

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(10) International Publication Number

WO 2012/158546 A3

(43) International Publication Date
22 November 2012 (22.11.2012)

WIPO | PCT

(51) International Patent Classification:
A61N 1/36 (2006.01) *A61N 1/372* (2006.01)

(21) International Application Number:
PCT/US2012/037601

(22) International Filing Date:
11 May 2012 (11.05.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/486,141 13 May 2011 (13.05.2011) US

(71) Applicant (for all designated States except US): **BOSTON SCIENTIFIC NEUROMODULATION CORPORATION** [US/US]; 25155 Rye Canyon Loop, Valencia, California 91355 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KIM, Chester** [KR/US]; 20822 31st Ave West, Lynnwood, Washington 98036 (US). **LUI, Mun Pook** [MY/US]; 8927 Amigo Ave, Northridge, California 91324 (US). **BRADLEY, Kerry** [US/US]; 3081 Menlo Drive, Glendale, California 91208 (US).

(74) Agent: **BOLAN, Michael, J.**; Vista IP Law Group LLP, 2040 Main Street, Suite 710, Irvine, CA 92614 (US).

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

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(88) Date of publication of the international search report:

28 March 2013

(54) Title: NEUROSTIMULATION SYSTEM WITH ON-EFFECTOR PROGRAMMER CONTROL

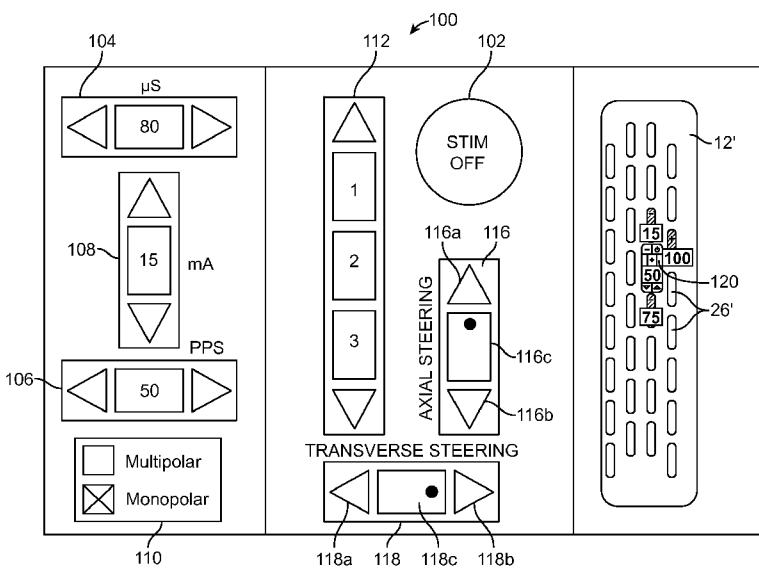


FIG. 8a

(57) Abstract: An external control device for use with a programmable implantable medical device coupled to an operative element. The external control device comprises a user interface comprising a control element and a display screen configured for displaying a graphical representation of the operative element. The external control device further comprises control circuitry configured for prompting the display screen to superimpose a graphical programmer control over the graphical representation of the operative element when the control element is actuated, and modifying an operational parameter for the operative element in response to actuation of the graphical programmer control. The external control device further comprises output circuitry configured for transmitting the modified operational parameter to the programmable implantable medical device.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/037601

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61N1/36 A61N1/372
 ADD.

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)
A61N

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------|
| X | US 2008/163097 A1 (GOETZ STEVEN M [US] ET AL) 3 July 2008 (2008-07-03) paragraphs [0101] - [0102], [0059], [0093]; figures 1,2,9A,9B paragraphs [0060] - [0062], [0092], [0093], [0151], [0074]; figure 7B ----- | 1-19 |
| X | US 7 035 690 B2 (GOETZ STEVEN M [US]) 25 April 2006 (2006-04-25) columns 7-9; figures 4,6 ----- | 1 |
| A | US 2008/183256 A1 (KEACHER JEFFREY T [US]) 31 July 2008 (2008-07-31) the whole document ----- | 1-19 |
| A | US 2007/203546 A1 (STONE RICHARD T [US] ET AL) 30 August 2007 (2007-08-30) the whole document ----- | 1-19 |



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 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 | Date of mailing of the international search report |
| 26 November 2012 | 05/12/2012 |
| Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016 | Authorized officer Monogyiou, Efstratia |

INTERNATIONAL SEARCH REPORT

Information on patent family members

| |
|------------------------------|
| International application No |
| PCT/US2012/037601 |

| Patent document cited in search report | Publication date | Patent family member(s) | | | Publication date |
|--|------------------|--|--|--|--|
| US 2008163097 | A1 03-07-2008 | EP EP US US US WO WO WO | 2101872 A2 2101873 A2 2008154340 A1 2008163097 A1 2008215118 A1 2008070140 A2 2008070142 A2 2008070145 A2 | A2 A2 A1 A1 A1 A2 A2 A2 | 23-09-2009 23-09-2009 26-06-2008 03-07-2008 04-09-2008 12-06-2008 12-06-2008 12-06-2008 |
| US 7035690 | B2 25-04-2006 | AU US US US WO | 2003298618 A1 2004098063 A1 2006155333 A1 2010049280 A1 2004045711 A1 | A1 A1 A1 A1 A1 | 15-06-2004 20-05-2004 13-07-2006 25-02-2010 03-06-2004 |
| US 2008183256 | A1 31-07-2008 | EP US US WO | 2111255 A1 2008183256 A1 2012029597 A1 2008091268 A1 | A1 A1 A1 A1 | 28-10-2009 31-07-2008 02-02-2012 31-07-2008 |
| US 2007203546 | A1 30-08-2007 | AT EP US WO | 552029 T 1993665 A1 2007203546 A1 2007100428 A1 | T A1 A1 A1 | 15-04-2012 26-11-2008 30-08-2007 07-09-2007 |