



DELEGATURA PROPIEDAD INDUSTRIAL

División de Nuevas Creaciones

PCT
SOLICITUD
PATENTE DE INVENCION

ENTRADA EN FASE NACIONAL

21. EXPEDIENTE No.

03-107004

54. TITULO

SECCION DE CEPILLO PARA UN CEPILLO DE DIENTES ELECTRICO

51. CLASIFICACION INTERNACIONAL

A46B 13/02; 7/08

71. SOLICITANTE

COLGATE - PALMOLIVE COMPANY

DOMICILIO

NEW YORK, NEW YORK, ESTADOS UNIDOS DE AMERICA

74. APODERADO

RAMIRO CASTRO DUQUE

22. SANTAFE DE BOGOTA, D.C.

207044

PETITORIO

AS: 92.916

Industria y Comercio
SUPERINTENDENCIA

03 107004 00

REGISTRAR GENERAL Y CORRESPONDIENTE
Radicación: 0310/004 00000000 Folios: 50
Fecha (IMP): 2002-12-04 16:40:22
Transmisor: 0310/004-000000 4/9 1000 411 10000000
Dependencia: 0310/004-000000 4/9 1000 411 10000000

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
(71)

Nombre: COLGATE - PALMOLIVE COMPANY

Dirección: 300 Park Avenue, New York, NY 10022,
Estados Unidos de América
Nacionalidad o Domicilio: Estados Unidos
Lugar de Constitución: Estados Unidos
Teléfono: Fax:
E-mail

IDENTIFICACION

C.C. ☐ NIT ☐

C.E. ☐ Otro ☐

Cual _____

Número

3

REPRESENTANTE
O APODERADO

Nombre: RAMIRO CASTRO DUQUE

Dirección: Cra. 7 No. 16-56 Piso 9

Teléfono: 380-2200 Fax: 380-2700

E-mail:

IDENTIFICACION

C.C. ☒ NIT ☐

C.E. ☐ Otro ☐

Cual _____

Número 170.322 TP 1003

4

INVENTOR (ES)
(72)

Nombre: Eyal Ellav, Kyoungun Ahn, John J. Gabzmeyer

Dirección: 72 Barrow Street, Apt. 61, New York, NY 10014, US; 151 East 26th Street #2D,
New York, NY 10010, US; 85 Rohill Road, Hillsborough, NJ 08853, Estados Unidos de
América (Respectivamente)

Nacionalidad o Domicilio: Estados Unidos de América (Respectivamente)

5 PCT (86)

Solicitud Internacional No. PCT/US02/18147 Fecha 06-06-2002

Publicación Internacional No. WO 02/100212 A3 Fecha 19-12-2002

Título (54): SECCIÓN DE CEPILLO PARA UN CEPILLO DE DIENTES ELÉCTRICO

7 Clasificación Internacional (51) A46B 13/02, 7/08

8 Prioridad

SI ☒ NO ☐

(33) País de Origen

US

(32) Fecha

08-06-2001

(31) Número de Solicitud

09/878.036

9 Comprobante de pago No. 03-84/437 Fecha 04-12-2003

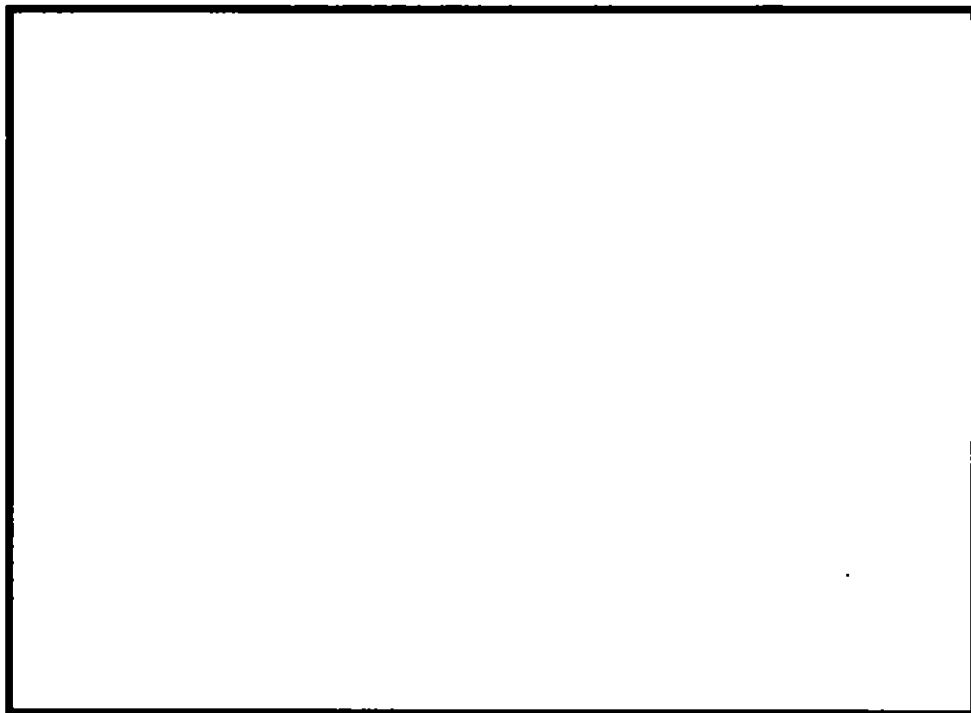
Instrucciones para el diligenciamiento del presente formulario, ver reverso de esta página.

10

ANEXOS

- ☒ Comprobante de pago de la tasa de presentación de la solicitud. \$400.000
- ☐ Documento que acredite la existencia y representación legal cuando el solicitante sea persona jurídica.
- ☒ Poderes, si fuere el caso. Protocolo No. 131
- ☐ Documento de cesión del inventor al solicitante o a su causante.
- ☐ Declaraciones.
- ☒ Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos)
- ☒ Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicaciones, dibujos)
- ☒ Copia del examen preliminar efectuado por la IPEA.
- ☐ Traducción del examen preliminar efectuado por la IPEA.
- ☐ De ser el caso, copia del contrato de acceso.
- ☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas.
- ☐ De ser el caso, certificado de depósito del material biológico.
- ☐ Arte final 12x12.
- ☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.
- ☒ Otros Tarjeta de Propietarios

11 FIGURA CARACTERÍSTICA:



12. Solicito la concesión de la patente:

NOMBRE: RAMIRO CASTRO DUQUE

PRIMA: \$400.000

COIG 170-322 de Bogotá, TPE 1003 de CASN

Instrucciones para la presentación de los anexos, ver reverso de esta página.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
19 December 2002 (19.12.2002)

PCT

(10) International Publication Number
WO 02/100212 A3(51) International Patent Classification⁷: A46B 13/02, 7/08

(21) International Application Number: PCT/US02/18147

(22) International Filing Date: 6 June 2002 (06.06.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/878,036 8 June 2001 (08.06.2001) US

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant: COLGATE-PALMOLIVE COMPANY
[US/US]; 300 Park Avenue, New York, NY 10022 (US).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

(72) Inventors: ELIAV, Eyal; 72 Barrow Street, Apt. 61, New York, NY 10014 (US). AHN, Kyoungseun; 151 East 26th Street #2D, New York, NY 10010 (US). GATZEMEYER, John, J.; 85 Rohill Road, Hillsborough, NJ 08853 (US).

Published:

- with international search report

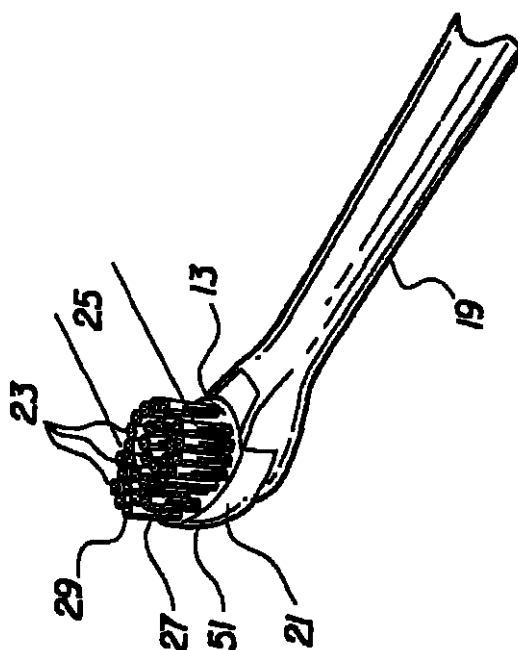
(74) Agent: GOLDFINE, Henry, S.; Colgate-Palmolive Company, 909 River Road, P.O. Box 1343, Piscataway, NJ 08855-1343 (US).

(88) Date of publication of the international search report:
30 May 2003

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH.

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.

(54) Title: BRUSH SECTION FOR AN ELECTRIC TOOTHBRUSH



(57) Abstract: An electric toothbrush brush section and method of use thereof is disclosed, the brush section having a generally disk shaped bristle carrier from which extend one or more bristle bearing fingers of varying length and width, which fingers provide increased contact area between bristles and oral gingival tissue for enhanced massaging thereof.

WO 02/100212 A3

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A46B13/02 A46B7/08

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, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 99 56660 A (KONINKL PHILIPS ELECTRONICS NV ; PHILIPS SVENSKA AB (SE)) 11 November 1999 (1999-11-11) the whole document	1-3, 10-14, 17-20,23
Y	DE 199 25 568 A (HOFMANN JOERG) 7 December 2000 (2000-12-07) the whole document	1-3, 10-14, 17-20,23
A	US 5 836 030 A (KRAMMER ERICH ET AL) 17 November 1998 (1998-11-17) the whole document	1-20,23
A	WO 01 32095 A (KONINKL PHILIPS ELECTRONICS NV) 10 May 2001 (2001-05-10) the whole document	1-20,23
	--- -/--	



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 claims 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

10 February 2003

Date of mailing of the international search report

21 02 2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentkan 2
NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040, Tx. 31 651 epo nl
Fax: (+31-70) 340-3016

Authorized officer

Neiller, F

INTERNATIONAL SEARCH REPORT

International Application No 5
PCT/US 02/18147

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 5 146 643 A (BOJAR JAMES A ET AL) 15 September 1992 (1992-09-15) the whole document ----- INTERNATIONAL SEARCH REPORT	21,22 *
A	DE 11 60 822 B (BERNARD CYZER) 9 January 1964 (1964-01-09) the whole document -----	21,22

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/18147

6

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/18147

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-20,23

An electric powered toothbrush with a brush section comprising a bristle carrier, where said bristle carrier has a face extending over his first (generaly disk shaped) and second (finger extension) portion, from which face extends a plurality of bristle tufts.

2. Claims: 21-22

A brush section for an electric toothbrush, said brush section having a bristle carrier with a convex front edge which arcs further than any point on the upper surface of said bristle support carrier.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No
PCT/US 02/18147

8

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9956660	A	11-11-1999	CN 1266362 T EP 0994680 A1 WO 9956660 A1 JP 2002513626 T US 2001001334 A1	13-09-2000 26-04-2000 11-11-1999 14-05-2002 24-05-2001
DE 19925568	A	07-12-2000	DE 19925568 A1	07-12-2000
US 5836030	A	17-11-1998	AT 214253 T CN 1181697 A ,B DE 69619802 D1 DE 69619802 T2 EP 0812163 A1 WO 9724079 A1 JP 11501247 T	15-03-2002 13-05-1998 18-04-2002 14-11-2002 17-12-1997 10-07-1997 02-02-1999
WO 0132095	A	10-05-2001	CN 1341006 T WO 0132095 A1 EP 1139908 A1 US 6463615 B1	20-03-2002 10-05-2001 10-10-2001 15-10-2002
US 5146643	A	15-09-1992	US 5072482 A US 5148568 A	17-12-1991 22-09-1992
DE 1160822	B	09-01-1964	NONE	

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 December 2002 (19.12.2002)

PCT

(10) International Publication Number
WO 02/100212 A2

- (51) International Patent Classification: A46B
- (21) International Application Number: PCT/US02/18147
- (22) International Filing Date: 6 June 2002 (06.06.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/878,036 8 June 2001 (08.06.2001) US
- (71) Applicant: COLGATE-PALMOLIVE COMPANY
[US/US]; 300 Park Avenue, New York, NY 10022 (US).

CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GI, GM, KI, LS, MW, MZ, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NI, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

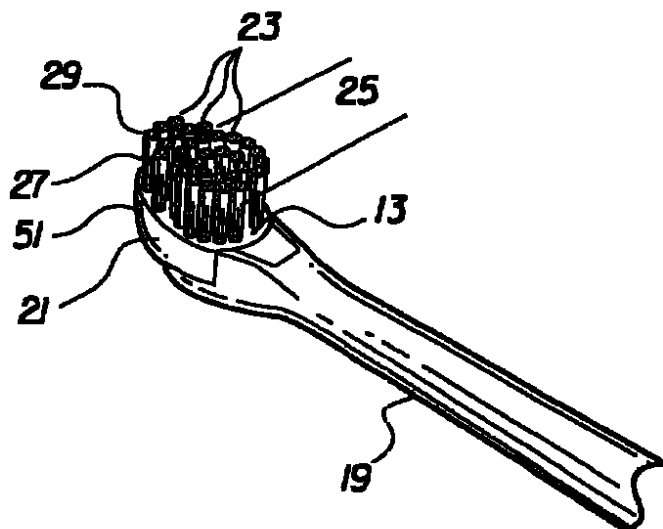
Published:

- without international search report and to be republished upon receipt of that report

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.

- (72) Inventors: ELIAV, Eyal; 72 Burrow Street, Apt. 6I, New York, NY 10014 (US). AHN, Kyoungseon; 151 East 26th Street #2D, New York, NY 10010 (US). GATZEMEYER, John, J.; 85 Rohill Road, Hillsborough, NJ 08853 (US).
- (74) Agent: GOLDFINE, Henry, S.; Colgate-Palmolive Company, 909 River Road, P.O. Box 1343, Piscataway, NJ 08855-1343 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

(54) Title: BRUSH SECTION FOR AN ELECTRIC TOOTHBRUSH



(57) Abstract: An electric toothbrush brush section and method of use thereof is disclosed, the brush section having a generally disk shaped bristle carrier from which extend one or more bristle bearing fingers of varying length and width, which fingers provide increased contact area between bristles and oral gingival tissue for enhanced massaging thereof.

WO 02/100212 A2

Brush Section for An Electric Toothbrush

5

Background of the Invention**1. Field of the Invention**

The present invention relates to a brush section for an electrically powered
10 toothbrush and a method of use thereof, and more particularly to such a
brush section having a partially disk shaped bristle carrier that has one or
more bristle bearing protuberances or fingers extending therefrom, whereby
in use the bristles on the extended fingers will provide increased contact with
the oral gingival tissue for enhanced massaging thereof.

15

2. The Prior Art

It is well understood in the art that toothbrushes provide three major
benefits, removal of plaque and food debris, to help in avoiding tooth decay
20 and disease; removal of the stained pellicle on the surface of each tooth, for
whitening; and massage, for stimulation and health of the gingival tissue. To
achieve these benefits, manual toothbrushes which historically were
produced with a flat trimmed bristle pattern are today commercially available
with a myriad of alternative bristle patterns, such as, for example, disclosed
25 in US 5,341,537, US Des. 387,562, and WO 99/23910.

The bristles of electric toothbrush are conventionally arranged in compact
conical or cylindrical patterns on generally circular, disk shaped bristle
carriers, as disclosed in US Patents 2,215,031 and 5,467,495, respectively.
30 US 5,465,444 discloses an alternative, still relatively compact, generally oval
bristle support and bristle pattern. Other alternative bristle patterns and
carrier shapes are disclosed in US 5,862,559, still relatively compact, which
include a pyramidal shape bristle pattern on a square carrier. Such compact
bristle patterns provide efficient transfer of the rotation or oscillation motion
35 of the electric toothbrush to the surface of each tooth to remove the build-up

of plaque, debris, and stained pellicle therefrom; while minimizing the load on the brush motor to maximizing the battery life in battery powered electric toothbrushes. Such compact bristle patterns do not however, adequately provide for the third benefit desired of a toothbrush, that is the massage of the gingival tissue for the health thereof.

US Patent 5,836,030 and US Des. 397,252 disclose an electric toothbrush having a cylindrical bristle pattern extending from a first circular, or disk shaped bristle carrier with a first pivotal axis; and a second bristle carrier adjacent to the first bristle carrier, with rows of bristles tufts extending therefrom; which second bristle carrier reciprocates about a second pivotal axis. The cylindrical bristle pattern provides the conventional cleaning of the each tooth surface; while the rows of bristles tufts extending from the second bristle carrier provide cleaning within the interdental spaces. To provide such separate bristle carriers, with such separate motion requires a relatively complex drive mechanism.

There is a need in the art for an alternative electric toothbrush, with a relatively simple design which is relatively compact, to provide the benefits of removal of plaque, debris and stained pellicle from the tooth surfaces, while also providing enhanced massaging of the gingival tissue.

Summary of the Invention

The present invention provides a brush section for an electric toothbrush and a method for use thereof, which brush section has at a first end a connector adapted to be joined to an electric toothbrush handle section and at the other end has a head, which head terminates in a toe; the head contains a bristle carrier which has a first portion closest to said first end which is generally disk shaped with a circular cross-section; said circular cross-section is broken by one or more protuberances or fingers extending therefrom in a direction generally distal to said first end; the bristle carrier having a face extending across said first portion and across said one or more fingers, from which face extends a plurality of bristle tufts; wherein said face is not circular or oval in shape; the handle section being arranged to contain

a drive means which is drivingly engaged to said carrier; whereby in use as said carrier is oscillatingly or reciprocatingly driven, the bristles on the one or more fingers will provide increased contact with the oral gingival tissue for enhanced massaging thereof.

5

In a further embodiment of the present invention, the bristle carrier ends in one narrowed finger, such that the bristle carrier has a generally egg-shape face, from which face extend a plurality of bristles arranged in generally concentric rings of bristle tufts about the generally circular portion of the egg-
10 shape, and wherein a plurality of bristle tufts are arranged in rows, which may be arcuate, on the finger portion thereof. The bristle tufts comprising the rows of bristles on the finger portion may be longer than the bristles within the concentric rings of bristle tufts, to extend into the interproximal spaces between the teeth for enhanced cleaning therein.

15

Brief Description of the Drawings

For a fuller understanding of the nature of the invention, reference the following detailed description, taken in connection with the accompanying
20 drawings in which:

FIG. 1 is front elevation showing a first embodiment with a brush section of the present invention that has a generally egg-shaped face; the brush section being mounted on a cut-away view of a conventional electric toothbrush
25 handle.

FIG. 2 is a perspective view of the brush section with the generally egg-shaped face of Fig. 1;

30 FIG. 3 is a front elevation showing a second embodiment of the brush section of the present invention, which is similar to the embodiment of Figs. 1 and 2, in that the brush section has a generally egg-shaped face.

FIG. 4 is a front elevation showing a third embodiment of the brush section of the present invention wherein two bristle bearing fingers extend from the generally disk shaped body thereof.

- 5 FIG. 5 is a front elevation showing a fourth embodiment of the brush section of the present invention, wherein three bristle bearing fingers extend from the generally disk shaped body thereof.

- 10 FIG. 6 is a front elevation showing a fifth embodiment of the brush section of the present invention wherein one bristle bearing finger extends from the generally disk shaped body thereof, which differs from the embodiments of Figs. 1 and 3 in that the brush section does not have a generally egg-shaped face.

- 15 FIG. 7 is a front elevation showing a sixth embodiment of the present invention containing another one bristle bearing alternative, which differs from the other one finger embodiments in the extended width of the finger shown.

- 20 FIG. 8 is a side elevation showing a flat bristle trim, applicable to any one finger embodiment of the present invention, such as shown in FIGS. 1, 2, 3, 6 or 7.

- 25 FIG. 9 is a side elevation of the embodiments in FIG. 8, wherein the two rows of bristle tufts located on the finger portion of the brush face have a stepped trim.

- 30 FIG. 10 is a side elevation of an alternative embodiment of the present invention, similar to the embodiment of FIG. 9, except reversing the height order of the stepped trim of the bristle tufts within the rows of bristles located on the finger portion of the brush face.

FIG. 11 is a side elevation showing an alternative stepped trim embodiment of the present invention, similar to that within FIG. 9; except, the ends of the

stepped bristle rows are chamfered or beveled toward the toe of the toothbrush.

FIG. 12 is an enlargement of the toe portion of the side elevation of a typical embodiment of the present invention, such as that shown in FIG. 8, to highlight the physical configuration of the toe portions of the bristle carrier and the bristle carrier support; an arrangement provided to avoid pinching of the user within the separation therebetween.

10

Detailed Description

Reference is made to Fig. 1, showing a first embodiment of an electric toothbrush 11 having a brush section 19 of the present invention, which brush section 19 has at a first end a connector 35 adapted to be joined to a handle section 10, and at the other end is a head 47 which terminates in a toe 37; which connector 35 and which head 47 may be generally aligned along the longitudinal axis of the toothbrush 11; which head 47 contains a bristle carrier 21 having a first portion 25 closest to said first end, which first portion 25 is generally disk shaped with a circular cross-section that is broken by a protuberance or finger 51 extending therefrom in a direction generally distal to said first end; a face 13 extends from and across said first portion 25, to and across said finger 51; from which face 13 extends a plurality of bristle tufts; said bristle carrier 21 having a generally egg-shaped bristle bearing face 13. The handle section 10 is adapted to contain batteries 15,16, to power a motor 14; which motor 14 is coupled by a coupling mechanism 17 to a drive shaft 12 located within the brush section 19, to drive said bristle carrier 21 in an oscillating or reciprocating manner, shown as arc A-A about the longitudinal axis of the toothbrush. The oscillation or reciprocation of the bristle carrier may be at least 120 degrees in arc A-A, preferably at least about 90 degrees in arc A-A and more preferably at least about 30 degrees in arc A-A and most preferably at least about 15 degrees in arc A-A. Further, the brush section 19 may be demountable from the handle section 10, as shown in Fig. 1, or it may alternatively be permanently attached thereto, i.e. wherein the brush section 19 and the handle section 10

are manufactured as one integral unit, as for example disclosed in US Patent 6,178, 579.

Fig. 2 is a perspective view of the bristle bearing end of the brush section 19 of the toothbrush of Fig. 1, wherein bristle carrier 21 with a generally egg-shaped face 13 is shown with a plurality of bristle tufts 23 extending therefrom. As shown, the bristle tufts 23 substantively cover the entirety of the footprint of the egg-shaped bristle carrier 21, such that any cross-section of the bristles tufts corresponds in form to the generally egg-shaped face 13 of the underlying bristle carrier 21. The bristles may be arranged in two groupings of discrete tufts, as shown in Fig. 2; the first grouping being located about the circular cross-section of the first portion 25 of the generally disk shaped portion of the generally egg-shaped bristle carrier 21, in concentric rows; the second grouping located within the finger 51 portion of the bristle carrier 21 may be composed of one, two or more linear or arcuate rows of bristles 27, 29.

The front elevations of Figs. 3, 4 and 5, contain alternative embodiments of the present invention which terminate in one, two or three fingers 51, respectively, extending from generally disk-shaped bristle carriers 21. The length and width of the face portion of each finger 51 can be varied; as for example in Figs. 3 and 6, showing narrower one fingered embodiments and in Fig. 7 showing a broader one finger embodiment. The length and width of any finger 51 is such that the face 13 of the bristle carrier 21 will not be circular or oval in shape. The choice to utilize a greater number of fingers 51 and/or longer or wider fingers 51 to provide additional bristle area for enhanced massaging of the gingival tissue, must be balanced against the load on the batteries 15, 16 and the resultant effect on battery life.

As shown in the embodiments of Figs. 1 through 7 of the present invention, the bristle pattern of the first grouping of bristle tufts, located within the partially disk shaped first portion 25 of the bristle carrier 21 closest to the connector 35, is preferably arranged in a series of concentric rows. The innermost row or rows within this concentric grouping of bristle tufts, may be shorter than the rows closer to the outer perimeter of the

grouping, to provide a depression in surface of the concentric grouping to better retain toothpaste thereon.

As illustrated in the embodiments of Figs. 8 through 10 of the present invention, the rows of bristle tufts 27, 29 nearest the toe end 37 of the brush section 19, can be of uniform height or can varying height, i.e. a stepped trim. Preferably, these rows of bristle tufts 27, 29, are taller than the other rows of bristles extending from the bristle carrier 21. Further, as shown in Fig. 11, the ends of these rows of bristles tufts 27, 29 can be chamfered or beveled at an angle to form a point either toward the toe end of the brush section 19 (as shown in Fig. 11) or away therefrom (not shown). The stepped end trim shown in Figs. 9 and 10 or of the chamfered end trim, as shown for example in Fig. 11, allows the elongated and/or elongated and angled bristles to will more easily penetrate into the interproximal spaces between the teeth for cleaning therein.

As shown in the embodiments of Figs. 8 through 12 of the present invention, the bristle carrier has a bottom surface 45, which is opposite to the face 13 from which the bristles tufts 23 extend. Spaced away from and adjacent to the bottom surface 45 is a bristle carrier support 31, which carrier support 31 has a first end integral with the head 47 and a second free, toe end 43. The bristle carrier 21 may be rotationally supported by means of a conventional central, rotational supporting shaft, axis, or axial pin (means not shown herein) which extends from the upper surface 49 of the bristle support 31 to the bottom surface 45, as is disclosed and described in US Patents 6,092,252, 5,784,743, 5,732,432. As shown in Figs. 8 through 12, the toe 37 of the bristle carrier 21 extends past the free toe end 43 of the carrier support 31 by a distance d, which may be up to 5 mm or more.

As shown in Fig. 12, an enlargement of the end portion of the brush head 47 of the present invention, between the bottom surface 45 of the bristle carrier 21 and the free, toe end 43 of the bristle carrier support 31 is an interface or separation 41, within which the users lip or cheek may be pinched. To prevent such pinching, the front edge 33 of the bottom surface of the bristle carrier 21 is curved outward, i.e. the front edge 33 is convex with

respect to said connector 35 and arcs transversely further from the longitudinal axis of said toothbrush 11 than any point on the upper surface (49) of said bristle support carrier 31. The convex arc of said front edge 33 may extend past the separation 41 by a distance f , at least about 0.5 mm, and forward of the separation by a distance e , at least about 0.75 mm. The radius of curvature of the front edge of the bottom surface 33 should be at least about 1 mm and preferably at least about 1.5 mm. Further, the free toe portion 43 of the bristle carrier 31 is itself curved convexly with respect to said connector 35, with a radius of curvature of at least about 0.5 mm and preferably at least about 1 mm.

The means by which electric toothbrushes provide swiveling, gyrating, oscillating or reciprocating motion to drive the bristle carrier, such as the bristle carrier 21 of the present invention are well known in the art and include such means as those disclosed in the patents cited above and in US patents 6,178,579, 5,625,916, 5,504,961 and 5,054,149. The power source used for such toothbrushes and for the toothbrush of the present invention can include single use or rechargeable batteries, or a line cord to connect to a standard wall power outlet.

18

Claims*What is claimed is:*

- 5 1. A brush section (19) for an electric powered toothbrush (11) comprising,
a first end having a connector (35) adapted to be joined to a handle section
(10);
a second end containing a head (47), which head (47) terminates in a toe (37);
said head (47) containing a bristle carrier (21) with a first portion (25) closest
10 to said first end, which first portion (25) is generally disk shaped with a
generally circular cross-section;
said first portion (25) has one or more fingers (51) extending therefrom, in a
direction generally distal from said first end;
said bristle carrier (21) has a face (13) extending across said first portion (25)
15 and across said one or more fingers (51) , from which face (13) extends a
plurality of bristle tufts (23);
wherein said face (13) has a shape other than circular or oval;
said handle section (10) contains a driving means which is drivingly engaged
to said bristle carrier (21);
20 whereby in use, the bristles extending from the one or more fingers (51)
provides increased contact with the gingival tissues and enhanced massaging
thereof.
2. The brush section (19) of claim 1, wherein said bristle carrier (21) has one
25 finger (51) extending therefrom.
3. The brush section (19) of claim 2, wherein the face (13) of said bristle
carrier (21) is generally egg-shaped.
- 30 4. The brush section (19) of claim 1, wherein said carrier (21) has two fingers
(51) extending therefrom.
5. The brush section (19) of claim 1, wherein said carrier (21) has three
fingers (51) extending therefrom.

35

6. The brush section (19) of claim 1, wherein the bristle carrier (21) has a bottom surface (45) opposite to said face (13), which bottom surface (45) has a front edge (33), said bottom surface (45) is attached to the center of said bristle carrier (21) by a rotational supporting means to a bristle carrier support (31); which bristle carrier support (31) has a first end integral with the head (47) and a second free, toe end (43); the bristle carrier support (31) extends from said head (47) to a point between the toe (37) of the head (47) and the center of said bristle carrier (21), where there is a separation (41) between the free, toe end (43) of the bristle carrier support (31) and the bottom surface (45) of the bristle carrier (21); the front edge (33) of the bristle carrier (21) has a convex curve arcing away from the face (13), the convex curve arc extending further away from said face (13) than the separation (41) in a direction transverse to the face (13).
7. The brush section (19) of claim 6, wherein the convex curve has a radius of curvature of at least about 1 mm.
8. The brush section (19) of claim 6, wherein the free toe end (43) is configured as a convex curve arcing away from the face surface (13).
9. The brush section (19) of claim 8, wherein the convex curve of the free end (43) has a radius of curvature of at least about 0.5mm.
10. The brush section (19) of claim 1, wherein the plurality of bristles tufts extending from the first portion (25) of said face (13) are arranged in generally concentric rings and the bristles tufts extending from the one or more fingers (51) are arranged in rows (27, 29).
11. The brush section (19) of claim 10, wherein the bristle tufts in said rows (27, 29) are longer than the bristle tufts within the concentric rings of bristle tufts.
12. A method of providing enhanced massage of the oral gingival tissue using an electric powered toothbrush (11) comprising, providing an elongated brush section (19) having a head (47) at one end and a connector (35) at the other

end, which head (47) terminates in a toe (37) remote from said connector (35); which connector is adapted to be connected to a handle section (10); said head (47) contains a bristle carrier (21) with a first portion (25) closest to said connector (35), which first portion (25) is generally disk shaped with a
5 generally circular cross-section; the first portion has one or more fingers (51) extending therefrom in a direction generally distal from said connector (35); which bristle carrier (21) has a face (13) which extends across said circular cross-section of said first portion (25) and across said one or more fingers (51); from which face (13) extends a plurality of bristle tufts (23); wherein said
10 face (13) has a shape other than circular or oval; the handle section (10) being arranged to contain a driving means which is drivingly engaged to said carrier (21); applying said carrier (21) to the gingival tissues, whereby in use, the bristles extending from the one or more fingers (51), providing increased bristle contact with the gingival tissue, enhancing the massaging therefrom.

15

13. The brush section (19) of claim 12, wherein said carrier (21) has one finger (51) extending therefrom.

14. The brush section (19) of claim 13, wherein the face (13) is generally egg-
20 shaped.

15. The brush section (19) of claim 12, wherein said carrier (21) has two fingers (51) extending therefrom.

25 16. The brush section (19) of claim 12, wherein said carrier (21) has three fingers (51) extending therefrom.

17. The brush section (19) of claim 12, wherein the bristle carrier (21) has a bottom surface opposite to said face surface (13), which bottom surface has a
30 front edge (33) proximate to said toe (37), which front edge (33) is arcuate.

18. The brush section (19) of claim 17, wherein the front edge (33) is arcuate with a radius of curvature of at least about 1 mm.

19. The brush section (19) of claim 14, wherein the plurality of bristles tufts extending from the first portion (25) of the bristle carrier (21) are arranged in generally concentric rings of bristle tufts and the bristle tufts extending from the finger (51) portion of the carrier (21) are arranged in rows (27, 29).

5

20. The brush section (19) of claim 19, wherein the bristle tufts within said rows (27, 29) are longer than the bristle tufts within the concentric rings of bristle tufts.

10 21. A brush section (19) for an electric toothbrush (11) comprising, a first end having a connector (35) adapted to be joined to a handle section (10); a second end containing a head (47), which head (47) terminates in a toe (37), the head (47) and connector (35) are generally aligned along the longitudinal axis of the toothbrush (11); the bristle carrier (21) is centrally supported by
15 rotational means from the upper surface (49) of a bristle carrier support (31); which bristle carrier support (31) has a first end integral with the head (47) and a second free, toe end (43); the bristle carrier support (31) extends from said head (47) to a point between the toe (37) of the head (47) and the center of said bristle carrier (21); the bristle carrier (21) has a front edge (33) which
20 is convex with respect to said connector (33), which convex front edge (33) arcs transversely further from the longitudinal axis of said toothbrush (11) than any point on the upper surface (49) of said bristle support carrier (31), such that in use the users lip or gingival tissue will not be pinched between the front edge (33) of the bristle carrier (21) and the upper surface (49) of the
25 bristle carrier support (31).

22. The brush section (19) of claim 21, wherein the free toe end (43) is a convex arc in relation to said connector (35).

30 23. The brush section (19) of claim 1, wherein the brush section (19) is integrally joined to the handle section (10).

22

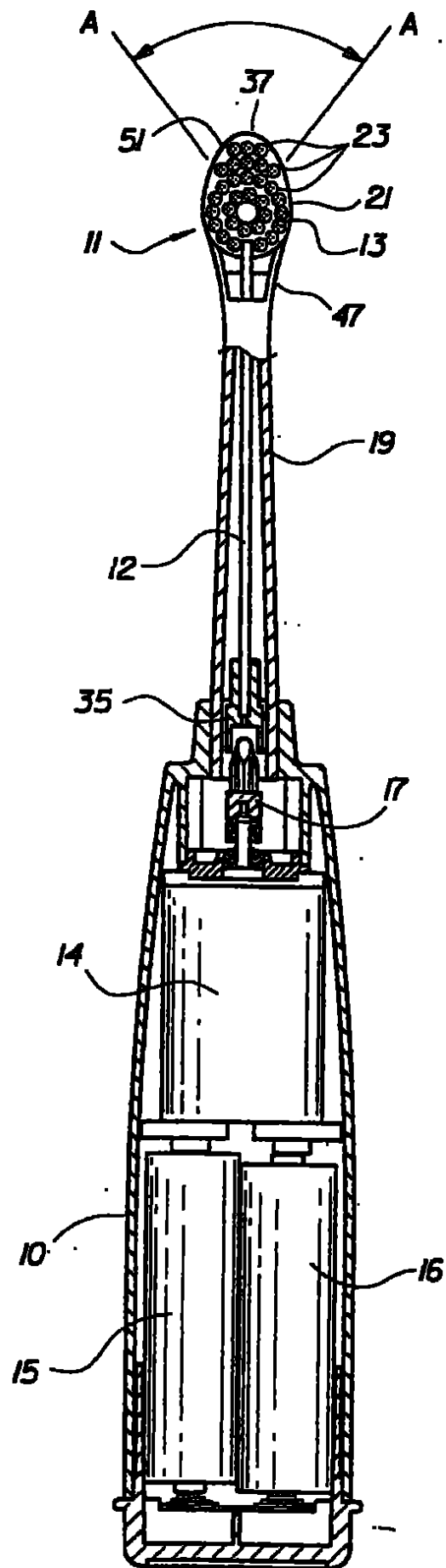


FIG. 1

[Handwritten signature]

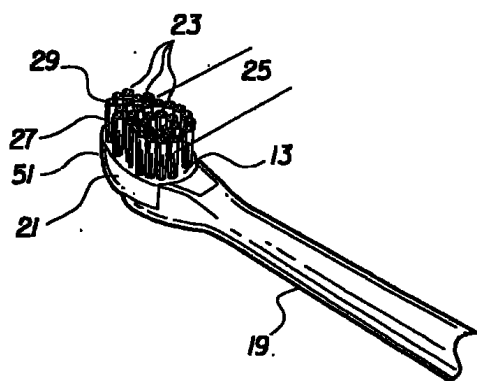


FIG. 2

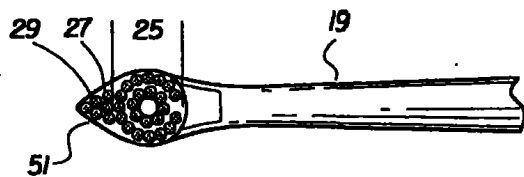


FIG. 3

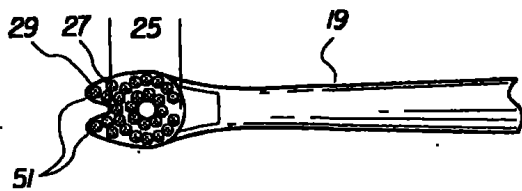


FIG. 4

~~24~~

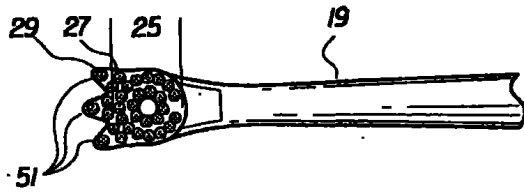


FIG. 5

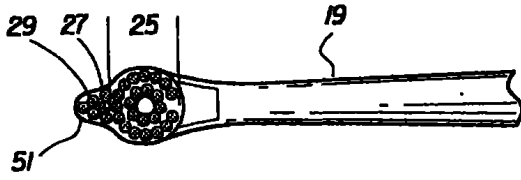


FIG. 6

[Handwritten signature]

28

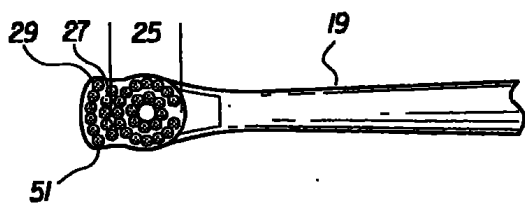


FIG. 7

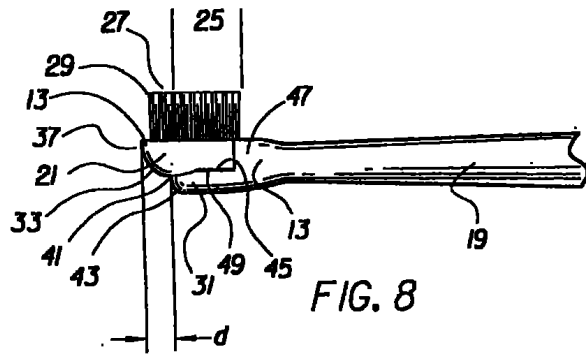


FIG. 8

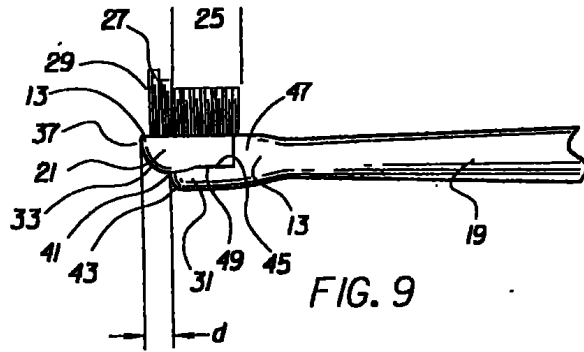
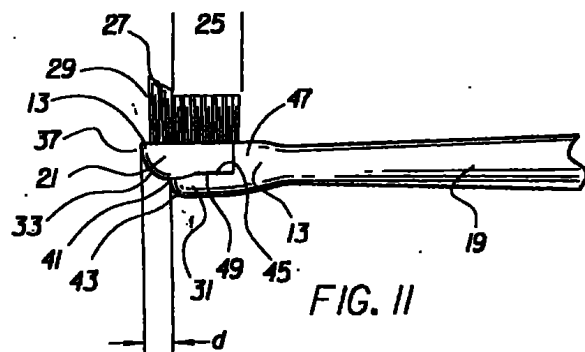
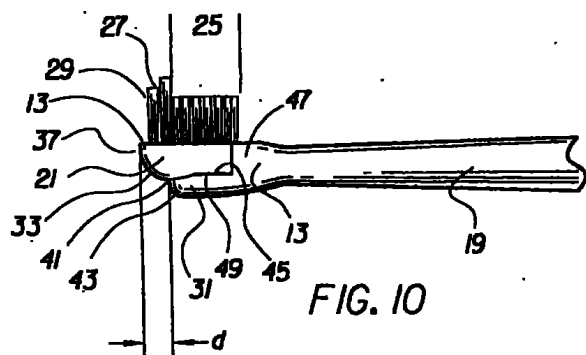


FIG. 9

[Handwritten signature]



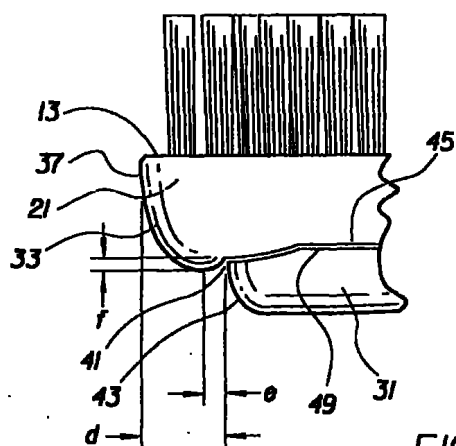


FIG. 12

FX

30

SECCIÓN DE CEPILLO PARA UN CEPILLO DE DIENTES ELÉCTRICO

ANTECEDENTES DE LA INVENCION

1. ~~Campo de la Invención~~

La presente invención se refiere a una sección de cepillo para un cepillo de dientes energizado eléctricamente, y a un método para su uso, y de manera particular a una sección de cepillo de ese tipo que tiene un portador de cerdas parcialmente perfilado en forma de disco que tiene una o más protuberancias o salientes portadores de cerdas que se extienden desde el mismo, con lo cual, en el uso, las cerdas en los salientes extendidos proporcionarán un contacto aumentado con el tejido gingival oral para un masaje incrementado del mismo.

2. ~~El Arte Previo~~

Se sabe en el arte que los cepillos de dientes proporcionan tres beneficios mayores: remoción de la placa y los desechos alimenticios, para ayudar a evitar la caries y enfermedad dental; remoción de la película manchada sobre la superficie de cada diente, para blanqueado; y masaje, para estimulación y salud del tejido gingival. Para lograr estos beneficios, los cepillos de dientes manuales que eran producidos antiguamente con un patrón de cerdas cortadas planas están actualmente a la disposición en el comercio con una miríada de patrones alternativos de cerdas, tal como se describe, por ejemplo, en EE.UU. 5.341.537, EE.UU. Des. 387.562 y WO

31 

99/23910.

Las cerdas de un cepillo de dientes eléctrico son dispuestas convencionalmente en patrones compactos cónicos o cilíndricos sobre portadores de cerdas generalmente circulares, perfilados en forma de disco, como se describe en las Patentes de EE.UU. 2.215.031 y 5.467.495, respectivamente. EE.UU. 5.465.444 describe un patrón alternativo de cerdas y soporte de cerdas generalmente ovalado, pero aún relativamente compacto. Otros patrones alternativos de cerdas y perfiles de portadores son descritos en EE.UU. 5.862.559, aún relativamente compactos, que incluyen un patrón de cerdas de forma piramidal sobre un portador cuadrado. Tales patrones de cerdas compactos proporcionan una transferencia eficiente del movimiento de rotación u oscilación del cepillo de dientes eléctrico a la superficie de cada diente, para remover la acumulación de placa, desechos y película manchada desde el mismo, mientras que minimizan la carga sobre el motor del cepillo para maximizar la vida de la batería en los cepillos de dientes eléctricos energizados con baterías. Sin embargo, tales patrones de cerdas compactos no proporcionan de manera adecuada el tercer beneficio deseado de un cepillo de dientes, es decir, el masaje del tejido gingival para la salud del mismo.

La Patente de EE.UU. 5.836.030 y EE.UU. Des. 397.252 describen un cepillo de dientes eléctrico que tiene un patrón cilíndrico de cerdas que se extienden desde un primer portador de cerdas circular, o en forma de disco, con un primer eje pivotante; y un segundo portador de cerdas adyacente al primer portador de cerdas, con filas de manojos de cerdas que se extienden desde el mismo; dicho segundo portador de cerdas reciprocando en torno a

32 X

un segundo eje pivotante. El patrón cilíndrico de cerdas proporciona la limpieza convencional de cada superficie dental; mientras que las filas de manojos de cerdas que se extienden desde el segundo portador de cerdas proporcionan la limpieza dentro de los espacios entre dientes. La provisión de tales portadores de cerdas separados con tal movimiento separado requiere un mecanismo de accionamiento relativamente complejo.

Se necesita en el arte un cepillo de dientes eléctrico alternativo, con un diseño relativamente simple que sea relativamente compacto, para proporcionar los beneficios de remoción de placa, desechos y película manchada desde las superficies dentales, mientras que también proporciona un masaje incrementado del tejido gingival.

SUMARIO DE LA INVENCION

La presente invención proporciona una sección de cepillo para un cepillo de dientes eléctrico y un método para su uso, dicha sección de cepillo teniendo, en un primer extremo, un conector adaptado para ser unido a una sección de mango del cepillo de dientes eléctrico y, en el otro extremo, una cabeza, dicha cabeza terminando en una punta; la cabeza contiene un portador de cerdas que tiene una primera porción más cerca de dicho primer extremo que tiene generalmente una forma de disco con una sección transversal circular; dicha sección transversal circular es quebrada por una o más protuberancias o salientes que se extienden desde la misma en una dirección generalmente distal a dicho primer extremo; el portador de cerdas teniendo una cara que se extiende a través de dicha primera porción y a través de dichos uno o más salientes, y desde dicha cara se extiende una

33 1

pluralidad de manojos de cerdas; en donde dicha cara no tiene una forma circular u ovalada; la sección de mango estando dispuesta para contener un medio de accionamiento que es enganchado de manera motriz a dicho portador; con lo cual, en el uso, a medida que dicho portador es accionado de manera oscilante o reciprocante, las cerdas sobre dichos uno o más salientes proporcionarán un contacto aumentado con el tejido gingival oral para un masaje incrementado del mismo.

En una realización adicional de la presente invención, el portador de cerdas termina en un saliente estrechado, de tal modo que el portador de cerdas tiene una cara de forma generalmente ovoide, y desde dicha cara se extienden una pluralidad de cerdas dispuestas en anillos generalmente concéntricos de manojos de cerdas en torno a la porción generalmente circular de la forma ovoide, y en donde una pluralidad de manojos de cerdas están dispuestos en filas, que pueden ser arqueadas, sobre la porción saliente de la misma. Los manojos de cerdas que comprenden las filas de cerdas sobre la porción saliente pueden ser más largos que las cerdas dentro de los anillos concéntricos de manojos de cerdas, para extenderse a los espacios interproximales entre los dientes para una limpieza incrementada en los mismos.

BREVE DESCRIPCIÓN DE LOS DIBUJOS

Para una mayor comprensión de la naturaleza de la invención, se hará referencia a la siguiente descripción detallada, tomada en conexión con los dibujos acompañantes, en los cuales:

La FIG. 1 es una elevación frontal que muestra una primera

34

realización con una sección de cepillo de la presente invención que tiene una cara de forma generalmente ovoide; la sección de cepillo estando montada sobre una vista recortada de un mango de cepillo de dientes eléctrico convencional.

La FIG. 2 es una vista en perspectiva de la sección de cepillo con la cara de forma generalmente ovoide de la Fig. 1.

La FIG. 3 es una elevación frontal que muestra una segunda realización de la sección de cepillo de la presente invención, que es similar a la realización de las Figs. 1 y 2 por cuanto la sección de cepillo tiene una cara de forma generalmente ovoide.

La FIG. 4 es una elevación frontal que muestra una tercera realización de la sección de cepillo de la presente invención, en la cual dos salientes portadores de cerdas se extienden desde el cuerpo generalmente en forma de disco de la misma.

La FIG. 5 es una elevación frontal que muestra una cuarta realización de la sección de cepillo de la presente invención, en la cual tres salientes portadores de cerdas se extienden desde el cuerpo generalmente en forma de disco de la misma.

La FIG. 6 es una elevación frontal que muestra una quinta realización de la sección de cepillo de la presente invención, en la cual un saliente portador de cerdas se extiende desde el cuerpo generalmente en forma de disco de la misma, que difiere de las realizaciones de las Figs. 1 y 3 en que la sección de cepillo no tiene una cara de forma generalmente ovoide.

La FIG. 7 es una elevación frontal que muestra una sexta realización de la presente invención que contiene otra alternativa de portador de cerdas,

35

que difiere de las otras realizaciones de salientes en la anchura extendida del saliente mostrado.

La FIG. 8 es una elevación lateral que muestra un recorte plano de cerdas, aplicable a cualquier realización de saliente de la presente invención, tal como se muestra en las FIGS. 1, 2, 3, 6 o 7.

La FIG. 9 es una elevación lateral de las realizaciones de la FIG. 8, en la cual las dos filas de manojos de cerdas localizadas sobre la porción saliente de la cara del cepillo tienen un corte escalonado.

La FIG. 10 es una elevación lateral de una realización alternativa de la presente invención, similar a la realización de la FIG. 9, excepto que invierte el orden de altura del corte escalonado de los manojos de cerdas dentro de las filas de cerdas localizadas sobre la porción saliente de la cara del cepillo.

La FIG. 11 es una elevación lateral que muestra una realización alternativa de corte escalonado de la presente invención, similar a aquella en la FIG. 9, excepto que los extremos de las filas de cerdas escalonadas están abiselados hacia la punta del cepillo de dientes.

La FIG. 12 es un agrandamiento de la porción de punta de la elevación lateral de una realización típica de la presente invención, tal como aquella mostrada en la FIG. 8, para resaltar la configuración física de las porciones de punta del portador de cerdas y el soporte de portador de cerdas; una disposición proporcionada para evitar que el usuario sea pellizcado con la separación entre los mismos.

DESCRIPCIÓN DETALLADA

Se hace referencia a la Fig. 1, que muestra una primera realización de

36

un cepillo de dientes eléctrico 11 que tiene una sección de cepillo 19 de la presente invención, dicha sección de cepillo 19 teniendo, en un primer extremo, un conector 35 adaptado para ser unido a una sección de mango 10, y en el otro extremo una cabeza 47 que termina en una punta 37; dicho conector 35 y dicha cabeza 47 pudiendo estar generalmente alineados a lo largo del eje longitudinal del cepillo de dientes 11; dicha cabeza 47 conteniendo un portador 21 de cerdas que tiene una primera porción 25 más cerca de dicho primer extremo, dicha primera porción 25 estando generalmente perfilada en forma de disco con una sección transversal circular que es quebrada por una protuberancia o saliente 51 que se extiende desde la misma en una dirección generalmente distal a dicho primer extremo; una cara 13 extendiéndose desde y a través de dicha primera porción 25, hacia y a través de dicho saliente 51; desde dicha cara 13 extendiéndose una pluralidad de manojos de cerdas; dicho portador 21 de cerdas teniendo una cara 13 portadora de cerdas de forma generalmente ovoide. La sección de mango 10 está adaptada para contener baterías 15, 16 para energizar un motor 14; dicho motor 14 estando acoplado por un mecanismo de acoplamiento 17 a un eje motor 12 localizado dentro de la sección de cepillo 19, para accionar dicho portador 21 de cerdas de una manera oscilante o reciprocante, mostrada como arco A-A en torno al eje longitudinal del cepillo de dientes. El movimiento oscilante o reciprocante del portador de cerdas puede ser de por lo menos 120 grados en el arco A-A, preferiblemente por lo menos aproximadamente 90 grados en el arco A-A, de preferencia por lo menos aproximadamente 30 grados en el arco A-A y de mayor preferencia por lo menos aproximadamente 15 grados en el

37

arco A-A. Adicionalmente, la sección de cepillo 19 puede ser desmontable de la sección de mango 10, como se muestra en la Fig. 1, o puede estar alternativamente unida permanentemente a la misma, es decir, en donde la sección de cepillo 19 y la sección de mango 10 son fabricadas como una unidad integral, como se describe, por ejemplo, en la Patente de EE.UU. 6.178.579.

La Fig. 2 es una vista en perspectiva del extremo portador de cerdas de la sección de cepillo 19 del cepillo de dientes de la Fig. 1, en donde el portador 21 de cerdas con una cara 13 de forma generalmente ovoide es mostrado con una pluralidad de manojos 23 de cerdas que se extienden desde el mismo. Tal como se muestra, los manojos 23 de cerdas cubren sustancialmente la totalidad del contorno del portador 21 de cerdas de forma ovoide, de tal modo que cualquier sección transversal de los manojos de cerdas corresponde en forma a la cara 13 de forma generalmente ovoide del portador 21 de cerdas subyacente. Las cerdas pueden estar dispuestas en dos agrupamientos de manojos discretos, como se muestra en la Fig. 2; el primer agrupamiento estando localizado en torno a la sección transversal circular de la primera porción 25 de la porción generalmente perfilada en forma de disco del portador 21 de cerdas de forma generalmente ovoide, en filas concéntricas; el segundo agrupamiento, localizado dentro de la porción 51 saliente del portador 21 de cerdas, puede estar compuesto por una, dos o más filas lineales o arqueadas de cerdas 27, 29.

Las elevaciones frontales de las Figs. 3, 4 y 5 contienen unas realizaciones alternativas de la presente invención que terminan en uno, dos o tres salientes 51, respectivamente, que se extienden desde los portadores

38

21 de cerdas generalmente perfilados en forma de disco. La longitud y la anchura de la porción de cara de cada saliente 51 pueden ser variadas; como por ejemplo en las Figs. 3 y 6 que muestran una realización de un saliente más estrecho y en la Fig. 7 que muestra una realización de un saliente más ancho. La longitud y la anchura de cualquier saliente 51 son tales que la cara 13 del portador 21 de cerdas no tendrá una forma circular u ovalada. La elección de usar un mayor número de salientes 51 y/o unos salientes 51 más largos o más anchos para proporcionar un área adicional de cerdas para un masaje incrementado del tejido gingival, debe ser balanceada contra la carga sobre las baterías 15, 16 y el efecto resultante sobre la vida de las baterías.

Tal como se muestra en las realizaciones de las Figs. 1 a 7 de la presente invención, el patrón de cerdas del primer agrupamiento de manojos de cerdas, localizado dentro de la primera porción 25 parcialmente en forma de disco del portador 21 de cerdas más cercano al conector 35, está preferiblemente dispuesto en una serie de filas concéntricas. Las filas más internas dentro de este agrupamiento concéntrico de manojos de cerdas pueden ser más cortas que las filas más cercanas al perímetro externo del agrupamiento, para proporcionar una depresión en la superficie del agrupamiento concéntrico para retener mejor la pasta dental sobre el mismo.

Tal como se ilustra en las realizaciones de las Figs. 8 a 10 de la presente invención, las filas de manojos 27, 29 de cerdas más cercanas al extremo de punta 37 de la sección de cepillo 19 pueden tener una altura uniforme o pueden variar en altura, es decir con un corte escalonado.

39

Preferiblemente, estas filas de manojos 27, 29 de cerdas son más altas que las otras filas de cerdas que se extienden desde el portador 21 de cerdas. Adicionalmente, como se muestra en la Fig. 11, los extremos de estas filas de manojos 27, 29 de cerdas pueden estar abiselados en cierto ángulo para formar una punta hacia el extremo de punta de la sección de cepillo 19 (como se muestra en la Fig. 11) o alejándose del mismo (no mostrado). El corte extremo escalonado mostrado en las Figs. 9 y 10 o el corte extremo abiselado, como se muestra por ejemplo en la Fig. 11, permite que las cerdas alargadas y/o alargadas y en ángulo penetren más fácilmente a los espacios interproximales entre los dientes para la limpieza en los mismos.

Tal como se muestra en las realizaciones de las Figs. 8 a 12 de la presente invención, el portador de cerdas tiene una superficie inferior 45, que se opone a la cara 13 desde la cual se extienden los manojos 23 de cerdas. Un soporte 31 de portador de cerdas está espaciado de la superficie inferior 45 y adyacente a la misma, dicho soporte 31 de portador teniendo un primer extremo integral con la cabeza 47 y un segundo extremo de punta, libre, 43. El portador 21 de cerdas puede ser soportado de manera giratoria por medio de un árbol, eje o clavija axial de soporte giratorio, central, convencional (medio no mostrado en la presente) que se extiende desde la superficie superior 49 del soporte 31 de cerdas hasta la superficie inferior 45, como se describe en las Patentes de EE.UU. 6.092.252, 5.784.743, 5.732.432. Tal como se muestra en las Figs. 8 a 12, la punta 37 del portador 21 de cerdas se extiende más allá del extremo de punta libre 43 del soporte 31 de portador en una distancia d, que puede tener hasta 5 mm o más.

40

Tal como se muestra en la Fig. 12, un agrandamiento de la porción extrema de la cabeza 47 de cepillo de la presente invención, entre la superficie inferior 45 del portador 21 de cerdas y el extremo de punta libre 43 del soporte 31 de portador de cerdas, es una interfaz o separación 41, dentro de la cual el labio o la mejilla del usuario puede ser pellizcado. Para prevenir tal pellizco, el borde frontal 33 de la superficie inferior del portador 21 de cerdas es curvado hacia afuera, es decir, el borde frontal 33 es convexo con respecto a dicho conector 35 y se arquea transversalmente desde el eje longitudinal de dicho cepillo de dientes 11 más que cualquier punto sobre la superficie superior (49) de dicho soporte 31 de portador de cerdas. El arco convexo de dicho borde frontal 33 puede extenderse más allá de la separación 41 en una distancia f , de por lo menos aproximadamente 0,5 mm, y hacia delante de la separación en una distancia e , de por lo menos aproximadamente 0,75 mm. El radio de curvatura del borde frontal de la superficie inferior 33 debe ser de por lo menos aproximadamente 1 mm y preferiblemente por lo menos aproximadamente 1,5 mm. Adicionalmente, la porción de punta libre 43 del soporte 31 de portador está en sí misma curvada de manera convexa con respecto a dicho conector 35, con un radio de curvatura de por lo menos aproximadamente 0,5 mm y preferiblemente por lo menos aproximadamente 1 mm.

Los medios por los cuales los cepillos de dientes eléctricos proporcionan un movimiento de vaivén, giratorio, oscilante o recíprocante para accionar el portador de cerdas, tal como el portador 21 de cerdas de la presente invención, son muy conocidos en el arte e incluyen medios tales como aquéllos descritos en las patentes citadas anteriormente y en las

41 ~~37~~

patentes de EE.UU. 6.178.579, 5.625.916, 5.504.961 y 5.054.149. La fuente de energía usada para tales cepillos de dientes y para el cepillo de dientes de la presente invención puede incluir baterías de un solo uso o recargables, o un cable para ser conectado a un tomacorriente de pared standard.

42 ~~42~~

REIVINDICACIONES

1. Una sección de cepillo (19) para un cepillo de dientes eléctrico (11), que comprende un primer extremo que tiene un conector (35) adaptado para ser unido a una sección de mango (10);

un segundo extremo que contiene una cabeza (47), dicha cabeza (47) terminando en una punta (37);

dicha cabeza (47) conteniendo un portador de cerdas (21) con una primera porción (25) más cercana a dicho primer extremo, dicha primera porción (25) teniendo generalmente una forma de disco con una sección transversal generalmente circular;

dicha primera porción (25) teniendo uno o más salientes (51) que se extienden desde la misma, en una dirección generalmente distal a dicho primer extremo;

dicho portador de cerdas (21) teniendo una cara (13) que se extiende a través de dicha primera porción (25) y a través de dichos uno o más salientes (51), y desde dicha cara (13) se extiende una pluralidad de manojos de cerdas (23);

en donde dicha cara (13) tiene una forma que no es circular ni ovalada;

dicha sección de mango (10) conteniendo un medio de accionamiento que es enganchado de manera motriz a dicho portador de cerdas (21);

con lo cual, en el uso, las cerdas que se extienden desde dichos uno o más salientes (51) proporcionan un contacto aumentado con el tejido gingival oral y un masaje incrementado del mismo.

2. La sección de cepillo (19) según la reivindicación 1, en la cual

43

dicho portador de cerdas (21) tiene un saliente (51) que se extiende desde el mismo.

3. La sección de cepillo (19) según la reivindicación 2, en la cual la cara (13) de dicho portador de cerdas (21) tiene una forma generalmente ovoide.

4. La sección de cepillo (19) según la reivindicación 1, en la cual dicho portador (21) tiene dos salientes (51) que se extienden desde el mismo.

5. La sección de cepillo (19) según la reivindicación 1, en la cual dicho portador (21) tiene tres salientes (51) que se extienden desde el mismo.

6. La sección de cepillo (19) según la reivindicación 1, en la cual el portador de cerdas (21) tiene una superficie inferior (45) opuesta a dicha cara (13), dicha superficie inferior (45) teniendo un borde frontal (33), dicha superficie inferior (45) estando unida al centro de dicho portador de cerdas (21) por un medio de soporte giratorio a un soporte de portador de cerdas (31); dicho soporte de portador de cerdas (31) teniendo un primer extremo integral con la cabeza (47) y un segundo extremo de punta (43), libre; el soporte de portador de cerdas (31) extendiéndose desde dicha cabeza (47) hasta un punto entre la punta (37) de la cabeza (47) y el centro de dicho portador de cerdas (21), en donde hay una separación (41) entre el extremo de punta libre (43) del soporte de portador de cerdas (31) y la superficie inferior (45) del portador de cerdas (21); el borde frontal (33) del portador de cerdas (21) teniendo una curva convexa que se aleja en arco de la cara (13), el arco de curva convexa extendiéndose desde dicha cara (13)

44 ~~45~~

más que la separación (41) en una dirección transversal a la cara (13).

7. La sección de cepillo (19) según la reivindicación 6, en la cual la curva convexa tiene un radio de curvatura de por lo menos aproximadamente 1 mm.

8. La sección de cepillo (19) según la reivindicación 6, en la cual el extremo de punta libre (43) es configurado como una curva convexa que se aleja en arco de la superficie de cara (13).

9. La sección de cepillo (19) según la reivindicación 8, en la cual la curva convexa del extremo libre (43) tiene un radio de curvatura de por lo menos aproximadamente 0,5 mm.

10. La sección de cepillo (19) según la reivindicación 1, en la cual la pluralidad de manojos de cerdas que se extienden desde la primera porción (25) de dicha cara (13) están dispuestos en anillos generalmente concéntricos y los manojos de cerdas que se extienden desde dichos uno o más salientes (51) están dispuestos en filas (27, 29).

11. La sección de cepillo (19) según la reivindicación 10, en la cual los manojos de cerdas en dichas filas (27, 29) son más largos que los manojos de cerdas dentro de los anillos concéntricos de manojos de cerdas.

12. Un método para proporcionar un masaje incrementado del tejido gingival oral usando un cepillo de dientes eléctrico (11), que comprende: proporcionar una sección de cepillo alargada (19) que tiene una cabeza (47) en un extremo y un conector (35) en el otro extremo; dicha cabeza (47) terminando en una punta (37) remota a dicho conector (35), dicho conector estando adaptado para ser conectado a una sección de mango (10); dicha cabeza (47) conteniendo un portador de cerdas (21) con una primera

45


porción (25) más cercana a dicho conector (35); dicha primera porción (25) teniendo generalmente una forma de disco con una sección transversal generalmente circular; dicha primera porción teniendo uno o más salientes (51) que se extienden desde la misma en una dirección generalmente distal a dicho conector (35); dicho portador de cerdas (21) teniendo una cara (13) que se extiende a través de dicha sección transversal circular de dicha primera porción (25) y a través de dichos uno o más salientes (51); y desde dicha cara (13) se extiende una pluralidad de manojos de cerdas (23); en donde dicha cara (13) tiene una forma que no es circular ni ovalada; la sección de mango (10) estando dispuesta para contener un medio de accionamiento que es enganchado de manera motriz a dicho portador (21); aplicar dicho portador (21) a los tejidos gingivales, con lo cual, en el uso, las cerdas que se extienden desde dichos uno o más salientes (51) proporcionan un contacto aumentado de las cerdas con el tejido gingival oral, incrementando el masaje del mismo.

13. La sección de cepillo (19) según la reivindicación 12, en la cual dicho portador de cerdas (21) tiene un saliente (51) que se extiende desde el mismo.

14. La sección de cepillo (19) según la reivindicación 13, en la cual la cara (13) tiene una forma generalmente ovoide.

15. La sección de cepillo (19) según la reivindicación 12, en la cual dicho portador (21) tiene dos salientes (51) que se extienden desde el mismo.

16. La sección de cepillo (19) según la reivindicación 12, en la cual dicho portador (21) tiene tres salientes (51) que se extienden desde el

mismo.

17. La sección de cepillo (19) según la reivindicación 12, en la cual el portador de cerdas (21) tiene una superficie inferior opuesta a dicha cara (13), dicha superficie inferior teniendo un borde frontal (33) próximo a dicha punta (37), dicho borde frontal (33) siendo arqueado.

18. La sección de cepillo (19) según la reivindicación 17, en la cual el borde frontal (33) es arqueado con un radio de curvatura de por lo menos aproximadamente 1 mm.

19. La sección de cepillo (19) según la reivindicación 14, en la cual la pluralidad de manojos de cerdas que se extienden desde la primera porción (25) del portador de cerdas (21) están dispuestos en anillos generalmente concéntricos de manojos de cerdas y los manojos de cerdas que se extienden desde la porción saliente (51) del portador (21) están dispuestos en filas (27, 29).

20. La sección de cepillo (19) según la reivindicación 19, en la cual los manojos de cerdas en dichas filas (27, 29) son más largos que los manojos de cerdas dentro de los anillos concéntricos de manojos de cerdas.

21. Una sección de cepillo (19) para un cepillo de dientes eléctrico (11), según la reivindicación 1, que comprende: un primer extremo que tiene un conector (35) adaptado para ser unido a una sección de mango (10); un segundo extremo que contiene una cabeza (47), dicha cabeza (47) terminando en una punta (37), la cabeza (47) y el conector (35) estando generalmente alineados a lo largo del eje longitudinal del cepillo de dientes (11); el portador de cerdas (21) estando soportado centralmente por un medio de rotación desde la superficie superior (49) de un soporte de

47

portador de cerdas (31); dicho soporte de portador de cerdas (31) teniendo un primer extremo integral con la cabeza (47) y un segundo extremo de punta, libre (43); el soporte de portador de cerdas (31) extendiéndose desde dicha cabeza (47) hasta un punto entre la punta (37) de la cabeza (47) y el centro de dicho portador de cerdas (21); el portador de cerdas (21) teniendo un borde frontal (33) que es convexo con respecto a dicho conector (33), dicho borde frontal convexo (33) alejándose en arco transversalmente desde el eje longitudinal de dicho cepillo de dientes (11) más que cualquier punto sobre la superficie superior (49) de dicho soporte de portador de cerdas (31), de tal modo que, en el uso, el labio o el tejido gingival del usuario no será pellizcado entre el borde frontal (33) del portador de cerdas (21) y la superficie superior (49) del soporte de portador de cerdas (31).

22. La sección de cepillo (19) según la reivindicación 21, en la cual el extremo de punta libre (43) es un arco convexo con relación a dicho conector (35).

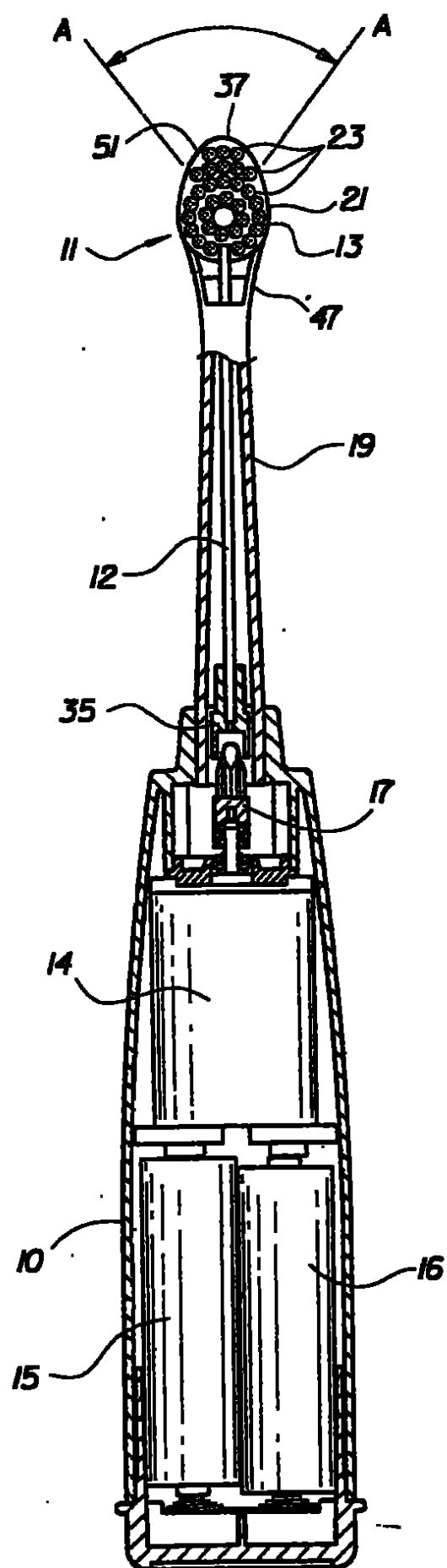
23. La sección de cepillo (19) según la reivindicación 1, en la cual la sección de cepillo (19) está unida de manera integral a la sección de mango (10).

48 

RESUMEN

Se describe una sección de cepillo de un cepillo de dientes eléctrico y un método para su uso, la sección de cepillo teniendo un portador de cerdas generalmente perfilado en forma de disco a partir del cual se extienden uno o más salientes portadores de cerdas, de longitud y anchura variables, dichos salientes proporcionando un área de contacto aumentada entre las cerdas y el tejido gingival oral para un masaje incrementado del mismo.

49 1983
X
7



1973
2K

50

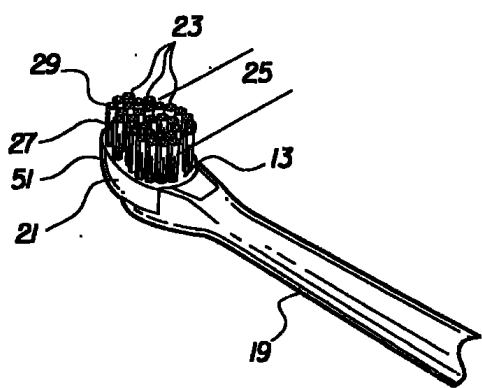


FIG. 2

19738

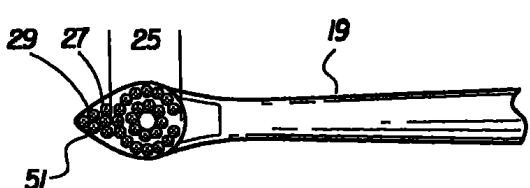


FIG. 3

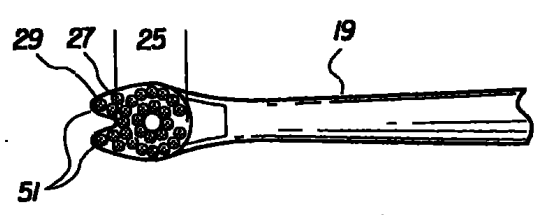


FIG. 4

19/38

52

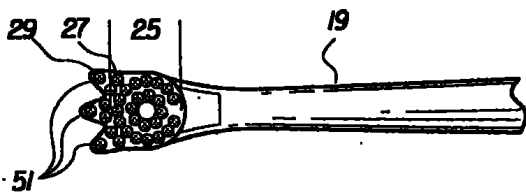


FIG. 5

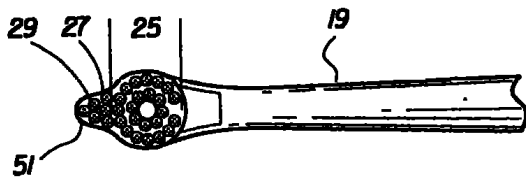


FIG. 6

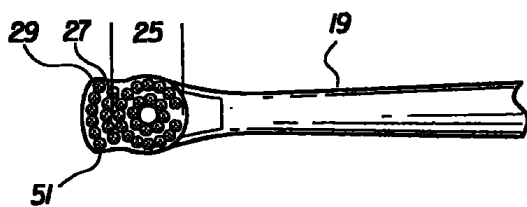
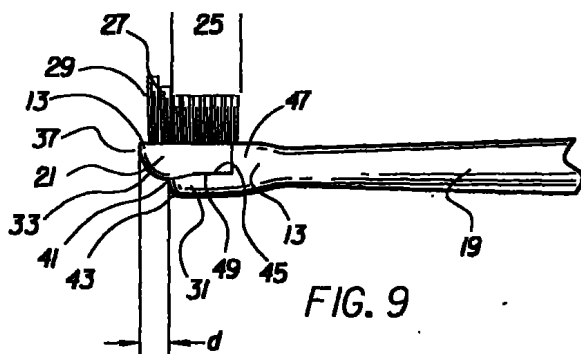
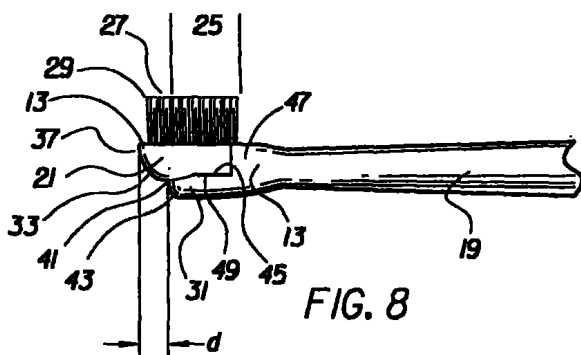


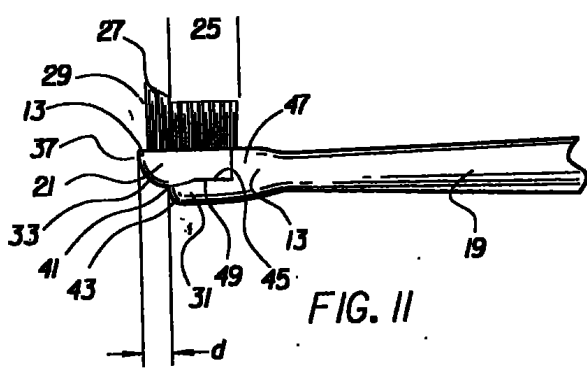
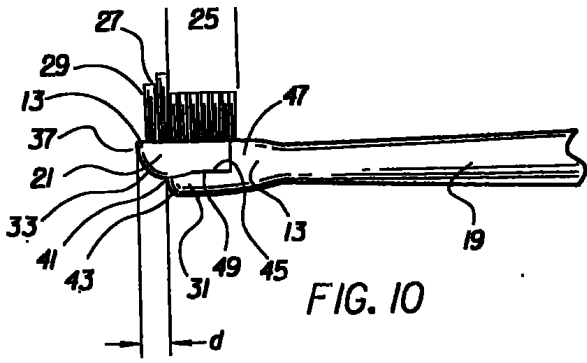
FIG. 7

1938

54



8251
19238



8467
25

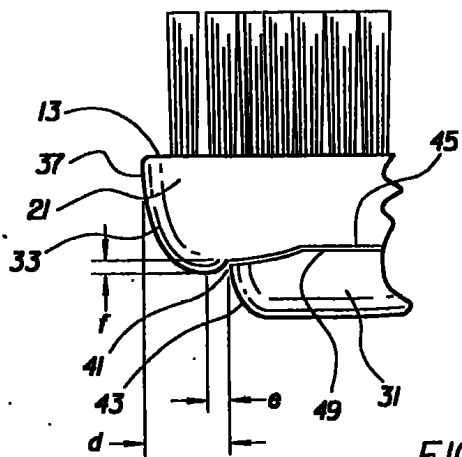


FIG. 12

TRANSMITTAL LETTER TO THE UNITED STATES RECEIVING OFFICE

Date	08 June 2002
International Application No.	
Attorney Docket No.	IR 6668-02

I. Certification under 37 CFR 1.10 (if applicable)

EL806848304US
Express Mail mailing number

08 June 2002
Date of Deposit

I hereby certify that the application/correspondence attached hereto is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Assistant Commissioner for Patents, Washington, D.C. 20231.


Signature of person mailing correspondence

Carol Stanley
Typed or printed name of person mailing correspondence

II. ☒ New International Application

TITLE	BRUSH SECTION FOR AN ELECTRIC TOOTHBRUSH
-------	--

Earliest priority date (Day/Month/Year)
08 June 2001

SCREENING DISCLOSURE INFORMATION: In order to assist in screening the accompanying international application for purposes of determining whether a license for foreign transmittal should and could be granted and for other purposes, the following information is supplied. (Note: check as many boxes as apply):

- A. ☐ The invention disclosed was not made in the United States.
- B. ☐ There is no prior U.S. application relating to this invention.
- C. ☒ The following prior U.S. application(s) contain subject matter which is related to the invention disclosed in the attached international application. (NOTE: priority to these applications may or may not be claimed on form PCT/RO/101 (Request) and this listing does not constitute a claim for priority).

application no.	USSN 09/878,038	filed on	08 June 2001
application no.		filed on	

- D. ☐ The present international application ☐ is identical ☐ contains less subject matter than that found in the prior U.S. application(s) identified in paragraph C.
- E. ☐ The present international application ☐ contains additional subject matter not found in the prior U.S. application(s) identified in paragraph C. above. The additional subject matter is found on pages and ☐ DOES NOT ALTER ☐ MIGHT BE CONSIDERED TO ALTER the general nature of the invention in a manner which would require the U.S. application to have been made available for inspection by the appropriate defense agencies under 35 U.S.C. 181 and 37 CFR 5.1. See 37 CFR 5.15

III. ☐ A Response to an Invitation from the RO/US. The following document(s) is (are) enclosed:

- A. ☐ A Request for An Extension of Time to File a Response
- B. ☐ A Power of Attorney (General or Regular)
- C. ☐ Replacement pages:

pages		of the request (PCT/RO/101)	pages		of the figures
pages		of the description	pages		of the abstract
pages		of the claims			

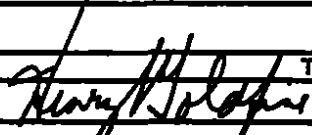
- D. ☐ Submission of Priority Documents

Priority document		Priority document	
-------------------	--	-------------------	--

- E. ☐ Fees as specified on attached Fee Calculation sheet form PCT/RO/101 annex

IV. ☐ A Request for Rectification under PCT 91 ☐ A Petition ☐ A Sequence Listing Diskette

V. ☐ Other (please specify):

The person signing this form is the:	☐ Applicant	
	☒ Attorney/Agent (Reg. No.) 38,488	Henry S. Goldfine Typed name of signer
	☐ Common Representative	 Signature

SNH06848304US

PCT REQUEST

Original (for SUBMISSION) - printed on 06.06.2002 01:14:29 PM

6668-02

0	For receiving Office use only	
0-1	International Application No.	
0-2	International Filing Date	
0-3	Name of receiving Office and "PCT International Application"	
0-4	Form - PCT/RO/101 PCT Request	
0-4-1	Prepared using	PCT-EASY Version 2.92 (updated 01.01.2002)
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	United States Patent and Trademark Office (USPTO) (RO/US)
0-7	Applicant's or agent's file reference	6668-02
I	Title of Invention	BRUSH SECTION FOR AN ELECTRIC TOOTHBRUSH
II	Applicant	
II-1	This person is:	applicant only
II-2	Applicant for	all designated States
II-4	Name	COLGATE-PALMOLIVE COMPANY
II-5	Address:	300 Park Avenue New York, NY 10022 United States of America
II-6	State of nationality	US
II-7	State of residence	US
II-8	Telephone No.	732-878-6250
II-9	Facsimile No.	732-878-7853
III-1	Applicant and/or Inventor	
III-1-1	This person is:	inventor only
III-1-4	Name (LAST, First)	ELIAV, Eyal
III-1-5	Address:	72 Barrow Street, Apt. 6I New York, NY 10014 United States of America
III-2	Applicant and/or Inventor	
III-2-1	This person is:	inventor only
III-2-4	Name (LAST, First)	AHN, Kyoungun
III-2-5	Address:	151 East 26th Street #2D New York, NY 10010 United States of America

PCT REQUEST

2/6

Original (for SUBMISSION) - printed on 06.06.2002 01:14:28 PM

59
6886-02
0

III-3	Applicant and/or Inventor	
III-3-1	This person is:	inventor only
III-3-4	Name (LAST, First)	GATZEMEYER, John, J.
III-3-5	Address:	85 Rohill Road Hillsborough, NJ 08853 United States of America
IV-1	Agent or common representative; or address for correspondence The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	agent
IV-1-1	Name (LAST, First)	GOLDFINE, Henry, S.
IV-1-2	Address:	Colgate-Palmolive Company 909 River Road P.O. Box 1343 Piscataway, NJ 08855-1343 United States of America
IV-1-3	Telephone No.	732-878-6250
IV-1-4	Facsimile No.	732-878-7853
IV-1-5	e-mail	henry_goldfine@colpal.com
IV-1-5	Agent's registration No.	38,468
V	Designation of States	
V-1	Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AP: GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE CH&LI CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT
V-2	National Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH&LI CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

PCT REQUEST

3/6

Original (for SUBMISSION) - printed on 06.06.2002 01:14:29 PM

6666-02

V-5	Precautionary Designation Statement In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.8(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit.		
V-6	Exclusion(s) from precautionary designations	NONE	
VI-1	Priority claim of earlier national application		
VI-1-1	Filing date	08 June 2001 (08.06.2001)	
VI-1-2	Number	09/878,036	
VI-1-3	Country	US	
VI-2	Priority document request The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):	VI-1	
VII-1	International Searching Authority Chosen	European Patent Office (EPO) (ISA/EP)	
VIII	Declarations	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	-	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	1	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	1	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	-	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	-	

PCT REQUEST

4/6

Original (for SUBMISSION) - printed on 06.06.2002 01:14:29 PM

61
8888-02

VIII-2-1	Declaration: Entitlement to apply for and be granted a patent Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate: Name:	in relation to this international application COLGATE-PALMOLIVE COMPANY is entitled to apply for and be granted a patent by virtue of the following:
VIII-2-1 (iv)		an assignment from ELIAV, Eyal to ECCO DESIGN INC., dated 30 July 2001 (30.07.2001)
VIII-2-1 (iv)		an assignment from AHN, Kyoungseun to ECCO DESIGN INC., dated 30 July 2001 (30.07.2001)
VIII-2-1 (iv)		an assignment from ECCO DESIGN INC. to COLGATE-PALMOLIVE COMPANY, dated 30 July 2001 (30.07.2001)
VIII-2-1 (iv)		an assignment from GATZEMEYER, John, J. to COLGATE-PALMOLIVE COMPANY, dated 15 June 2001 (15.06.2001)
VIII-2-1 (x)	This declaration is made for the purposes of:	all designations

PCT REQUEST

Original (for SUBMISSION) - printed on 06.06.2002 01:14:29 PM

6658-02

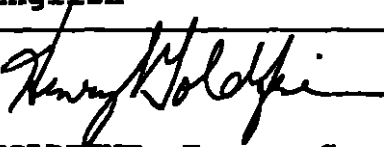
VIII-3-1	Declaration: Entitlement to claim priority Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application specified below, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(III) and 51bis.1(a)(III)): Name:	in relation to this international application COLGATE-PALMOLIVE COMPANY is entitled to claim priority of earlier application No. 09/878,036 by virtue of the following:
VIII-3-1 (iv)		an assignment from ELIAV, Eyal to ECCO DESIGN INC., dated 30 July 2001 (30.07.2001)
VIII-3-1 (iv)		an assignment from AHN, Kyoungseun to ECCO DESIGN INC., dated 30 July 2001 (30.07.2001)
VIII-3-1 (iv)		an assignment from ECCO DESIGN INC. to COLGATE-PALMOLIVE COMPANY, dated 30 July 2001 (30.07.2001)
VIII-3-1 (iv)		an assignment from GATZEMEYER, John, J. to COLGATE-PALMOLIVE COMPANY, dated 15 June 2001 (15.06.2001)
VIII-3-1 (ix)	This declaration is made for the purposes of:	all designations

PCT REQUEST

6/6

Original (for SUBMISSION) - printed on 06.06.2002 01:14:29 PM

63
0605-02

IX	Check list	number of sheets	electronic file(s) attached
IX-1	Request (including declaration sheets)	6	-
IX-2	Description	8	-
IX-3	Claims	4	-
IX-4	Abstract	1	EZABST00.TXT
IX-5	Drawings	8	-
IX-7	TOTAL	27	
	Accompanying items	paper document(s) attached	electronic file(s) attached
IX-8	Fee calculation sheet	✓	-
IX-17	PCT-EASY diskette	-	Diskette
IX-19	Figure of the drawings which should accompany the abstract	2	
IX-20	Language of filing of the international application	English	
X-1	Signature of applicant, agent or common representative		
X-1-1	Name (LAST, First)	GOLDFINE, Henry, S.	

FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/EP
10-6	Transmittal of search copy delayed until search fee is paid	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	
------	--	--

64
~~64~~**Brush Section for An Electric Toothbrush**

5

Background of the Invention**1. Field of the Invention**

10 The present invention relates to a brush section for an electrically powered toothbrush and a method of use thereof, and more particularly to such a brush section having a partially disk shaped bristle carrier that has one or more bristle bearing protuberances or fingers extending therefrom, whereby in use the bristles on the extended fingers will provide increased contact with the oral gingival tissue for enhanced massaging thereof.

15

2. The Prior Art

20 It is well understood in the art that toothbrushes provide three major benefits, removal of plaque and food debris, to help in avoiding tooth decay and disease; removal of the stained pellicle on the surface of each tooth, for whitening; and massage, for stimulation and health of the gingival tissue. To achieve these benefits, manual toothbrushes which historically were produced with a flat trimmed bristle pattern are today commercially available with a myriad of alternative bristle patterns, such as, for example, disclosed
25 in US 5,341,537, US Des. 387,562, and WO 99/23910.

The bristles of electric toothbrush are conventionally arranged in compact conical or cylindrical patterns on generally circular, disk shaped bristle carriers, as disclosed in US Patents 2,215,031 and 5,467,495, respectively.
30 US 5,465,444 discloses an alternative, still relatively compact, generally oval bristle support and bristle pattern. Other alternative bristle patterns and carrier shapes are disclosed in US 5,862,559, still relatively compact, which include a pyramidal shape bristle pattern on a square carrier. Such compact bristle patterns provide efficient transfer of the rotation or oscillation motion
35 of the electric toothbrush to the surface of each tooth to remove the build-up

65
X
O

of plaque, debris, and stained pellicle therefrom; while minimizing the load on the brush motor to maximizing the battery life in battery powered electric toothbrushes. Such compact bristle patterns do not however, adequately provide for the third benefit desired of a toothbrush, that is the massage of the gingival tissue for the health thereof.

US Patent 5,836,030 and US Des. 397,252 disclose an electric toothbrush having a cylindrical bristle pattern extending from a first circular, or disk shaped bristle carrier with a first pivotal axis; and a second bristle carrier adjacent to the first bristle carrier, with rows of bristles tufts extending therefrom; which second bristle carrier reciprocates about a second pivotal axis. The cylindrical bristle pattern provides the conventional cleaning of the each tooth surface; while the rows of bristles tufts extending from the second bristle carrier provide cleaning within the interdental spaces. To provide such separate bristle carriers, with such separate motion requires a relatively complex drive mechanism.

There is a need in the art for an alternative electric toothbrush, with a relatively simple design which is relatively compact, to provide the benefits of removal of plaque, debris and stained pellicle from the tooth surfaces, while also providing enhanced massaging of the gingival tissue.

Summary of the Invention

The present invention provides a brush section for an electric toothbrush and a method for use thereof, which brush section has at a first end a connector adapted to be joined to an electric toothbrush handle section and at the other end has a head, which head terminates in a toe; the head contains a bristle carrier which has a first portion closest to said first end which is generally disk shaped with a circular cross-section; said circular cross-section is broken by one or more protuberances or fingers extending therefrom in a direction generally distal to said first end; the bristle carrier having a face extending across said first portion and across said one or more fingers, from which face extends a plurality of bristle tufts; wherein said face is not circular or oval in shape; the handle section being arranged to contain

66
a drive means which is drivingly engaged to said carrier; whereby in use as said carrier is oscillatingly or reciprocatingly driven, the bristles on the one or more fingers will provide increased contact with the oral gingival tissue for enhanced massaging thereof.

5

In a further embodiment of the present invention, the bristle carrier ends in one narrowed finger, such that the bristle carrier has a generally egg-shape face, from which face extend a plurality of bristles arranged in generally concentric rings of bristle tufts about the generally circular portion of the egg-shape, and wherein a plurality of bristle tufts are arranged in rows, which may be arcuate, on the finger portion thereof. The bristle tufts comprising the rows of bristles on the finger portion may be longer than the bristles within the concentric rings of bristle tufts, to extend into the interproximal spaces between the teeth for enhanced cleaning therein.

15

Brief Description of the Drawings

For a fuller understanding of the nature of the invention, reference the following detailed description, taken in connection with the accompanying drawings in which:

20

FIG. 1 is front elevation showing a first embodiment with a brush section of the present invention that has a generally egg-shaped face; the brush section being mounted on a cut-away view of a conventional electric toothbrush handle.

25

FIG. 2 is a perspective view of the brush section with the generally egg-shaped face of Fig. 1;

FIG. 3 is a front elevation showing a second embodiment of the brush section of the present invention, which is similar to the embodiment of Figs. 1 and 2, in that the brush section has a generally egg-shaped face.

30

67
FIG. 4 is a front elevation showing a third embodiment of the brush section of the present invention wherein two bristle bearing fingers extend from the generally disk shaped body thereof.

5 FIG. 5 is a front elevation showing a fourth embodiment of the brush section of the present invention, wherein three bristle bearing fingers extend from the generally disk shaped body thereof.

10 FIG. 6 is a front elevation showing a fifth embodiment of the brush section of the present invention wherein one bristle bearing finger extends from the generally disk shaped body thereof, which differs from the embodiments of Figs. 1 and 3 in that the brush section does not have a generally egg-shaped face.

15 FIG. 7 is a front elevation showing a sixth embodiment of the present invention containing another one bristle bearing alternative, which differs from the other one finger embodiments in the extended width of the finger shown.

20 FIG. 8 is a side elevation showing a flat bristle trim, applicable to any one finger embodiment of the present invention, such as shown in FIGS. 1, 2, 3, 6 or 7.

25 FIG. 9 is a side elevation of the embodiments in FIG. 8, wherein the two rows of bristle tufts located on the finger portion of the brush face have a stepped trim.

30 FIG. 10 is a side elevation of an alternative embodiment of the present invention, similar to the embodiment of FIG. 9, except reversing the height order of the stepped trim of the bristle tufts within the rows of bristles located on the finger portion of the brush face.

FIG. 11 is a side elevation showing an alternative stepped trim embodiment of the present invention, similar to that within FIG. 9; except, the ends of the

stepped bristle rows are chamfered or beveled toward the toe of the toothbrush.

FIG. 12 is an enlargement of the toe portion of the side elevation of a typical embodiment of the present invention, such as that shown in FIG. 8, to highlight the physical configuration of the toe portions of the bristle carrier and the bristle carrier support; an arrangement provided to avoid pinching of the user within the separation therebetween.

Detailed Description

Reference is made to Fig. 1, showing a first embodiment of an electric toothbrush 11 having a brush section 19 of the present invention, which brush section 19 has at a first end a connector 35 adapted to be joined to a handle section 10, and at the other end is a head 47 which terminates in a toe 37; which connector 35 and which head 47 may be generally aligned along the longitudinal axis of the toothbrush 11; which head 47 contains a bristle carrier 21 having a first portion 25 closest to said first end, which first portion 25 is generally disk shaped with a circular cross-section that is broken by a protuberance or finger 51 extending therefrom in a direction generally distal to said first end; a face 13 extends from and across said first portion 25, to and across said finger 51; from which face 13 extends a plurality of bristle tufts; said bristle carrier 21 having a generally egg-shaped bristle bearing face 13. The handle section 10 is adapted to contain batteries 15,16, to power a motor 14; which motor 14 is coupled by a coupling mechanism 17 to a drive shaft 12 located within the brush section 19, to drive said bristle carrier 21 in an oscillating or reciprocating manner, shown as arc A-A about the longitudinal axis of the toothbrush. The oscillation or reciprocation of the bristle carrier may be at least 120 degrees in arc A-A, preferably at least about 90 degrees in arc A-A and more preferably at least about 30 degrees in arc A-A and most preferably at least about 15 degrees in arc A-A. Further, the brush section 19 may be demountable from the handle section 10, as shown in Fig. 1, or it may alternatively be permanently attached thereto, i.e. wherein the brush section 19 and the handle section 10

69

are manufactured as one integral unit, as for example disclosed in US Patent 6,178, 579.

Fig. 2 is a perspective view of the bristle bearing end of the brush section 19 of the toothbrush of Fig. 1, wherein bristle carrier 21 with a generally egg-shaped face 13 is shown with a plurality of bristle tufts 23 extending therefrom. As shown, the bristle tufts 23 substantively cover the entirety of the footprint of the egg-shaped bristle carrier 21, such that any cross-section of the bristles tufts corresponds in form to the generally egg-shaped face 13 of the underlying bristle carrier 21. The bristles may be arranged in two groupings of discrete tufts, as shown in Fig. 2; the first grouping being located about the circular cross-section of the first portion 25 of the generally disk shaped portion of the generally egg-shaped bristle carrier 21, in concentric rows; the second grouping located within the finger 51 portion of the bristle carrier 21 may be composed of one, two or more linear or arcuate rows of bristles 27, 29.

The front elevations of Figs. 3, 4 and 5, contain alternative embodiments of the present invention which terminate in one, two or three fingers 51, respectively, extending from generally disk-shaped bristle carriers 21. The length and width of the face portion of each finger 51 can be varied; as for example in Figs. 3 and 6, showing narrower one fingered embodiments and in Fig. 7 showing a broader one finger embodiment. The length and width of any finger 51 is such that the face 13 of the bristle carrier 21 will not be circular or oval in shape. The choice to utilize a greater number of fingers 51 and/or longer or wider fingers 51 to provide additional bristle area for enhanced massaging of the gingival tissue, must be balanced against the load on the batteries 15, 16 and the resultant effect on battery life.

As shown in the embodiments of Figs. 1 through 7 of the present invention, the bristle pattern of the first grouping of bristle tufts, located within the partially disk shaped first portion 25 of the bristle carrier 21 closest to the connector 35, is preferably arranged in a series of concentric rows. The innermost row or rows within this concentric grouping of bristle tufts, may be shorter than the rows closer to the outer perimeter of the

270
X

grouping, to provide a depression in surface of the concentric grouping to better retain toothpaste thereon.

As illustrated in the embodiments of Figs. 8 through 10 of the present invention, the rows of bristle tufts 27, 29 nearest the toe end 37 of the brush section 19, can be of uniform height or can vary height, i.e. a stepped trim. Preferably, these rows of bristle tufts 27, 29, are taller than the other rows of bristles extending from the bristle carrier 21. Further, as shown in Fig. 11, the ends of these rows of bristles tufts 27, 29 can be chamfered or beveled at an angle to form a point either toward the toe end of the brush section 19 (as shown in Fig. 11) or away therefrom (not shown). The stepped end trim shown in Figs. 9 and 10 or of the chamfered end trim, as shown for example in Fig. 11, allows the elongated and/or elongated and angled bristles to will more easily penetrate into the interproximal spaces between the teeth for cleaning therein.

As shown in the embodiments of Figs. 8 through 12 of the present invention, the bristle carrier has a bottom surface 45, which is opposite to the face 13 from which the bristles tufts 23 extend. Spaced away from and adjacent to the bottom surface 45 is a bristle carrier support 31, which carrier support 31 has a first end integral with the head 47 and a second free, toe end 43. The bristle carrier 21 may be rotationally supported by means of a conventional central, rotational supporting shaft, axis, or axial pin (means not shown herein) which extends from the upper surface 49 of the bristle support 31 to the bottom surface 45, as is disclosed and described in US Patents 6,092,252, 5,784,743, 5,732,432. As shown in Figs. 8 through 12, the toe 37 of the bristle carrier 21 extends past the free toe end 43 of the carrier support 31 by a distance d, which may be up to 5 mm or more.

As shown in Fig. 12, an enlargement of the end portion of the brush head 47 of the present invention, between the bottom surface 45 of the bristle carrier 21 and the free, toe end 43 of the bristle carrier support 31 is an interface or separation 41, within which the users lip or cheek may be pinched. To prevent such pinching, the front edge 33 of the bottom surface of the bristle carrier 21 is curved outward, i.e. the front edge 33 is convex with

respect to said connector 35 and arcs transversely further from the longitudinal axis of said toothbrush 11 than any point on the upper surface (49) of said bristle support carrier 31. The convex arc of said front edge 33 may extend past the separation 41 by a distance f, at least about 0.5 mm, and forward of the separation by a distance e, at least about 0.75 mm. The radius of curvature of the front edge of the bottom surface 33 should be at least about 1 mm and preferably at least about 1.5 mm. Further, the free toe portion 43 of the bristle carrier 31 is itself curved convexly with respect to said connector 35, with a radius of curvature of at least about 0.5 mm and preferably at least about 1 mm.

The means by which electric toothbrushes provide swiveling, gyrating, oscillating or reciprocating motion to drive the bristle carrier, such as the bristle carrier 21 of the present invention are well known in the art and include such means as those disclosed in the patents cited above and in US patents 6,178,579, 5,625,916, 5,504,961 and 5,054,149. The power source used for such toothbrushes and for the toothbrush of the present invention can include single use or rechargeable batteries, or a line cord to connect to a standard wall power outlet.

Claims

What is claimed is:

- 5 1. A brush section (19) for an electric powered toothbrush (11) comprising,
a first end having a connector (35) adapted to be joined to a handle section
(10);
a second end containing a head (47), which head (47) terminates in a toe (37);
said head (47) containing a bristle carrier (21) with a first portion (25) closest
10 to said first end, which first portion (25) is generally disk shaped with a
generally circular cross-section;
said first portion (25) has one or more fingers (51) extending therefrom, in a
direction generally distal from said first end;
said bristle carrier (21) has a face (13) extending across said first portion (25)
15 and across said one or more fingers (51), from which face (13) extends a
plurality of bristle tufts (23);
wherein said face (13) has a shape other than circular or oval;
said handle section (10) contains a driving means which is drivingly engaged
to said bristle carrier (21);
20 whereby in use, the bristles extending from the one or more fingers (51)
provides increased contact with the gingival tissues and enhanced massaging
thereof.
2. The brush section (19) of claim 1, wherein said bristle carrier (21) has one
25 finger (51) extending therefrom.
3. The brush section (19) of claim 2, wherein the face (13) of said bristle
carrier (21) is generally egg-shaped.
- 30 4. The brush section (19) of claim 1, wherein said carrier (21) has two fingers
(51) extending therefrom.
5. The brush section (19) of claim 1, wherein said carrier (21) has three
fingers (51) extending therefrom.

35

- 73
6. The brush section (19) of claim 1, wherein the bristle carrier (21) has a bottom surface (45) opposite to said face (13), which bottom surface (45) has a front edge (33), said bottom surface (45) is attached to the center of said bristle carrier (21) by a rotational supporting means to a bristle carrier support (31); which bristle carrier support (31) has a first end integral with the head (47) and a second free, toe end (43); the bristle carrier support (31) extends from said head (47) to a point between the toe (37) of the head (47) and the center of said bristle carrier (21), where there is a separation (41) between the free, toe end (43) of the bristle carrier support (31) and the bottom surface (45) of the bristle carrier (21); the front edge (33) of the bristle carrier (21) has a convex curve arcing away from the face (13), the convex curve arc extending further away from said face (13) than the separation (41) in a direction transverse to the face (13).
7. The brush section (19) of claim 6, wherein the convex curve has a radius of curvature of at least about 1 mm.
8. The brush section (19) of claim 6, wherein the free toe end (43) is configured as a convex curve arcing away from the face surface (13).
9. The brush section (19) of claim 8, wherein the convex curve of the free end (43) has a radius of curvature of at least about 0.5mm.
10. The brush section (19) of claim 1, wherein the plurality of bristles tufts extending from the first portion (25) of said face (13) are arranged in generally concentric rings and the bristles tufts extending from the one or more fingers (51) are arranged in rows (27, 29).
11. The brush section (19) of claim 10, wherein the bristle tufts in said rows (27, 29) are longer than the bristle tufts within the concentric rings of bristle tufts.
12. A method of providing enhanced massage of the oral gingival tissue using an electric powered toothbrush (11) comprising, providing an elongated brush section (19) having a head (47) at one end and a connector (35) at the other

34

end, which head (47) terminates in a toe (37) remote from said connector (35), which connector is adapted to be connected to a handle section (10); said head (47) contains a bristle carrier (21) with a first portion (25) closest to said connector (35), which first portion (25) is generally disk shaped with a
8 generally circular cross-section; the first portion has one or more fingers (51) extending therefrom in a direction generally distal from said connector (35); which bristle carrier (21) has a face (13) which extends across said circular cross-section of said first portion (25) and across said one or more fingers (51); from which face (13) extends a plurality of bristle tufts (23); wherein said
10 face (13) has a shape other than circular or oval; the handle section (10) being arranged to contain a driving means which is drivingly engaged to said carrier (21); applying said carrier (21) to the gingival tissues, whereby in use, the bristles extending from the one or more fingers (51), providing increased bristle contact with the gingival tissue, enhancing the massaging therefrom.

15

13. The brush section (19) of claim 12, wherein said carrier (21) has one finger (51) extending therefrom.

20 14. The brush section (19) of claim 13, wherein the face (13) is generally egg-shaped.

15. The brush section (19) of claim 12, wherein said carrier (21) has two fingers (51) extending therefrom.

25 16. The brush section (19) of claim 12, wherein said carrier (21) has three fingers (51) extending therefrom.

30 17. The brush section (19) of claim 12, wherein the bristle carrier (21) has a bottom surface opposite to said face surface (13), which bottom surface has a front edge (33) proximate to said toe (37), which front edge (33) is arcuate.

18. The brush section (19) of claim 17, wherein the front edge (33) is arcuate with a radius of curvature of at least about 1 mm.

19. The brush section (19) of claim 14, wherein the plurality of bristles tufts extending from the first portion (25) of the bristle carrier [21] are arranged in generally concentric rings of bristle tufts and the bristle tufts extending from the finger (51) portion of the carrier [21] are arranged in rows (27, 29).

5

20. The brush section (19) of claim 19, wherein the bristle tufts within said rows (27, 29) are longer than the bristle tufts within the concentric rings of bristle tufts.

10 21. A brush section (19) for an electric toothbrush (11) comprising, a first end having a connector (35) adapted to be joined to a handle section (10); a second end containing a head (47), which head (47) terminates in a toe (37), the head (47) and connector (35) are generally aligned along the longitudinal axis of the toothbrush (11); the bristle carrier (21) is centrally supported by
15 rotational means from the upper surface (49) of a bristle carrier support (31); which bristle carrier support (31) has a first end integral with the head (47) and a second free, toe end (43); the bristle carrier support (31) extends from said head (47) to a point between the toe (37) of the head (47) and the center of said bristle carrier (21); the bristle carrier (21) has a front edge (33) which
20 is convex with respect to said connector (33), which convex front edge (33) arcs transversely further from the longitudinal axis of said toothbrush (11) than any point on the upper surface (49) of said bristle support carrier (31), such that in use the users lip or gingival tissue will not be pinched between the front edge (33) of the bristle carrier (21) and the upper surface (49) of the
25 bristle carrier support (31).

22. The brush section (19) of claim 21, wherein the free toe end (43) is a convex arc in relation to said connector (35).

30 23. The brush section (19) of claim 1, wherein the brush section (19) is integrally joined to the handle section (10).

76
~~76~~

Abstract

- 5 An electric toothbrush brush section and method of use thereof is disclosed, the brush section having a generally disk shaped bristle carrier from which extend one or more bristle bearing fingers of varying length and width, which fingers provide increased contact area between bristles and oral gingival tissue for enhanced massaging thereof.

277

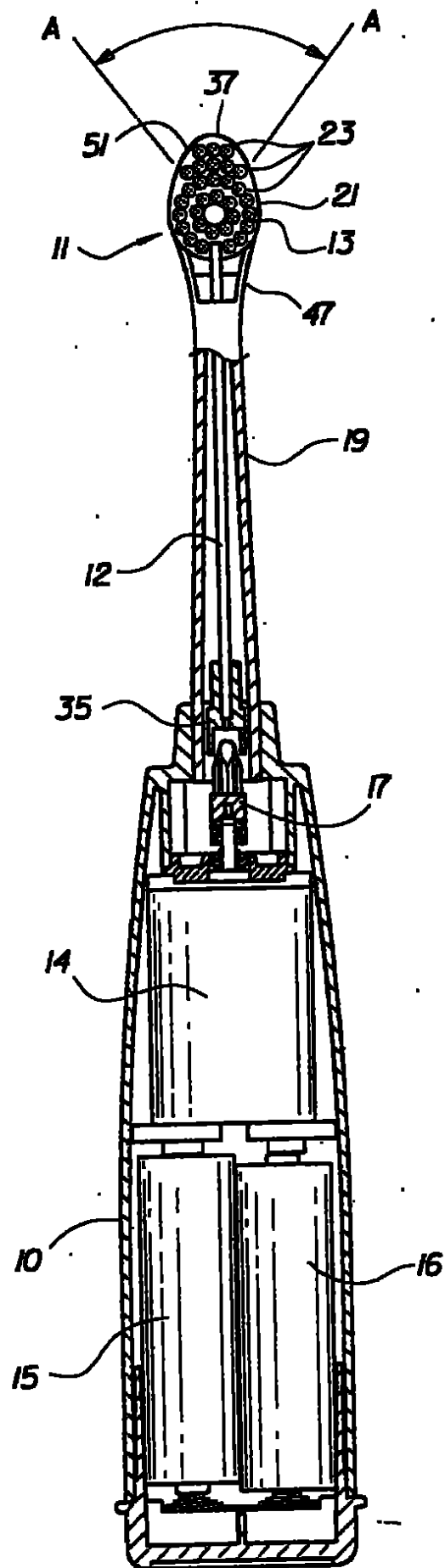


FIG. 1

al

78

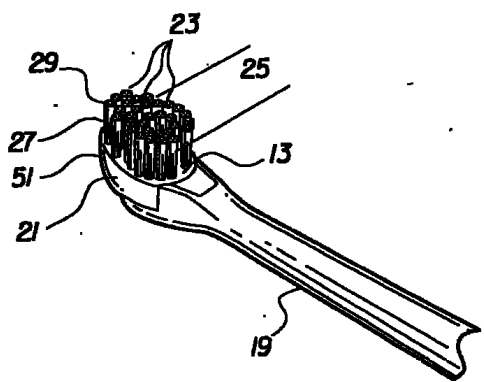


FIG. 2

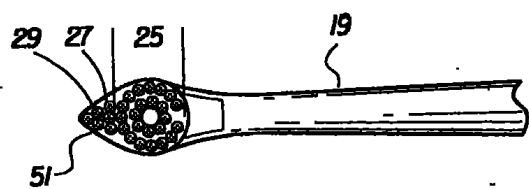


FIG. 3

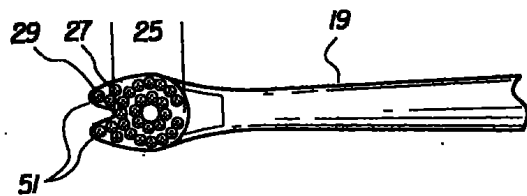


FIG. 4

28

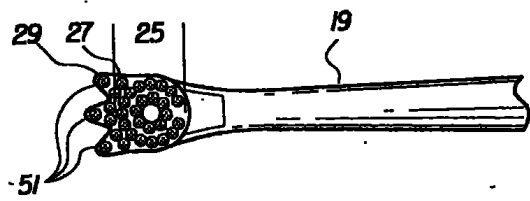


FIG. 5

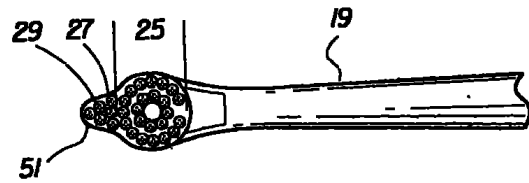


FIG. 6

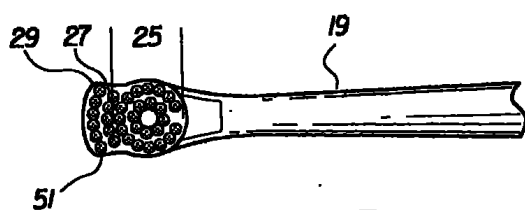


FIG. 7

XL

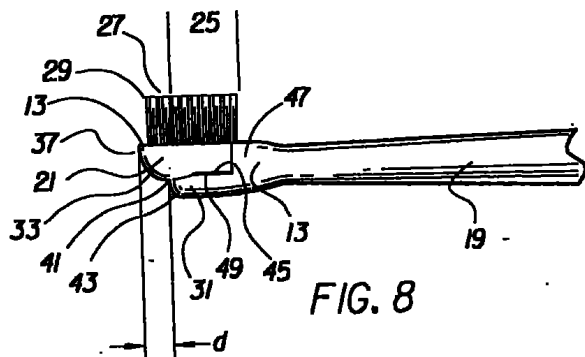


FIG. 8

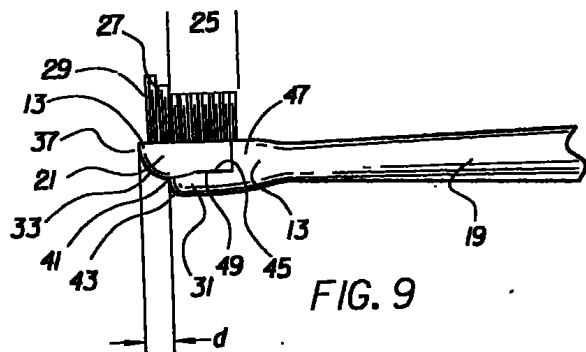
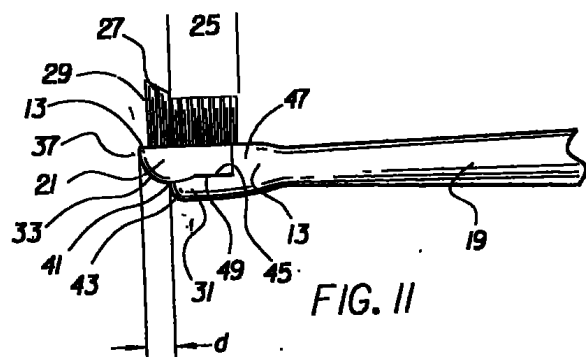
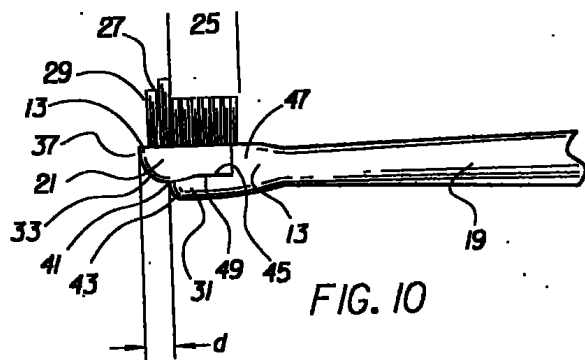


FIG. 9



98

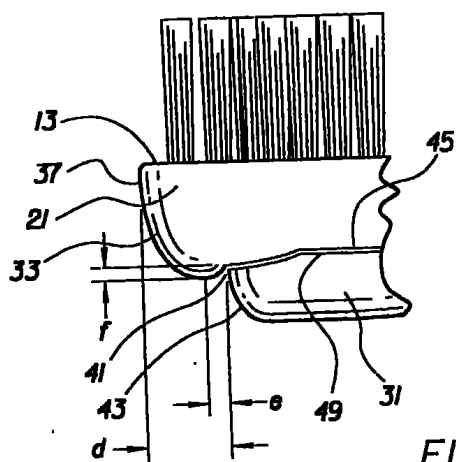


FIG. 12

PCT

GENERAL POWER OF ATTORNEY

(for several international applications filed under the Patent Cooperation Treaty)

(PCT Rule 90.5)

85
JX

The undersigned person(s):

(Family name followed by given name; for a full legal entity, full official designation. The address must include postal code and name of country.)

COLGATE-PALMOLIVE COMPANY
300 Park Avenue
New York, New York 10022
United States of America

hereby appoint(s) the following person as:

☒ agent

☐ common representative

Name and address

(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

Martin B. Barancik, Henry S. Goldfine, Bernard Lieberman, Michael J. McGreal, Rosemary M. Miano, Richard E. Nanfeldt and Paul Shapiro of

COLGATE-PALMOLIVE COMPANY
908 River Road
P.O. Box 1343
Piscataway, New Jersey 08855-1343
United States of America

to represent the undersigned before

☒ all the competent International Authorities

☐ the International Searching Authority only

☐ the International Preliminary Examining Authority only

in connection with any and all international applications filed by the undersigned with the following Office

RO/US

as receiving Office

and to make or receive payments on behalf of the undersigned.

Signature(s) (where there are several persons, each of them must sign; next to each signature, indicate the name of the person signing and the capacity in which the person signs. If such capacity is not obvious from reading this power):

Paul Shapiro
Paul Shapiro
Vice President
Chief Patent Counsel

Date: November 1, 2000

86

PCT (ANNEX - FEE CALCULATION SHEET)

1/2

Original (for SUBMISSION) - printed on 06.06.2002 01:14:29 PM

6668-02

(This sheet is not part of and does not count as a sheet of the international application)

0	For receiving Office use only	
0-1	International Application No.	
0-2	Date stamp of the receiving Office	
0-4	Form - PCT/RO/101 (Annex) PCT Fee Calculation Sheet	
0-4-1	Prepared using	PCT-EASY Version 2.92 (updated 01.01.2002)
0-9	Applicant's or agent's file reference	6668-02
2	Applicant	COLGATE-PALMOLIVE COMPANY
12	Calculation of prescribed fees	fee amount/multiplier Total amounts (USD)
12-1	Transmittal fee T	⇒ 240
12-2-1	Search fee S	⇒ 866
12-2-2	International search to be carried out by	EP
12-3	International fee	
	Basic fee	
	(first 30 sheets) b1	407
12-4	Remaining sheets	0
12-5	Additional amount (X)	9
12-6	Total additional amount b2	0
12-7	b1 + b2 = B	407
12-8	Designation fees	
	Number of designations contained in international application	92
12-9	Number of designation fees payable (maximum 5)	5
12-10	Amount of designation fee (X)	88
12-11	Total designation fees D	440
12-12	PCT-EASY fee reduction R	-125
12-13	Total International fee (B+D-R) I	⇒ 722
12-14	Fee for priority document	
	Number of priority documents requested	1
12-15	Fee per document (X)	15
12-16	Total priority document fee P	⇒ 15
12-17	TOTAL FEES PAYABLE (T+S+I+P)	⇒ 1,843
12-19	Mode of payment	authorization to charge deposit account
12-20	Deposit account instructions	
	The receiving Office:	United States Patent and Trademark Office (USPTO) (RO/US)
12-20-1	Authorization to charge the total fees indicated above.	✓

PCT (ANNEX - FEE CALCULATION SHEET)

Original (for SUBMISSION) - printed on 06.06.2002 01:14:29 PM

6668-02

12-20-2	Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.	✓
12-20-3	Authorization to charge the fee for priority document.	✓
12-21	Deposit account No.	03-2457
12-22	Date	06 June 2002 (06.06.2002)
12-23	Name and signature	DUNNE, Elizabeth, M. <i>Elizabeth M. Dunne</i>

VALIDATION LOG AND REMARKS

13-2-2	Validation messages States	Green? More designations could be made. The following States have not been designated: US. Please verify.
13-2-6	Validation messages Declarations	Green? Manually inputted data. Please verify the contents of the information provided.
		Green? Manually inputted data. Please verify the contents of the information provided.
13-2-7	Validation messages Contents	Yellow! The power of attorney or a copy of the general power of attorney will need to be furnished unless all applicants sign the request form.
13-2-8	Validation messages Payment	Green? Please ensure that you have a valid deposit account with the receiving Office selected.

PATENT COOPERATION TREATY

AS: 92.916

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To: Goldfine, Henry S. COLGATE PALMOLIVE COMPANY 909 River Road, P.O. Box 1343 Piscataway, New Jersey 08855-1343 ETATS-UNIS D'AMERIQUE	R E C E I V E D OCT - 1 2003 PATENT DEPARTMENT	PCT NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1)
Applicant's or agent's file reference IR 6668-02		Date of mailing (day/month/year) 26.09.2003
IMPORTANT NOTIFICATION		
International application No. PCT/US02/18147	International filing date (day/month/year) 06.06.2002	Priority date (day/month/year) 08.06.2001
Applicant COLGATE-PALMOLIVE COMPANY		

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4485	Authorized Officer Salaün, M Tel. +49 89 2399-2126
---	---

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

49

Applicant's or agent's file reference IR 6868-02	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US02/18147	International filing date (day/month/year) 06.06.2002	Priority date (day/month/year) 08.06.2001
International Patent Classification (IPC) or both national classification and IPC A46B1		
Applicant COLGATE-PALMOLIVE COMPANY		
1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 5 sheets, including this cover sheet. ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of sheets.		
3. This report contains indications relating to the following items: I ☒ Basis of the opinion II ☐ Priority III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV ☐ Lack of unity of invention V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI ☐ Certain documents cited VII ☐ Certain defects in the international application VIII ☐ Certain observations on the international application		
Date of submission of the demand 07.01.2003	Date of completion of this report 26.09.2003	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Cardan, C Telephone No. +49 89 2399-8115 	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US02/08147**

90

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

Description, Pages

1-8 as originally filed

Claims, Numbers

1-23 as originally filed

Drawings, Sheets

1/8-8/8 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).
3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US02/08147**

91
27

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
- (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-23
Inventive step (IS)	Yes: Claims	
	No: Claims	1-23
Industrial applicability (IA)	Yes: Claims	1-23
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

1. Claim 1 contravenes Art. 6 PCT because it is not clear if 'the handle section containing the drive means' is part of the claimed invention or not (a brush section being claimed) and it also appears that the 'toe' and the 'fingers' define the same technical feature.

Furthermore, the subject-matter of claim 1 is defined by the effect to be achieved which is not allowable.

2. A detailed examination was done considering that the subject-matter of claim 1 does not comprise a handle section and is not defined by the effect to be achieved.

The subject-matter of claim 1 can be considered as fulfilling the requirements of Art. 33(2) and (3) PCT. Each of the documents US 5 836 030 A (D1), WO 01/32095 A (D2) or WO 99/56660 A (D3) disclose toothbrush heads with circular bristle support surface and a toe or finger. However, the toe is not integral with the main bristle part.

3. Independent claim 12 can not be considered as fulfilling the requirements of Art. 33(2) PCT because the use of brushes for massaging gingival tissue is well known in the art and furthermore, the claim is drafted as a method claim but defined by technical features of the object per se. Thus claim 12 is not allowable.
4. Independent claim 21 defines the same subject matter as that of claim 1 by means of other terms thus a lack of conciseness arises. Furthermore, only one independent claim per category is allowable.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US02/18147

- 63
5. The dependent claims 13 to 20, 22 and 23 do not add any further technical features, to the independent claims 12 respectively 21, which are not already disclosed in the prior art cited in the search report.
6. Independent claim 1 should be 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 or D2 or D3) 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).

94 26
SUPERINTENDENCIA
Radacion : 03/10/04 00000000 Folios: 30
Fecha (MM): 2003-12-04 16:40:22
Tramite : 011 PCI-PRIME 3/3 PRE: 0001 411 PRO-SINAC
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES
MIT : 00000000 2

RECIBO OFICIAL DE CAJA : 03 - 84,437
FECHA : NOVIEMBRE 19 DE 2003

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
BRIGARD & CASTRO LTDA	CONSIGNACION	BANCO POPULAR	050-00110-6	14792261	19/11/2003	14,140,000.00

***** CONCEPTO *****

CANT. RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1 50005-01-01 SOLICITUDES	1 TRAMITES DE SOL. DE PATENTE DE IN	400,000.00
	TOTAL :	\$ 400,000.00

SON: CUATROCIENTOS MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

Folio No. 4 Tsjetsjars archiveraator
kon C. Molena.

95 ~~97~~

USUARIO	RADICADOR
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

(4)

- Fecha:**

04/12/2003

96 98

PETITORIO

AS: 92.916

RAJ: 03-107004

Industria y Comercio
SUPERINTENDENCIA

03 107004 00

REGISTRAR GENERAL Y LINEAS
 Modificación: 03/12/04 16:40:12
 Fecha (UTC): 2004-12-04 16:40:12
 Transito: 1 011 PCT-PRIENI 4/9 PREL NOL 411 PRESENTE
 Representación: 2004 DIVISION DE NUEVAS CREACIONES

FORMULARIO ÚNICO DE SOLICITUD DE PATENTE
 PCT

Fecha ENTRADA EN FASE NACIONAL : 8/01/2004

1

SOLICITUD DE:

☒ Patente de Invención.☐ Patente de Modelo de Utilidad.☐ Capítulo I.☒ Capítulo II.

2

SOLICITANTE
(71)

Nombre: COLGATE - PALMOLIVE COMPANY

Dirección: 300 Park Avenue, New York, NY 10022,
Estados Unidos de América

Nacionalidad o Domicilio: Estados Unidos

Lugar de Constitución: Estados Unidos

Teléfono:

Fax:

E-mail

IDENTIFICACION

C.C. ☐ NIT ☐C.E. ☐ Otro ☐

Cual _____

Número _____

3

REPRESENTANTE
O APODERADO

Nombre: RAMIRO CASTRO DUQUE

Dirección: Cra. 7 No. 16-56 Piso 9

Teléfono: 380-2200

Fax: 380-2700

E-mail:

IDENTIFICACION

C.C. ☒ NIT ☐C.E. ☐ Otro ☐

Cual _____

Número 170.322 TP 1003

4

INVENTOR (ES)
(72)

Nombre: Eyal Eliav, Kyoungseun Ahn, John J. Gatzmeyer

Dirección: 72 Barrow Street, Apt. 6I, New York, NY 10014, US; 151 East 26th Street #2D,
New York, NY 10010, US; 85 Rohill Road, Hillsborough, NJ 08853, Estados Unidos de
América (Respectivamente)

Nacionalidad o Domicilio: Estados Unidos de América (Respectivamente)

5 PCT (86)

Solicitud Internacional No. PCT/US02/18147 Fecha 06-06-2002Publicación Internacional No. WO 02/100212 A3 Fecha 19-12-2002Título (54): SECCIÓN DE CEPILLO PARA UN CEPILLO DE DIENTES ELÉCTRICO7 Clasificación Internacional (51) A46B 13/02, 7/08

8 Prioridad

SI ☒ NO ☐

(33) País de Origen

US

(32) Fecha

08-06-2001

(31) Número de Solicitud

09/878.036

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

REIVINDICACIONES

1. Una sección de cepillo (19) para un cepillo de dientes eléctrico (11), que comprende un primer extremo que tiene un conector (35) adaptado para ser unido a una sección de mango (10);

un segundo extremo que contiene una cabeza (47), dicha cabeza (47) terminando en una punta (37);

dicha cabeza (47) conteniendo un portador de cerdas (21) con una primera porción (25) más cercana a dicho primer extremo, dicha primera porción (25) teniendo generalmente una forma de disco con una sección transversal generalmente circular;

dicha primera porción (25) teniendo uno o más salientes (51) que se extienden desde la misma, en una dirección generalmente distal a dicho primer extremo;

dicho portador de cerdas (21) teniendo una cara (13) que se extiende a través de dicha primera porción (25) y a través de dichos uno o más salientes (51), y desde dicha cara (13) se extiende una pluralidad de manojos de cerdas (23);

en donde dicha cara (13) tiene una forma que no es circular ni ovalada;

dicha sección de mango (10) conteniendo un medio de accionamiento que es enganchado de manera motriz a dicho portador de cerdas (21);

con lo cual, en el uso, las cerdas que se extienden desde dichos uno o más salientes (51) proporcionan un contacto aumentado con el tejido gingival oral y un masaje incrementado del mismo.

2. La sección de cepillo (19) según la reivindicación 1, en la cual



Oficio

2020
Bogotá, D.C.,

Doctor:
Ramiro Castro Duque

Oficio N° 01190

ASUNTO:	Radicación N°	03-107004
	Solicitud Internacional	PCT/US2002/18147
	Fecha Inicio fase nacional	08/01/2004
	Trámite	011
	Evento	379
	Actuación	430
	Folios	001

Como resultado del examen de forma, realizado con fundamento en el artículo 38 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Única de la Superintendencia de Industria y Comercio, se le comunica que:

- ❑ La solicitud no contiene la copia del documento en que consta la cesión del derecho a la patente del inventor al solicitante o a su causante. (Art. 26-k) Decisión 486).
- ❑ La solicitud no contiene el poder debidamente otorgado, con el lleno de los requisitos exigidos por los artículos 63 y subsiguientes del Código de Procedimiento Civil. Adicionalmente, deberá presentar el documento que acredita la existencia y representación legal de la sociedad solicitante, cuando ésta fuere persona jurídica.

En cumplimiento de lo dispuesto por el artículo 39 de la Decisión 486, se le requiere para que dentro del término de dos meses siguientes a la fecha de notificación del presente oficio, complete los requisitos anteriormente enunciados. En caso de no dar cumplimiento al presente requerimiento, la solicitud se considerará abandonada y perderá su prelación.

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

ALIX CARMENZA CESPEDES DE VERGEL
Jefe de la División de Nuevas Creaciones.

El anterior requerimiento fue notificado por fijación en lista de fecha, 30 ENE. 2004