

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 January 2006 (19.01.2006)

PCT

(10) International Publication Number
WO 2006/007410 A3

(51) International Patent Classification:
A61B 17/00 (2006.01)

(21) International Application Number:
PCT/US2005/021361

(22) International Filing Date: 16 June 2005 (16.06.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/580,237 16 June 2004 (16.06.2004) US

(71) Applicants (for all designated States except US):
MEDTRONIC, INC. [US/US]; MS LC340, 710 Medtronic Parkway, Minneapolis, MN 55432 (US).
BONNER, Matthew, D. [US/US]; 18400 5th Avenue North, Plymouth, MN 55447 (US). **KEOGH, James, R.** [US/US]; 1201 Frank Court, Maplewood, MN 55109 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BRISCOE, Roderick, E.** [US/US]; 13177 Oakwood Drive, Rogers, MN 55374 (US). **JOLLY, Katherine, S.** [US/US]; 45 Gramsie Road, Shoreview, MN 55126 (US). **USHER, Raymond, W.** [US/US]; 199 120th Avenue Northwest, Coon Rapids, MI 55448 (US). **BUHR, Rebecca, A.** [US/US]; 2935 Fremont Avenue South, Number 316, Minneapolis, MN 55408 (US). **CHRISTIAN, Steven, C.** [US/US]; 695 Riviera Drive, New Brighton, MN 55112 (US). **CLAGUE, Cynthia, T.** [US/US]; 15220 Highland Place, Minnetonka, MN 55345 (US). **HOBBDAY, Michael, J.** [US/US]; 6726

Black Duck Drive, Lino Lakes, MN 55014 (US). **JAHNS, Scott, E.** [US/US]; 923 Third Street, Hudson, WI 54016 (US). **HAARSTAD, Philip, J.** [US/US]; 7066 Harrison Hill Trail, Chanhassen, MN 55317 (US). **DAIGLE, Tom, P.** [US/US]; 22600 County Road 30, Corcoran, MN 55374 (US). **REETZ, Robert, H.** [US/US]; 4031 Woodhill Court, Rockford, MN 55373 (US). **SANDSTROM, Jeffrey, D.** [US/US]; 1360 15th Avenue Southeast, Forest Lake, MN 55025 (US).

(74) Agents: **HOHENSHELL, Jeffrey, J.** et al.; MS LC340, 710 Medtronic Parkway, Minneapolis, MN 55432 (US).

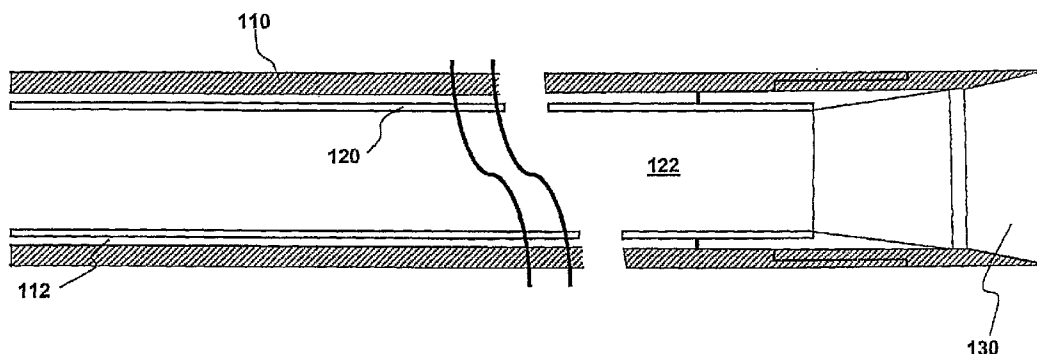
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, 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, 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).

[Continued on next page]

(54) Title: MINIMALLY INVASIVE CORING VEIN HARVESTER

100



(57) Abstract: The invention provides a system and method for harvesting a vessel section. The system comprises a vessel support member, a handle, and a tubular cutting device. The vessel support member is introduced into the vessel section to be harvested. The tubular cutting device may comprise an outer tubular member or an outer and an inner tubular member. The outer tubular member carries at least one cutting element. The tubular member or members are advanced over the vessel section and vessel support member to core out the vessel section and tissue adjoining the vessel section.

WO 2006/007410 A3



Declaration under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

(88) Date of publication of the international search report:
19 April 2007

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/US2005/021361

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61B17/00

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)

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 082 459 A (ATRIUM) 10 March 1982 (1982-03-10) page 3, paragraph 1	1,2,5,6
X	US 2004/092990 A1 (OPIE) 13 May 2004 (2004-05-13) paragraphs [0056], [0059]; figures 1,4,6,10	1-3,5,6



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

14 November 2005

Date of mailing of the international search report

19-01-2007

Name and mailing address of the ISA/

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

Authorized officer

Barton, Simon

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/021361

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.: 28-34
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.:
1-3, 5, 6

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: 1-3,5,6

vein cutting harvester with vessel centring/positioning device

2. claims: 7-12,20-27

vein cutting harvester with mutually sliding concentric tubes

3. claims: 1,4;13-19;35-38

vein cutting harvester with inflatable vessel support member positionable within the target vessel

4. claims: 35,39-41

vein cutting harvester with inflatable vessel support/dilator with fluid injection

5. claims: 42-45

vein cutting harvester with vessel support member and vessel tensioning device

6. claims: 42,46--48

vein cutting harvester with rotary drive system.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2005/021361

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2082459	A	10-03-1982	DE 3133730 A1	08-04-1982
			FR 2495929 A1	18-06-1982
			IT 1143228 B	22-10-1986
			JP 57075643 A	12-05-1982

US 2004092990	A1	13-05-2004	NONE	
