

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 July 2006 (20.07.2006)

PCT

(10) International Publication Number
WO 2006/076200 A3

(51) International Patent Classification:
A61N 1/05 (2006.01)

(21) International Application Number:
PCT/US2006/000312

(22) International Filing Date: 6 January 2006 (06.01.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/033,591 11 January 2005 (11.01.2005) US
11/107,553 14 April 2005 (14.04.2005) US

(71) Applicant: VILIMS, Bradley, D. [US/US]; 3943 Mountainside Trail, Evergreen, Colorado 80439 (US).

(74) Agents: JOHNSON, Brent, P. et al.; SHERIDAN ROSS P.C., 1560 Broadway, Suite 1200, Denver, Colorado 80202-5141 (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).

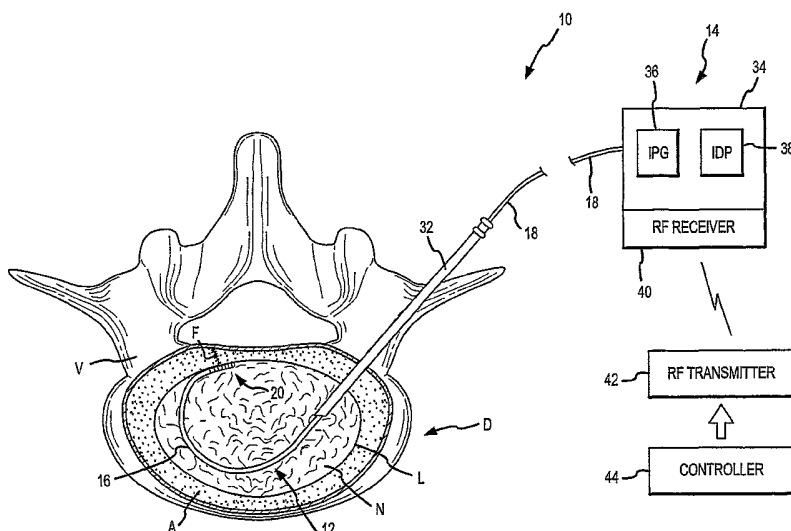
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
21 September 2006

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: COMBINATION ELECTRICAL STIMULATING AND INFUSION MEDICAL DEVICE AND METHOD



(57) Abstract: A combined electrical and chemical stimulation lead is especially adapted for providing treatment to intervertebral discs. The combination lead may be placed proximate to intervertebral disc cellular matrix and nucleus pulposus tissue to promote tissue regeneration and repair, as well as nociceptor and neural tissue modulation. The stimulation lead includes electrodes that may be selectively positioned along various portions of the stimulation lead in order to precisely direct electrical energy to stimulate the target tissue. The lead also includes a central infusion passageway or lumen that communicates with various infusion ports spaced at selected locations along the lead to thereby direct the infusion of nutrients/chemicals to the target tissue. One embodiment utilizes a dissolvable matrix for infusion as opposed to remote delivery through an infusion pump.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/00312

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61N 1/05(2006.01)

USPC: 607/117

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. : 607/117,116,120

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 2004/0243206 A1 (TADLOCK) 2 Dec 2004 (2.12.2004), abstract, figs. 2A-2I, 13A, 15A-19B, 21A-21B, 23A-23B, 25A-25B	1-11, 19, 20, 22-26, 28-30 ----- 21, 27
X --- Y	US 2002/0156512 A1 (BORKAN) 24 Oct 2002 (24.10.2002), abstract, figs. 2, 5-8, 9-14	1-11, 19, 20, 22-26, 28-30 ----- 21, 27
X --- Y	US 5,423,877 A (MACKEY) 13 Jun 1995 (13.06.1995), abstract, fig. 1	1-11, 19, 20, 22-26, 28-30 ----- 21, 27
Y	US 2004/0230273 A1 (CATES et al) 18 Nov 2004 (18.11.2004), abstract, fig. 2A, paragraphs 7-10	21, 27

☐ 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 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

"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

08 May 2006 (08.05.2006)

Date of mailing of the international search report

19 JUL 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

Robert E. Pezzuto

Telephone No. (703) 308-1148

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/00312

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) 1-11 and 19-30, drawn to a combined electrical and chemical stimulation device and method of using it.

Group II, claim(s) 12-18 and 31-41, drawn to a stimulation lead made of a dissolvable matrix material.

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 common technical feature in all groups is a stimulation lead. This element cannot be a special technical feature under PCT Rule 13.2 because the element is old and well known in the art.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/00312

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.: 1-11 and 19-30

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.