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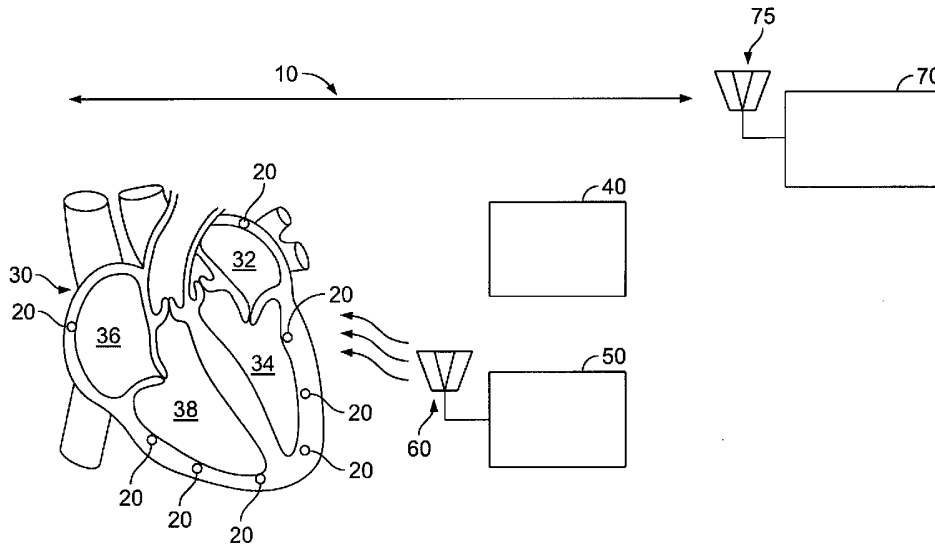
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[Continued on next page]

(54) Title: LEADLESS CARDIAC STIMULATION SYSTEMS



(57) Abstract: Various configurations of systems that employ leadless electrodes to provide pacing therapy are provided. In one example, a system that provides multiple sites for pacing of myocardium of a heart includes wireless pacing electrodes that are implantable at sites proximate the myocardium using a percutaneous, transluminal, catheter delivery system. Each of the electrodes contains a source of electrical energy for pacing the myocardium and is adapted to receive electromagnetic energy from a source outside the myocardium. The system also includes a source adapted for placement outside the myocardium and that uses locally measured electrocardiograms to synchronize pacing of the heart by sending electromagnetic commands to the electrodes to pace the myocardium surrounding the electrodes. Also disclosed is various configurations of such systems, wireless electrode assemblies, and delivery catheters for delivering and implanting the electrode assemblies.

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Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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*

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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/US2005/037978

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61N1/05 A61N1/378 A61N1/372 A61M31/00

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)
A61N A61M

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 6 141 588 A (COX ET AL) 31 October 2000 (2000-10-31) column 3, line 40 - column 20, line 19; figures 1,2,5-7,15,16 -----	1-19, 23-36, 48-67
X	US 5 814 089 A (STOKES ET AL) 29 September 1998 (1998-09-29) column 2, line 7 - column 8, line 33; figures 1,2a,3a -----	1,23,48, 62
X	US 2002/183791 A1 (DENKER STEPHEN ET AL) 5 December 2002 (2002-12-05) paragraphs [0010] - [0012], [0020] - [0030]; figures 1,3-7 -----	1,23,48, 62

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

8 March 2006

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/037978

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.: 37-47, 68-69
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
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.:
1-19, 23-36, 48-67

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

Continuation of Box II.1

Claims Nos.: 37-47,68-69

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery

Claims 37-47 refer to a surgical treatment due to implantation of electrodes into the body of a patient. Such implantation represents a surgical step, whereby the whole method is rendered surgical.

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

Claims 68-69 refer to therapeutic methods of treatment practised on the human or animal body, due to the delivery of electrical energy to body tissue.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-19, 23-36 and 48-67

A wireless electrode assembly and a system comprising such an assembly.

2. claims: 20-22 and 70-74

A catheter and a wireless electrode assembly having a detachable lead.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2005/037978

Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
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