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(54) Title: MEDICAL DEVICE INCLUDING SCANNED BEAM UNIT WITH OPERATIONAL CONTROL FEATURES

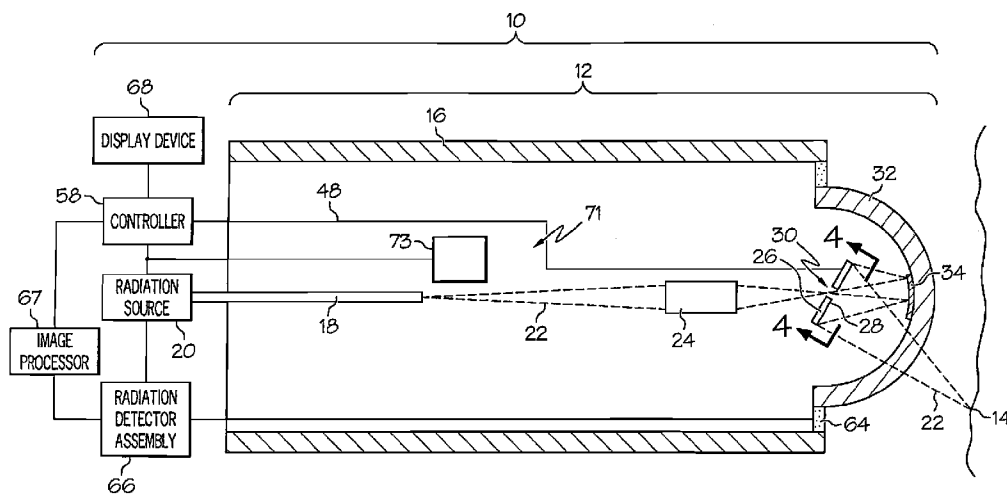


FIG. 1

(57) Abstract: A method of controlling a medical device is provided. The method includes generating a beam of radiation using a radiation source assembly. The beam of radiation is directed toward a distal end of the medical device using an optical fiber. The beam of radiation is directed onto an area of interest by scanning the reflector in a scanning pattern, the reflector receiving the beam of radiation from the optical fiber. Radiation is collected from the area of interest using a collector to generate a signal for use in producing a viewable image. A loss of scan condition of the reflector is detected automatically by a control system.

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**INTERNATIONAL SEARCH REPORT**

International application No  
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**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. A61B1/045 G02B23/24

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 G02B

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                   | Relevant to claim No.   |
|-----------|--|-------------------------|
| X<br>A    | US 2005/020877 A1 (ISHIHARA YASUSHIGE [JP] ET AL) 27 January 2005 (2005-01-27)<br>the whole document | 1-14,<br>20-24<br>15-19 |
| X         | US 2007/197874 A1 (ISHIHARA YASUSHIGE [JP]) 23 August 2007 (2007-08-23)<br>the whole document        | 20-23                   |
| A         | US 5 768 461 A (SVETKOFF DONALD J [US] ET AL) 16 June 1998 (1998-06-16)<br>the whole document        | 1                       |
| A         | US 5 436 655 A (HIYAMA KEIICHI [JP] ET AL) 25 July 1995 (1995-07-25)<br>the whole document           | 1                       |
|           | -/--   |                         |

Further documents are listed in the continuation of Box C.       See patent family annex.

\* Special categories of cited documents :

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|---|---|
| *A* document defining the general state of the art which is not considered to be of particular relevance  | *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   |
| *E* earlier document but published on or after the international filing date  | *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  |
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| *O* document referring to an oral disclosure, use, exhibition or other means  | *&* document member of the same patent family   |
| *P* document published prior to the international filing date but later than the priority date claimed  |   |

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| Date of the actual completion of the international search<br><b>17 December 2008</b> | Date of mailing of the international search report<br><b>24/04/2009</b> |
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| Name and mailing address of the ISA/<br>European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040.<br>Fax: (+31-70) 340-3016 | Authorized officer<br><b>Anscombe, Marcel</b> |
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## INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                | Relevant to claim No. |
|-----------|---|-----------------------|
| A         | EP 1 797 813 A (SIEMENS AG [DE])<br>20 June 2007 (2007-06-20)<br>figure 6<br>-----                | 1                     |
| A         | EP 1 747 751 A (FUJINON CORP [JP])<br>31 January 2007 (2007-01-31)<br>the whole document<br>----- | 1                     |

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2008/074275

## 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:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of 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.:

see annex

### 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.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

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

1. claims: 1-24

directed to a medical device control method and medical devices with adaptations suitable for detecting a scanning condition.

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2. claims: 25-27

medical device with detection of insertion or retraction.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

|   |
|---|
| International application No<br>PCT/US2008/074275 |
|---|

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