

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
23 March 2006 (23.03.2006)

PCT

(10) International Publication Number  
**WO 2006/031391 A3**

(51) International Patent Classification:

A61M 37/00 (2006.01) A61B 17/20 (2006.01)  
A61K 9/70 (2006.01)

(21) International Application Number:

PCT/US2005/030000

(22) International Filing Date: 23 August 2005 (23.08.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

10/925,670 25 August 2004 (25.08.2004) US

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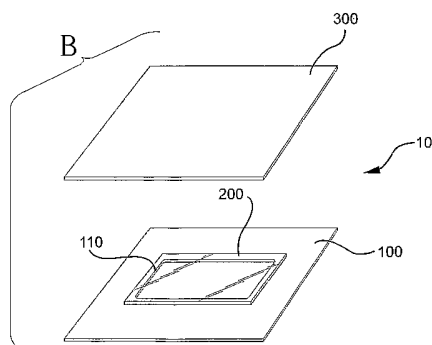
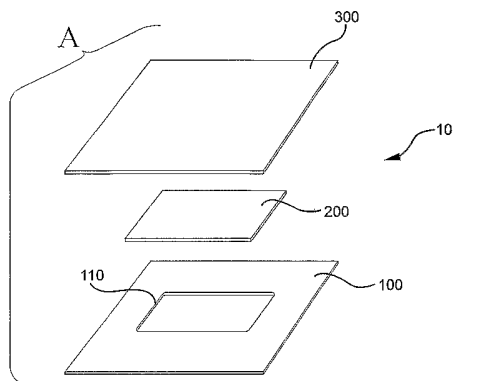
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,

[Continued on next page]

(54) Title: METHOD AND DEVICE FOR THE DELIVERY OF A SUBSTANCE INCLUDING A COVERING



(57) Abstract: An abrasion device and method for delivery of substances into the skin using a microabrador for delivering a substance into the skin are disclosed. An abrasion device with a cover is also disclosed. Such devices and methods can be effectively used to deliver bioactive substances into skin.



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RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:  
15 June 2006

**Declaration under Rule 4.17:**

— *of inventorship (Rule 4.17(iv))*

**Published:**

— *with international search 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.*

INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2005/030000

A. CLASSIFICATION OF SUBJECT MATTER  
INV. A61M37/00 A61K9/70 A61B17/20

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)

A61M A61K A61B

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.
X	US 2004/064087 A1 (LASTOVICH ALEXANDER G ET AL) 1 April 2004 (2004-04-01) abstract; figures -----	11,13, 14,19
X	US 2003/199811 A1 (SAGE BURTON H ET AL) 23 October 2003 (2003-10-23) paragraphs [0052], [0053], [0058], [0062] - [0064]; figures -----	11-14, 20,21
X	US 4 966 159 A (MAGANIAS ET AL) 30 October 1990 (1990-10-30) column 4, line 45 - column 5, line 20; figures -----	11-14,18

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance  
"E" earlier document but published on or after the international filing date  
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  
"O" document referring to an oral disclosure, use, exhibition or other means  
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  
"&" document member of the same patent family

Date of the actual completion of the international search

27 January 2006

Date of mailing of the international search report

28 -03- 2006

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2005/030000

**Box 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.: **1-10, 15-17**  
because they relate to subject matter not required to be searched by this Authority, namely:  
**Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery**
  
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 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:

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.:  
**11-14, 18-21**

Remark on Protest

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

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 11-14,18-21

A system for delivering a substance into skin comprising a skin template and an abrader across said skin to produce an abraded area within the bounds of the abrasion area

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2. claims: 22-24

A device for introducing a substance comprising a skin dressing, a substance, a dome coupled to the skin and overlying the abraded area and a reservoir.

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INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2005/030000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004064087	A1	01-04-2004	NONE
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US 2003199811	A1	23-10-2003	AU 778277 B2 25-11-2004
		AU 5354900 A	29-03-2001
		CA 2316534 A1	24-03-2001
		DE 60018865 D1	28-04-2005
		EP 1086719 A1	28-03-2001
		ES 2235723 T3	16-07-2005
		JP 2001157715 A	12-06-2001
		SG 97921 A1	20-08-2003
		US 6835184 B1	28-12-2004
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US 4966159	A	30-10-1990	NONE
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