito Notario hace constar que tuvo a la vista las
pruebas de la existencia de la sociedad.

Estado de
con fecha

y que quien confiere el presente poder es su
representante.

On this OCT 29 2001 day of of
personally appeared before me

SCOTT E THOMPSON

to me known, and known to me to be the person who
signed the foregoing instrument who being by me duly
sworn did depose and say that he (she) is the

VICE PRESIDENT &

ASSOCIATE GENERAL COUNSEL

TRADEMARK

COLGATE-PALMOLIVE COMPANY

Which is legally constituted for a term not yet expired,
that deponent is authorized by said Company to confer
this Power of Attorney; that the seal affixed hereunto
by the deponent in the name and on behalf of said
Corporation is the corporate seal thereof; and that the
purpose for which this instrument is granted is
included within the corporate purpose of company.

The undersigned Notary Public attests that he has seen
the documents that prove the existence of the
company.

State of Delaware
under date of May 13, 1997

and that he (she) who grants the present power of
attorney is its Representative.

Notario Público (sello)

Notary Public (seal)

CERTIFICADO NOTARIAL
PERSONA NATURAL

COUNTY

ROSIE S. DIZON
Notary Public, State of New York
No. 31-4941117
Qualified in New York County
Commission Expires Aug. 15, 2002

Hoy de de , compareció(eron)
ante mí

On the day of of
personally appeared before me

SCOTT E THOMPSON

a quien (es) conozco y me consta que est(son) la(s)
persona(s) firmante(s) del documento que precede,
quien(es) declara(n) que otorgan el mismo por las
fines y propósitos que en él se expresan.

who is(are) known to me and who I attest executed
the foregoing document and he (they) declare he
(they) grant(s) the document for the purposes
therein expressed.

Notario Público (sello)

Notary Public (seal)

LEGALIZACION POR APOSTILLA ES REQUERIDA.

ROSIE S. DIZON
Notary Public, State of New York
No. 31-4941117
Qualified in New York County
Commission Expires Aug. 15, 2002

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APOSTILLE

(Convención de La Haya del 5 de Octubre de 1961)

1. País: ESTADOS UNIDOS DE AMERICA
Este documento público
2. ha sido firmado por **Norman Goodman**
3. actuando en capacidad de **Oficial del Condado**
4. lleva el sello/timbre del condado de **New York**

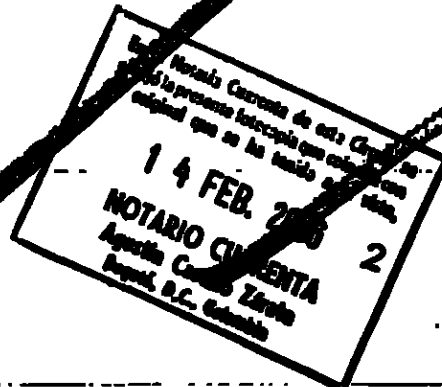
CERTIFICADO

5. en New York, New York
6. el 30 de Octubre de 2001
7. por Secretario de Estado Encargado Especial, Estado de New York
8. No. NYC-9786540B
9. Sello/Timbre
10. Firma

(Firma)

Aquil M. Qureshi

Secretario de Estado Encargado Especial



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TRADUCCIÓN SIMPLE AL ESPAÑOL del Certificado Notarial y el la apostilla que vienen
junto con el poder dado por Colgate-Palmolive Company, a Delaware Corporation,
domiciliada en 300 Park Avenue, New York, New York, Estados Unidos de América a
Ramiro Castro Duque y/o Juan Pablo Cadena Samimiento y/o Beatriz Jaramillo S.
domiciliados en la Carrera 7 # 16-56 P. 9, Bogotá.

Certificado Notarial

Estado de New York)
) ss.
Condado de New York)

252373

Yo, NORMAN GOODMAN, Oficial del Condado y Oficial de la Corte Suprema del Estado de New York, en y para el Condado de New York, un Tribunal de Registros, que tiene un sello por ley.

CERTIFICO POR MEDIO DE LA PRESENTE de acuerdo con la Ley Ejecutiva del Estado de New York, que

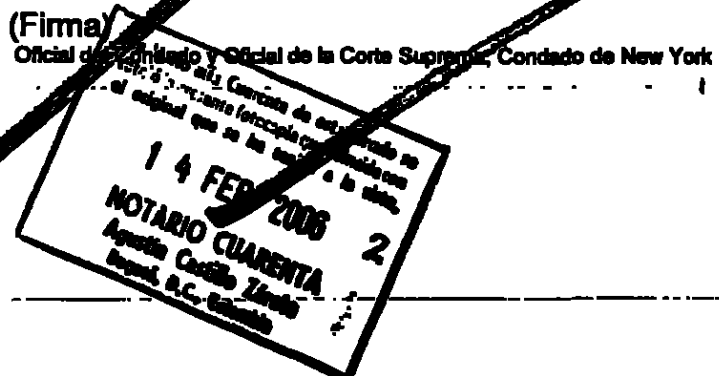
Rosie S. Dizon

cuyo nombre está suscrito al acta notarial, deposición, certificado de reconocimiento o prueba, era al momento de tomar el mismo NOTARIO PÚBLICO en y para el Estado de New York debidamente comisionado, juramentado y calificado para actuar como tal; que de acuerdo con la ley, una comisión o un certificado de este carácter oficial, con su firma autógrafa ha sido presentada en mi oficina; que al momento de tomar tal prueba, reconocimiento o juramento, estaba debidamente autorizado para tomar el mismo; que estoy bien familiarizado con la escritura de tal NOTARIO PÚBLICO o he comparado la firma en el instrumento anexo con la firma autógrafa depositada en mi oficina, y creo que tal firma es genuina.

COMO TESTIGO DE LO MISMO, he fijado al presente mi firma t mi sello oficial este

30 de Octubre de 2001

TARIFA PAGADA \$3.00





GAVIRI A

68

ORGANIZACION ELECTORAL
REGISTRADURIA NACIONAL DEL ESTADO CIVIL

REGISTRO CIVIL DE DEFUNCIÓN

Indicativo
Serial

5562241

Datos de la oficina de registro									
Clase de oficina: Registraduría		Notaría ☒		Consulado		Corregimiento		Insp. de Policía	
Código		9995							
COLOMBIA CUNDINAMARCA BOGOTA D.C. NOTARIA 32.									
Datos del inscrito									
Apellidos y nombres completos									
CASTRO DUQUE RAMIRO									
Documento de identificación (Clase y número)					Sexo (en Letras)				
C.C. No. 170322 DE BOGOTA					MASCULINO				
Datos de la defunción									
Lugar de la Defunción País - Departamento - Municipio - Corregimiento o Inspección de Policía									
COLOMBIA CUNDINAMARCA BOGOTA D.C.									
Fecha de la defunción				Hora		Número de certificado de defunción			
Año	2	0	0	4	Mes	1	0	Día	3
				04:10 PM		A- 2094375.			
Presunción de muerte									
Juzgado que profiere la sentencia					Fecha de la sentencia				
Documento presentado					Nombre y cargo del funcionario				
Autorización Judicial ☐					Certificado Médico ☒				
					ANDRES DIAZ CAMPOS.- R. M. No. 79982662				
Datos del denunciante									
Apellidos y nombres completos									
EDGAR DAVID REGINO II.									
Documento de identificación (Clase y número)					Firma				
C.C. No. 15.030.154 DE LORICA/ CORDOBA									
Primer testigo									
Apellidos y nombres completos									
Documento de identificación (Clase y número)					Firma				
Segundo testigo									
Apellidos y nombres completos									
Documento de identificación (Clase y número)					Firma				
Fecha de inscripción					Notario y firma del funcionario que autoriza				
Año	2	0	0	4	Mes	1	0	Día	0
				02		BLANCA DEL ROSARIO RESTREPO NOTARIA			
PADRES: ALFONSO CASTRO ESPACIO PARA NOTAS									
MERCEDES DUQUE.									

ORIGINAL PARA LA FICHA DE REGISTRO

NOTARIA 32

DEL CIRCULO DE SANTA FE DE BOGOTA, D.C.

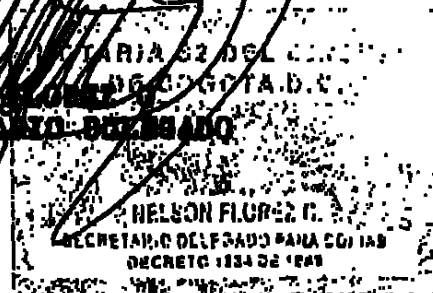
Germán Eleázar Moreno L.
Notario

COMO SECRETARIO DELEGADO DE LA NOTARIA TREINTA Y DOS (32) DEL
CIRCULO DE BOGOTA

CERTIFICO QUE:

La presente acta es fiel copia del original tomada del registro
civil de defunciones serial indicativo número: 56224
que expido en la ciudad de Bogotá D.C. hoy: 05 NOV. 2004

HERNAN FLORES
SECRETARIO DELEGADO





Industria y Comercio

SUPERINTENDENCIA

Delegatura de Propiedad Industrial División de Nuevas Creaciones

REQUISITOS NECESARIOS PARA PRESENTACIÓN Y AGILIZACIÓN DEL TRAMITE

PATENTE DE INVENCION ()	MODELO DE UTILIDAD ()	USUARIO ()	RADICADOR ()
-Indicación de que se solicita la concesión de una patente.	()	()	()
-Datos de identificación del solicitante o de la persona que se presenta la solicitud.	()	()	()
-Descripción de la invención.	()	()	()
-Dibujos de ser estos pertinentes.	()	()	()
-Comprobante de Pago de las tasas establecidas.	()	()	()
COMPLETA ()	INCOMPLETA ()	()	()
DISEÑO INDUSTRIAL ()			
-Indicación de que se solicita el registro de Diseño Industrial.	()	()	()
-Datos de identificación del solicitante o de la persona que se presenta la solicitud.	()	()	()
-Representación gráfica y fotográfica del Diseño Industrial o muestra del Material que incorpora el diseño.	()	()	()
-Comprobante de Pago de las tasas establecidas.	()	()	()
COMPLETA ()	INCOMPLETA ()	()	()
ESQUEMA DE TRAZADO ()			
-Indicación de que se solicita el registro de Diseño Industrial.	()	()	()
-Datos de identificación del solicitante o de la persona que se presenta la solicitud.	()	()	()
-Representación gráfica del Esquema Trazado.	()	()	()
-Comprobante de Pago de las tasas establecidas.	()	()	()
COMPLETA ()	INCOMPLETA ()	()	()

Firma Responsable:



Fecha:

68

REPUBLICA DE COLOMBIA
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

2020
Bogotá D.C.,

Folio 70

Doctor(a)
CADENA SARMIENTO JUAN PABLO
Apoderado(a) y/o Representante de
COLGATE PALMOLIVE COMPANY

REFERENCIA	Radicación No.	06 31591
	Solicitud internacional	US2004/031461
	Fecha inicio fase nacional	26/04/2006
	Trámite	11
	Evento	378
	Actuación	416
	Oficio No.	743
	Folios	1

Teniendo en cuenta que la solicitud de privilegio de patente que se tramita bajo el expediente indicado en la referencia, reúne los requisitos de forma establecidos en la Decisión 486 de la Comisión de la Comunidad Andina, el Tratado de Cooperación en Materia de Patentes (PCT), el Reglamento y la Circular Única de la Superintendencia de Industria y Comercio, se envía el extracto de la solicitud a la Oficina de Comunicaciones para efecto de su publicación en la Gaceta de Propiedad Industrial.

Cúmplase
Dado en Bogotá DC,

22 JUN. 2006

ALIX CARMEN CESPEDES DE VERGEL
Jefe de la división de Nuevas Creaciones

adpall