

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 October 2006 (12.10.2006)

PCT

(10) International Publication Number
WO 2006/108100 A3

(51) International Patent Classification:

A61B 10/00 (2006.01) A61M 1/00 (2006.01)
A61B 5/05 (2006.01) A61M 31/00 (2006.01)
A61N 1/30 (2006.01) A61M 37/00 (2006.01)

(21) International Application Number:

PCT/US2006/012819

(22) International Filing Date: 5 April 2006 (05.04.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

11/099,985 5 April 2005 (05.04.2005) US
11/245,998 6 October 2005 (06.10.2005) US

(71) Applicant (for all designated States except US): RUBICOR MEDICAL, INC. [US/US]; 600 Chesapeake Drive, Redwood City, California 94063 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): VETTER, James W. [US/US]; 117 Solana Road, Portola Valley, California 94028 (US). CHERNOMORSKY, Ary S. [US/US]; 900 Placer Ridge Road, Walnut Creek, California 94597 (US). DANIEL, Christopher [US/US]; 1052 North California Avenue, Palo Alto, California 94303 (US). CLIFFORD, Mark J. [US/US]; 479 Los Altos Avenue, Los Altos, California 94022 (US). ANDERSON, Scott C. [US/US]; 548 Cashmere Court, Sunnyvale, California 94087 (US).

(74) Agent: HOEKENDIJK, Jens E.; P.o. Box 4787, Burlingame, California 94011-4787 (US).

(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, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, 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, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

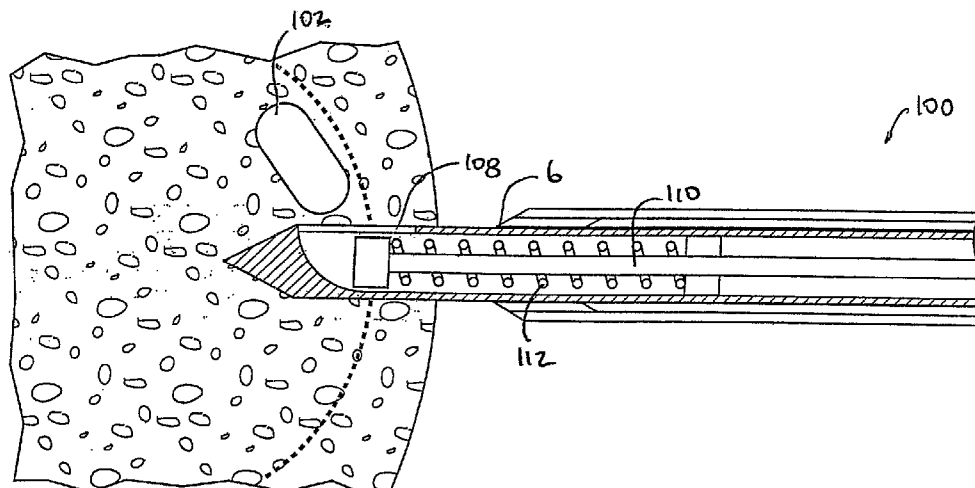
Published:

— with international search report

(88) Date of publication of the international search report:
6 December 2007

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: TISSUE REMOVAL AND MARKER PLACEMENT



(57) Abstract: The device is used to remove tissue from a patient and to also place a marker in the patient. The device has an opening through which tissue enters the device. The tissue which enters the opening is cut and the tissue is removed. The device may be used a number of times to remove a number of tissue masses. The device also includes a marker which the user may release in the patient at the desired time.

WO 2006/108100 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/12819

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **A61B 10/00**(2006.01),**5/05**(2006.01);**A61N 1/30**(2006.01);**A61M 1/00**(2006.01),**31/00**(2006.01),**37/00**(2006.01)

USPC: 600/562,564,567,420;604/19,27,93.01,506

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. : 600/562,564,567,420; 604/19,27,93.01,506

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	US 2002/0026201 A1 (FOERSTER et al) 28 February 2002 (28.02.2002), entire document.	1-12

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	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"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 26 July 2007 (26.07.2007)	Date of mailing of the international search report 14 SEP 2007
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 <i>Max Hindenburg</i> Telephone No. (571) 272-2975

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/12819

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.: 1-12

- 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.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/12819

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) 1-12, drawn to a method of removing tissue and placing a marker in a patient using a tube with a cover over an opening and placing a solid marker.

Group II, claim(s) 13-19, drawn to an apparatus for removing tissue and placing a marker in a patient using a tube with a cutter and a marker stored in marker storage and moved via a marker transport.

Group III, claim(s) 20-26, drawn to an apparatus for removing tissue and placing a marker in a patient using a tube with a cutter and openings and a marker stored in marker storage.

Group IV, claim(s) 27-28, drawn to an apparatus for removing tissue and placing a marker in a patient using a tube with a cutter and a marker stored in marker storage.

Group V, claim(s) 29, drawn to a method of removing tissue in a patient using a tube with a transport and a cutter.

Group VI, claim(s) 30-45, drawn to a method of removing tissue and placing a marker in a patient via a tissue removal device and placing a flowable marker in the patient that is stored in a container.

Group VII, claim(s) 46-60, drawn to an apparatus for removing tissue from a patient having a body, a tube with an opening.

Group VIII, claim(s) 61-69, drawn to a method of removing tissue and placing a marker in a patient having a tissue removal device without a tube and a flowable marker in the patient that is stored in a container.

Group IX, claim(s) 70-75, drawn to an apparatus for removing tissue from a patient and having a body, a tube with an opening, and a flowable tissue marker stored in a container.

Group X, claim(s) 76-85, drawn to a method of removing tissue in a patient using a tube with a transport and a cutter.

Group XI, claim(s) 86-93, drawn to drawn to an apparatus for removing tissue from a patient using a movable tube with a tissue chamber, a transport, and a cutter.

Group XII, claim(s) 94-107, drawn to a method of removing tissue in a patient using a tube with a cutter.

Group XIII, claim(s) 108-119, drawn to an apparatus for removing tissue from a patient using a tube with a cutter.

Group XIV, claim(s) 120-130, drawn to an apparatus for removing tissue from a patient using a movable tube, a tissue transport, a cutter, a window, and an anchor.

~~Group XV, claim(s) 131-139, drawn to a method of removing tissue in a patient using a tube with a transport.~~

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/12819

Group XVI, claim(s) 140-143, drawn to a method of removing tissue in a patient using a tube with a chamber, and a cutter.

Group XVII, claim(s) 144-152, drawn to a method of removing tissue in a patient using a body, a cutter, and a tube.

Group XVIII, claim(s) 153-158, drawn to a method of removing tissue in a patient using a body and a tube.

The inventions listed as Groups I-XVIII 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 unifying feature of the Groups is a tissue removal device, which is not a special technical feature. It is well known the medical diagnostic art to provide a tissue removal device for obtaining tissue specimens for subsequent diagnosis. As claimed the Groups lack unity of invention because they lack the same or corresponding special technical.