

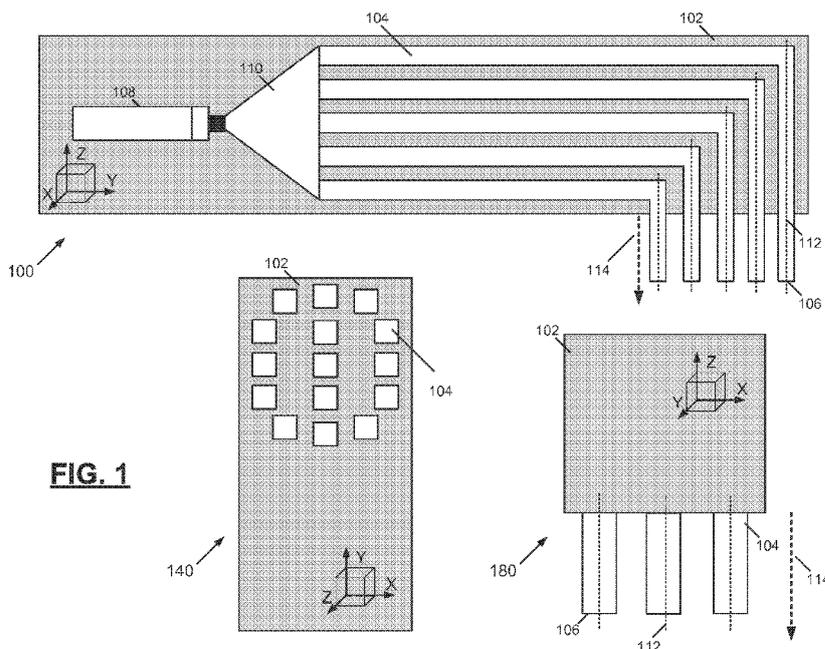


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(54) Title: LIGHT DILUTING TOOTHBRUSH BRISTLES



(57) Abstract: A tissue treatment device is disclosed. A tissue treatment device includes a bristle having a longitudinal axis, where the bristle is configured to emit a peak concentration of electromagnetic radiation along a direction that is not parallel to the longitudinal axis. The tissue treatment device also includes a brush head for holding the bristle, where the bristle projects outwardly from the brush head and is configured to brush a surface. The tissue treatment device further includes an electromagnetic energy source optically coupled to the bristle. The bristle is a waveguide that is configured to receive electromagnetic radiation from the electromagnetic energy source at a coupling point and to emit the received electromagnetic radiation at a tip.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US12/59017

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61C 1/00 (2012.01)

USPC - 433/29, 216, 215, 25; 15/3, 21.1

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(8): A61C 1/00 (2012.01)

USPC: 433/29, 216, 215, 25; 15/3, 21.1

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

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

MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); DialogPRO; Google; Google Scholar; Elsevier; Medline/PubMed: bristle, toothbrush, light emitting diode, light, LED, electromagnetic radiation, roughness feature, waveguide

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7942667 B2 (RIZOIU, IM, et al.) May 17, 2011; figure 1; column 12, lines 21-23	19-21, 23, 26
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Y		1-15, 22, 24, 25, 27
Y	US 2009/0075229 A1 (RIZOIU, IM, et al.) March 19, 2009; figures 3A-3D; paragraph [0043]; Claim 1	1-15, 22, 25
Y	US 2006/0246401 A1 (PINYAYEV, AM et al.) November 2, 2006; figure 6; paragraphs [0020], [0023]	14, 15, 24, 25
Y	US 2011/0033817 A1 (MCKAY, WF) February 10, 2011; figure 9B; paragraphs [0013], [0047]	8-13
Y	US 7702196 B2 (BOUTOUSSOV, D et al.) April 20, 2010; figure 12B; column 10, lines 28-31	5-7, 15, 25
Y	US 7695469 B2 (BOUTOUSSOV, D et al.) April 13, 2010; figure 13; column 14, lines 24-29	3, 5, 6
Y	US 2009/0184890 A1 (COWAN, M et al.) July 23, 2009; paragraph [0087]	9, 13
Y	US 2011/0065064 A1 (KAHDEMANN, S et al.) March 17, 2011; paragraph [0055]	10, 11
Y	US 7144247 B2 (BLACK, M) December 5, 2006; figures 1, 7, 10, 12; column 7, lines 27-29; column 8, lines 9-11; column 8, lines 64-65	16-18
Y	US 2004/0019990 A1 (FARRELL, LW, et al.) February 5, 2004; figures 2, 10; paragraph [0040]	16-18

Further documents are listed in the continuation of Box C.

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

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“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

“&” document member of the same patent family

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International application No.

PCT/US12/59017

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6958865 B1 (QUAKE, SR et al.) October 25, 2005; column 2, lines 29-30	13
Y	JP 9173145 A (AOYAMA, N) July 8, 1997; abstract	27
Y	WO 2011/087774 A1 (GRAMANN, J et al.) July 21, 2011; figure 2; page 10, lines 12-35 to page 11, lines 1-9	3