



(51) International Patent Classification:

G01R 33/28 (2006.01) A61B 10/00 (2006.01)
G01R 33/34 (2006.01)

(21) International Application Number:

PCT/IB20 12/054432

(22) International Filing Date:

29 August 2012 (29.08.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/536,175 19 September 2011 (19.09.2011) US

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(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, BN, 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).

[Continued on nextpage]

(54) Title: INTEGRATED MR IMAGING AND INTERVENTIONAL COIL DEVICE, METHOD AND SYSTEM

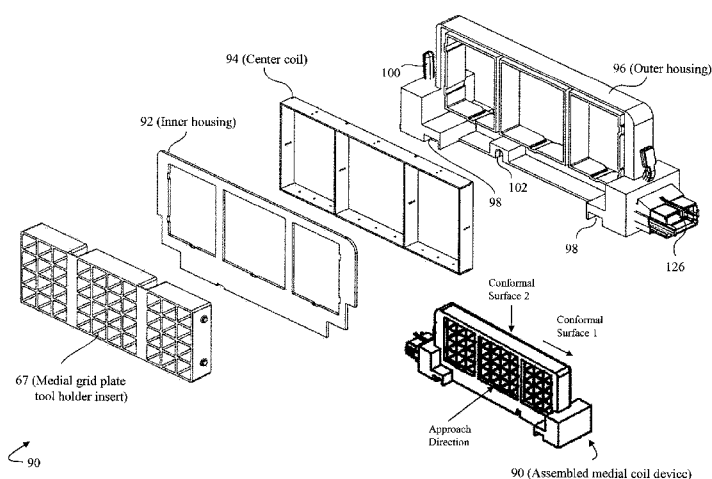


Figure 4

(57) Abstract: MR imaging and intervention functions are localized within a single device. At least one integrated coil device (62,63,64,90) which has at least one RF coil (72,94,112,118), a housing (70,74,92,96,110,114) which encases the RF coil and provides an anatomically conformal surface, and a plurality of apertures. The integrated coil device slides along a guide rail system (66) to adjust the size of a patient anatomical imaging region (60). The apertures in the integrated coil device are available to secure tool holder grid plate inserts (67,116,130,131) or other interventional device guides. The inserts assist in holding the soft tissue for diagnostic imaging and provide support for biopsy/interventional instrument guides (140). The integrated MR imaging and interventional coil device works in combination with a prone patient support structure (20), an adaptive torso sling (55), and also features an open architecture design for improved patient access. The device also works for supine or side imaging procedures.



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

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/054432

A. CLASSIFICATION OF SUBJECT MATTER INV. G01R33/28 G01R33/34 A61B10/00 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) G01R A61B		
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 , BIOSIS, COMPENDEX, EMBASE, INSPEC, IBM-TDB, 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 2005/080333 AI (PI RON CAMERON ANTHONY [CA] ET AL) 14 April 2005 (2005-04-14)	1-7 , 10-15 , 17-20
Y	paragraph [0007] - paragraph [0124] figures 1a-2d, 5a-10b, 13a-25 -----	16
X	US 5 855 554 A (SCHNEIDER ERIKA [US] ET AL) 5 January 1999 (1999-01-05)	1-7 , 10-15 , 17-20
Y	the whole document -----	16
X	US 2001/039378 AI (LAMPMAN DAVID A [US] ET AL) 8 November 2001 (2001-11-08)	1-7 , 10-15 , 17-20
Y	the whole document ----- -/-- -	16
☒ 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 7 January 2013	Date of mailing of the international search report 26/03/2013	
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 Streit f, Jbrg Ulrich	

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/054432

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/099978 A1 (GEPPERT CHRISTIAN [DE] ET AL) 22 April 2010 (2010-04-22) paragraph [0036] - paragraph [0062] figures 3, 13 -----	17-20
X	US 5 678 549 A (HEYWANG-KOEBRUNNER SYLVIA [DE] ET AL) 21 October 1997 (1997-10-21) the whole document -----	17-20

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2012/054432

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005080333	A1	14-04-2005	AU 2004216658 A1 14-04-2005
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2012/054432

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 all searchable 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. :
1-7 , 10-20

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: 1-7, 10-20

An integrated MR imaging and interventional system and a method for immobilizing a patient during a combined MR imaging and intervention, respectively.

2. claims: 8, 9

An integrated MR imaging and interventional system comprising a non-ferromagnetic lighting system which illuminates an anatomical region.
