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**Datasheet for the decision
of 20 December 2006**

Case Number: T 0454/05 - 3.2.02

Application Number: 99108026.8

Publication Number: 0931516

IPC: A61B 19/00

Language of the proceedings: EN

Title of invention:

Surgical probe locating system for head use

Applicant:

ST. LOUIS UNIVERSITY

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 76(1)

Keyword:

"Extension of subject-matter (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0454/05 - 3.2.02

D E C I S I O N
of the Technical Board of Appeal 3.2.02
of 20 December 2006

Appellant:

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Representative:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 8 November 2004
refusing European application No. 99108026.8
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: T. Kriner
Members: S. Chowdhury
M. Vogel

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division dated 8 November 2004 to refuse European patent application No. 99 108 026.8.

The ground of refusal was that the subject-matter of claims 1 to 14 of the claims then on file extended beyond the content of the earlier application as filed (WO-A-92/06645), contrary to the requirement of Article 76(1) EPC.

- II. On 17 December 2004 the appellant (applicant) lodged an appeal against the decision and paid the prescribed fee on the same day. On 8 March 2005 a statement of grounds of appeal was filed.

The appellant requests that the decision under appeal be set aside and that the application be remitted to the first instance to resume examination thereof on the basis of the main request, comprising claims 1 to 14, or on the basis of the auxiliary request, comprising claims 1 to 14, both submitted with the grounds of appeal.

- III. Independent claim 1 of the main request reads as follows:

"A system for use with a first scan image set and an ultrasound imaging probe configured to scan a subject, the system comprising:
memory (320) including the first scan image set (FIG. 5C) of the subject;

said ultrasound imaging probe (500) configured to scan the subject and provide a second scan image (FIG. 5B) of the subject;

means (502) for sending a signal representing a position of the subject;

means (370) for sending a signal representing a position of the ultrasound imaging probe (500);

an array of receivers (300) in communication with the subject position signalling means and the imaging probe position signalling means;

a computer (314) in communication with the array,

wherein

- (i) the computer (314) is configured to determine the position of the subject relative to the array (300);
- (ii) the computer (314) is configured to determine the position of the ultrasound imaging probe (500) relative to the array (300);
- (iii) the computer (314) is configured to determine the position of the ultrasound imaging probe (500) relative to the subject; and
- (iv) the computer (314) is configured to determine a first scan image (FIG 5C) corresponding to the first scan image set (FIG 5C) which first scan image (FIG 5C) corresponds to the second scan image (FIG 5B); and

a display (326) in communication with the computer (314), said display (326) configured to display the first scan image (FIG 5C) and the second scan image (FIG 5B), which images correspond to the position of the ultrasound imaging probe (500) relative to the subject".

Claims 2 to 14 are dependent claims.

The claims of the auxiliary request differ from those of the main request in that "subject" is replaced by "object".

Reasons for the Decision

1. The appeal is admissible.
2. Although the impugned decision states that claims 1 to 14 extend beyond the content of the earlier application as filed, the examining division submitted arguments only in respect of claim 1, so that only this claim will be the subject-matter of the appeal.
3. *Article 76(1) EPC, main request*
 - 3.1 As the examining division correctly recognised, claim 1 of the present application is based on claim 35 of WO 92/06645, the parent application. This claim has been amended by way of broadening of its scope in one respect and by the addition of new features which narrow the scope of the claim. These amendments are discussed, respectively, in points 4 and 5 below.
4. The scope of claim 35 has been broadened in that, whereas the original claims of the parent application refer to scanning a head, the new claims refer to scanning a subject.

The parent application is an International application (WO-A-92/06645), whose layout is governed by the PCT. The heading "Summary of the Invention" on page 1 of the parent PCT application defines the broadest aspect of

the invention, and this section is followed by a description of specific features. It is the whole of the statement under this heading that is to be considered as the broadest definition of the invention, and it supports present claim 1.

The first paragraph on page 2 of WO-A-92/06645 clearly supports the view that the parent application envisaged the use of the invention of claim 1 of that application on objects other than the head of a person. Since there is a link between this invention and that of claim 35 of the parent application (see point 5.1 below), it is clear that the invention of claim 35 was also meant for more general application. Moreover, the person skilled in the art would also readily appreciate that the ultrasound imaging probe is applicable to objects other than the head.

In the context "subject" and "object" are synonymous. Therefore, the generalisation of "head" in original claim 35 to "subject" in claim 1 of the present application is permissible.

- 5. Support for new claim 1 in the original parent application
- 5.1 The parent application relates to a system for determining a position of a tip of a probe, which is positioned within an object, relative to cross sectional images of the object, and comprises measuring means which measures the position of the tip of the probe relative to the object, translating means which translates the position of the tip of the probe relative to the object into a coordinate system

corresponding to the cross sectional images of the object, and selecting and displaying means which selects the image of the object which corresponds to the measured position of the tip of the probe relative to the object and displays the selected image.

An embodiment is described with reference to Figures 1 to 4 in which a combination of a microphone array and emitters is used to determine the position of a probe and of the patient's head, and a computer which includes translational software translates the coordinates of surgical probe coordinate system and determines the particular scanned image of a preoperative scan on which the tip of the surgical probe would be located. Images of the preoperative scan are stored on a tape drive, and the image of the head which corresponds to the measured position of the tip of the surgical probe relative to the head is selected and displayed. This embodiment is covered by original claims 1, 21, and 22.

Another embodiment is described on page 25, line 10 onwards, with reference to Figures 5A and 5B, which employs an ultrasound imaging probe 500. This probe is used with the microphone array described with reference to Figures 1 to 4, as indicated by the use of the reference numerals 300, 310, etc. in the latter embodiment, and the passage on page 25, lines 27 to 30. This embodiment displays a first scan image (FIG 5C) and a second scan image (FIG 5B), which images correspond to the position of the ultrasound imaging probe (500) relative to the subject, and is covered by original claim 35.

This embodiment comprises (cf. the wording of claim 1 of the present application) a system for use with a first scan image set (page 25, line 33 to page 26, line 2) and an ultrasound imaging probe configured to scan a subject, which image set is stored in a memory (page 12, lines 24 to 26), the ultrasound imaging probe being configured to scan the subject and provide a second scan image (page 25, lines 20 to 24 and FIG 5B) of the subject. Emitters 370 and 502 are provided for sending signals representing the positions of the subject and the ultrasound imaging probe, respectively, and an array of receivers 300 in communication with the emitters communicates with a computer 314. The latter is configured to determine the positions of the subject and the ultrasound imaging probe relative to the array 300 (page 25, lines 13 to 20 and 24 to 30, together with page 11, lines 21 to 24 and page 12, lines 1 to 4), and then the position of probe relative to the subject (page 12, lines 9 to 12). The computer also determines a first scan image of the first scan image set (FIG 5C) which corresponds to the second scan image (FIG 5B), and a display 326 displays the first scan image (FIG 5C) and the second scan image (FIG 5B), which images correspond to the position of the ultrasound imaging probe relative to the subject (Figures 5A and 5B).

5.2 The original parent application does not explicitly refer to an array of receivers or to a memory for storing the scan images, but claim 1 is allowable in these respects for the following reasons:

(i) Although a microphone receiver array is described in the particular embodiments, claim 1 defines an array of receivers. It is clear, however, that other arrays

and corresponding emitters may be used to track the probe and the head. The generalisation is justified by the passages on page 3, lines 4 to 12 and page 10, lines 5 to 7.

(ii) According to the description on page 12, line 24 the scan images are stored on a tape drive 320. However, prior to that the images would have been stored in the memory of the computer 314, so that the generalisation to "memory" in claim 1 is also justified.

- 5.3 Therefore, all the features of new claim 1 are to be found in the passages of the original parent application cited above, so that new claim 1 reads onto the second embodiment and is consequently properly supported by it.
6. For the above reasons claim 1 meets the requirements of Article 76(1) EPC.
7. The decision under appeal is based solely on Article 76(1) EPC. Therefore, the Board considers it appropriate pursuant to Article 111(1) EPC to remit the case to the examining division for further prosecution.

Order

For these reasons it is decided that:

The case is remitted to the department of the first instance with the order to resume the examination on the basis of claims 1 to 14 of the main request filed with the grounds of appeal on 8 March 2005.

The Registrar

The Chairman

V. Commare

T. K. H. Kriner