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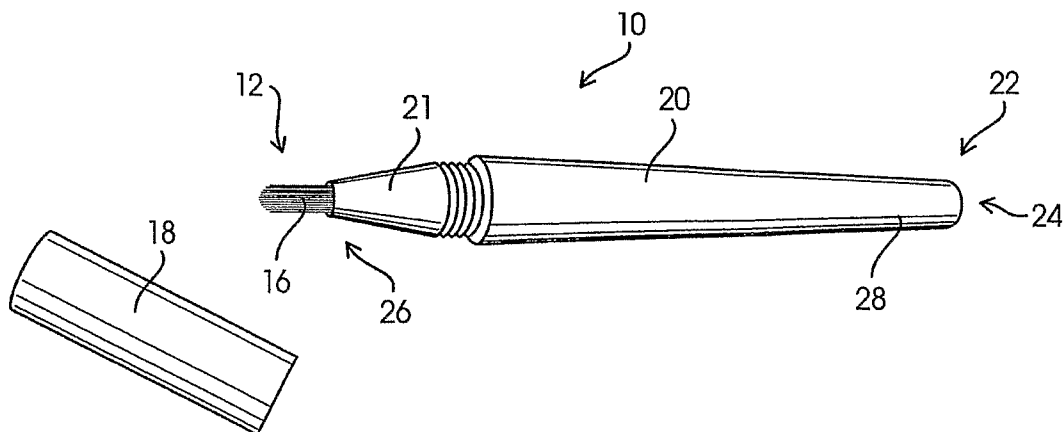
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(54) Title: COMPOSITIONS, METHODS, DEVICES, AND KITS FOR MAINTAINING OR ENHANCING TOOTH WHITENING



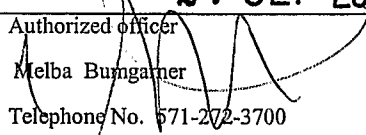
(57) Abstract: Compositions, methods, devices, and kits for maintaining or enhancing tooth whitening in a subject are disclosed. The methods include applying a first tooth whitening composition to the teeth of the subject for a predetermined period of time and applying a second tooth whitening composition to the teeth of the subject in predetermined intervals, wherein at least one of the first and second tooth whitening compositions are dispensed from a dental delivery device. The kits include a first tooth whitening composition and a second tooth whitening composition, each including an oxidizing agent. The oxidizing agent of the first tooth whitening composition is present in a higher amount than the second tooth whitening composition, which maintains or enhances the tooth whitening effect of the first tooth whitening composition.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/24070

A. CLASSIFICATION OF SUBJECT MATTER IPC: A61C 15/00(2006.01) USPC: 433/216 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) U.S. : 433/216,215,89,80,90 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)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2001/0046655 A1 (YARBOROUGH) 29 November 2001 (29.11.2001), see entire document.	1-30,61-71 ----- 31-60,72-78
X --- Y	US 5,829,976 A (GREEN) 03 November 1998 (03.11.1998), see entire document.	79,82-84,86 ----- 53-60,80,81,87-101
X --- Y	US 1,362,937 A (GRACE) 21 December 1920 (21.12.1920), see entire document.	79,82,83,85 ----- 53-60,80,81,87-101
Y	US 2002/0187108 A1 (RAJAIAH et al.) 12 December 2002 (12.12.2002), see entire document.	31-60
☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
*	Special categories of cited documents:	"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 "&" document member of the same patent family
"A"	document defining the general state of the art which is not considered to be of particular relevance	
"E"	earlier application or patent published on or after the international filing date	
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	
"O"	document referring to an oral disclosure, use, exhibition or other means	
"P"	document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search 23 August 2006 (23.08.2006)		Date of mailing of the international search report 27 SEP 2006
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Authorized officer  Melba Bumgarner Telephone No. 571-272-3700

INTERNATIONAL SEARCH REPORTInternational application No.
PCT/US04/24070**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 6,368,576 B1 (JENSEN et al.) 09 April 2002 (09.04.2002), see entire document.	48-52,72-78,80,81,87-101
Y	US 6,083,489 A (FISCHER et al.) 04 July 2000 (04.04.2000), see entire document.	93-96,98

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/24070

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation 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 additional fees, this Authority did not invite payment of any additional fees.
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 and, where applicable, the payment of a protest fee. |
| ☐ | The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation. |
| ☐ | No protest accompanied the payment of additional search fees. |

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-61,99-101, drawn to a method of whitening teeth.

Group II, claim(s) 62-78,98, drawn to a liquid oral therapeutic dental composition.

Group III, claim(s) 79-97, drawn to a therapeutic dental delivery device.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention is the particular second tooth whitening composition claimed therein while the special technical feature of the Group II invention is the particular moisture responsive gel carrier claimed therein. Since the special technical feature of the Group I invention is not present in the Group II invention being claimed and the special technical feature of the Group II invention is not present in the Group I invention being claimed, unity of invention is lacking.

The inventions listed as Groups I and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention is the particular second tooth whitening composition claimed therein while the special technical feature of the Group III invention is the particular applicator claimed therein. Since the special technical feature of the Group I invention is not present in the Group III invention being claimed and the special technical feature of the Group III invention is not present in the Group I invention being claimed, unity of invention is lacking.

The inventions listed as Groups II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group II invention is the particular moisture responsive gel carrier claimed therein while the special technical feature of the Group III invention is the particular applicator claimed therein. Since the special technical feature of the Group II invention is not present in the Group III invention being claimed and the special technical feature of the Group III invention is not present in the Group II invention being claimed, unity of invention is lacking.