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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))

[Continued on next page]

(54) Title: SENSOR ATTACHMENT FOR THREE DIMENSIONAL MAPPING DISPLAY SYSTEMS FOR DIAGNOSTIC ULTRASOUND MACHINES

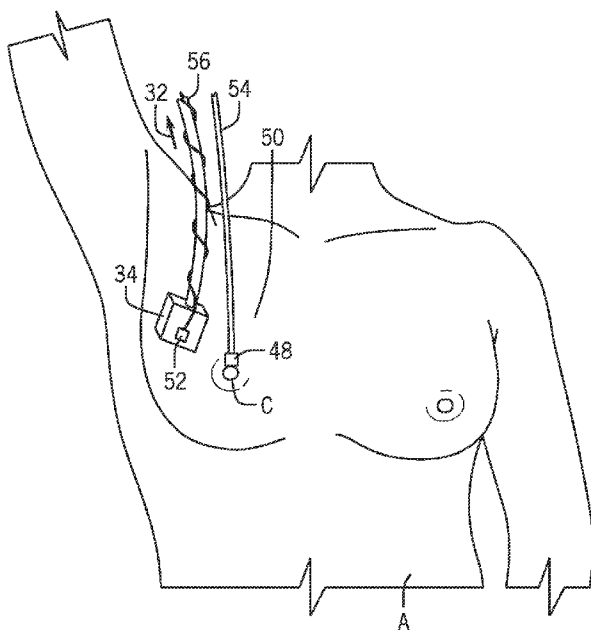


FIG. 5

(57) Abstract: A sensor attachment for use with three dimensional ultrasound mapping devices is presented. According to the invention, one or more sensors are attached to specific locations on the body, such as the nipple and sternum, the inventive sensor attachments enabling accurate recording of target information, including location and size; the present invention especially helpful in subsequent and comparative examinations. A method of use is also presented.





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- *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))*

INTERNATIONAL SEARCH REPORT

14/000043 07.11.2014
International application No.

PCT/US14/30643

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 8/00, 8/08 (2014.01)

USPC - 600/437, 443, 547; 604/74

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)

IPC(8): A61B 8/00, 8/08 (2014.01)

USPC: 600/437, 443, 547; 604/74; CPC: A61B 8/08, 8/0825

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)

MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); ESpacenet; Google/Google Scholar; IP.com; PubMed/MEDLINE: nipple*, areola*, breast*, cup*, cone*, probe*, sensor*

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/0171236 A1 (DAVIES, RJ) July 2, 2009; figure 4; paragraph [0201]	1-4, 6
A	WO 2003/103500 A1 (DUCK, F et al) December 18, 2003; entire document	1-4, 6

 Further documents are listed in the continuation of Box C.

* 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

11 September 2014 (11.09.2014)

Date of mailing of the international search report

07 NOV 2014

Name and mailing address of the ISA/US

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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.:
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:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-4 and 6 are directed toward a system for a wired position sensor.

Group II: Claim 5 is directed toward an attachment system for a wireless position sensor.

Group III: Claims 7-10 are directed toward an attachment system for a wired body position tracking sensor fit the sternal notch or xiphoid process.

Group IV: Claims 11-14 are directed toward a method to calculate the patient's body planes.

-***-Please see Supplemental Page-***-

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 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.:
1-4, 6

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.

-***-Continued from Box No. III: Observations where unity of invention is lacking-***-

The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical features of Group I include a protruding member attached to the attachment member, and a position sensor wire attached to the attachment member or the protrusion component, which are not present in Groups II-IV; the special technical features of Group II include a wireless position sensor attached to the attachment member, which are not present in Groups I and III-IV; the special technical features of Group III include an attachment system for a wired body position tracking sensor comprising an elongated component with a curved end configured to fit the sternal notch or xiphoid process, which are not present in Groups I-II and IV; the special technical features of Group IV include a method to calculate the patient's body planes comprising the steps of: attaching a sternum attachment system with attached sensor and data output to the sternum; measuring the position of a posterior body landmark; and calculating a reference plane, which are not present in Groups I-III.

The common technical features of Groups I-IV are an attachment system for a position sensor.

These common technical features are disclosed by US 6,419,636 B1 to Young, et al. (hereinafter 'Young'). Young discloses an attachment system for a position sensor (system for thermometry-based breast assessment with electronic sensor and adjustable mechanical harness; abstract).

Since the common technical features are previously disclosed by the Young reference, the common features are not special and so Groups I-IV lack unity.

The additional common technical features of Groups I and II are an attachment member configured for attachment to the areola or nipple skin.

These common technical features are disclosed by the Young reference. Young discloses an attachment member configured for attachment to the areola or nipple skin (harness means attaches to areolar area of breasts; claim 1).

Since the common technical features are previously disclosed by the Young reference, the common features are not special and so Groups I and II lack unity.