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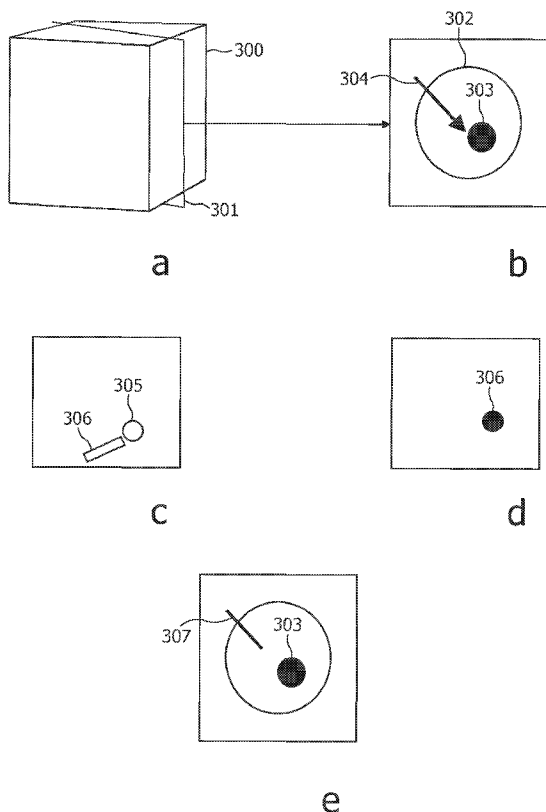
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[Continued on next page]

(54) Title: TARGETING METHOD, TARGETING DEVICE, COMPUTER READABLE MEDIUM AND PROGRAM ELEMENT



(57) Abstract: According to an exemplary embodiment a targeting method for targeting a first object from an entry point to a target point in an object (110) under examination is provided, wherein the method comprises selecting a two-dimensional image (301) of the object under examination depicting the entry point (305) and the target point (303) and determining a planned path (304) from the entry point to the target point, wherein the planned path has a first direction. Furthermore, the method comprises recording data representing a fluoroscopic image of the object under examination, wherein the fluoroscopic image is recorded under a second direction so that a normal of the image coincide with the first direction and determining whether the first object is on the determined planned path based on shape and/or position of the projection of the first object in the fluoroscopic image.

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FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
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A. CLASSIFICATION OF SUBJECT MATTER INV. A61B17/34				
According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
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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.		
Y	US 4 485 815 A (AMPLATZ KURT [US] ET AL) 4 December 1984 (1984-12-04) column 4, lines 6-8, 14, 17, 21, 22, 46-53, 64, 65; figures 1, 2	2-21		
Y	EP 1 103 229 A (MARCONI MEDICAL SSTEMS FINLAN [FI] MARCONI MEDICAL SYTEMS FINLAND [FI] 30 May 2001 (2001-05-30) paragraphs [0017], [0021] - [0024], [0027], [0029] - [0041], [0043]; figures 1, 3, 4	2-21		
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.				
<input checked="" type="checkbox"/> See patent family annex.				
* Special categories of cited documents :				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> *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 </td> <td style="width: 50%; border: none; vertical-align: top;"> *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 </td> </tr> </table>			*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
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 <p style="text-align: center; font-size: 1.2em;">7 May 2008</p>		Date of mailing of the international search report <p style="text-align: center; font-size: 1.2em;">16/05/2008</p>		
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer <p style="text-align: center; font-size: 1.2em;">Visser, Rogier</p>		

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2007/050890

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	NOUMEIR R: "Fitting of ellipses from support function measurements" ACOUSTICS, SPEECH, AND SIGNAL PROCESSING, 2000. ICASSP '00. PROCEEDING S. 2000 IEEE INTERNATIONAL CONFERENCE ON 5-9 JUNE 2000, PISCATAWAY, NJ, USA, IEEE, vol. 6, 5 June 2000 (2000-06-05), pages 2294-2297, XP010504761 ISBN: 978-0-7803-6293-2 page 2294, column 1, paragraph 2; figures 1,2	2-21
A	----- EP 0 930 046 A (PICKER INT INC [US]) 21 July 1999 (1999-07-21) paragraphs [0023], [0024]	2,9,12
A	----- US 2003/097060 A1 (YANOF JEFFREY HAROLD [US] ET AL) 22 May 2003 (2003-05-22) paragraphs [0028], [0039]	17,20,21
A	----- US 2006/036264 A1 (SELOVER SEAN [US] ET AL) 16 February 2006 (2006-02-16) paragraphs [0044], [0058]	14
A	----- US 5 810 841 A (MCNEIRNEY JOHN C [US] ET AL) 22 September 1998 (1998-09-22) column 5, lines 20,25; figure 1	15
A	----- US 5 212 720 A (LANDI MICHAEL K [US] ET AL) 18 May 1993 (1993-05-18) figure 4	15
A	----- US 6 363 134 B1 (SUZUKI TATSURO [JP]) 26 March 2002 (2002-03-26) figures 28,35	7

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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.: ¹
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 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 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.:

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

Continuation of Box II.1

Claims Nos.: 1

1.1. Claims 1-16. The method claim 1 involves "targeting a first object from an entry point to a target point in an object under examination", which in view of the invention relating to clinical procedures such as needle insertion into a human body (cf. page 1 line 14, page 12 line 31, page 14 line 8 and Fig. 1) is to be understood as "targeting a surgical instrument from an entry point on the human body into that body, to a target point in that body". Such targeting procedure can not be seen as separate from the actual physical insertion of the instrument into the body: without such insertion, there is no proceeding in the targeting procedure.

Therefore, claims 1-16 define a method for treatment of the human or animal body by surgery or therapy and/or a diagnostic method practised on the human or animal body (PCT Rule 67.1(iv)), and no opinion will be established with regard to novelty, inventive step and industrial applicability of the subject-matter of these claims (PCT Art. 34(4)(a)(i)).

For reasons of expedition, however, claims 2-16 are addressed in this search report, because these claims may by amendment be made dependent of one of the other present independent claims.

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2007/050890

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