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Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

[Continued on next page]

(54) Title: CARDIAC ABLATION IMAGE ANALYSIS SYSTEM AND PROCESS

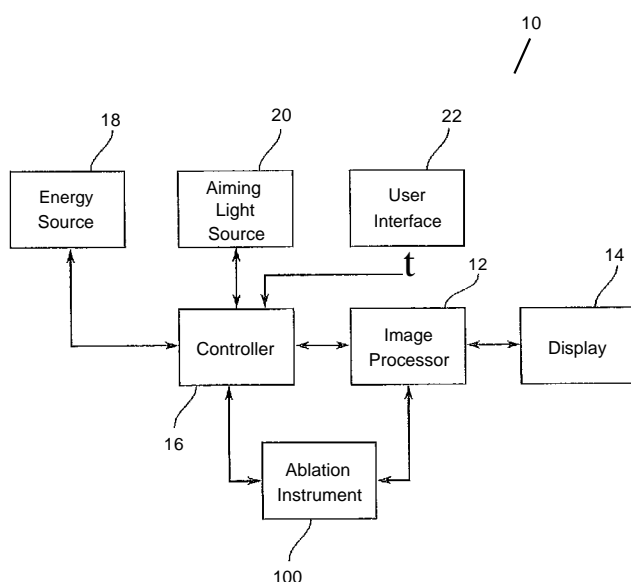


Fig. 1

(57) Abstract: A system is provided for identifying the sufficiency of lesions formed during a tissue ablation procedure. The system captures live and still images from the surgical site and provides composite imaging to the operator. Through the use of the system, the aiming light used to direct ablative energy is captured on the still images and used to indicate locations in a surgical site where energy has been directed. Through the use of processing modules, the system can analyze the lesions and determine the sufficiency thereof.

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

18 August 2011

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/051648**A. CLASSIFICATION OF SUBJECT MATTER****A61B 18/18(2006.01)i, A61B 18/24(2006.01)1, A61B 17/94(2006.01)1, A61B 1/04(2006.01)1, A61B 19/00(2006.01)i**

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 18/18; A61B 18/04; A61B; A61B 1/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords:tissue ablation, energy emitter, controller, aiming light, display; image analysis

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2004-110258 A2 (CARDIOFOCUS, INC.) 23 December 2004 See abstract, column 25, lines 1-25, and fig. 6.	1-12
A	US 2008-0039746 A1 (JAMES B. HISSONG et al.) 14 February 2008 See abstract, paras. 106, 121, 188-196, and figs. 11, 16, 23.	1-12
A	US 2009-0221997 A1 (JEFFREY M. ARNOLD et al.) 03 September 2009 See abstract, paras. 67-74, 78-86, and figs. 1-16.	1-12
PA	US 2009-0326320 A1 (SINOFSKY EDWARD L. et al.) 31 December 2009 See abstract, paras. 39-42, 71-75, and figs. 1, 10.	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

"E" earlier application or patent but published on or after the international filing date

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"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

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2010/051648

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.: 13-15
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 13-15 pertain to methods for treatment of the human body by diagnostic method, and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.
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:

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.:

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

Information on patent family members

International application No.

PCT/US20 10/05 1648

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		wo 2010-12088 1 A3	21 . 10 . 2010