UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte ARIANNE VAN MUISWINKEL and JOHAN VAN DEN BRINK

Appeal 2008-4211
Application 10/150,136
Technology Center 3700

Decided: October 10, 2008

Before TONI M. SCHEINER, DONALD E. ADAMS, and JEFFREY N. FREDMAN, *Administrative Patent Judges*.

FREDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a method for determining scan parameters for a current scan volume which the Examiner has rejected as anticipated. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

Background

"In medical imaging, such as magnetic resonance imaging (MRI) or computer tomography (CT), an image of a section or slice of a region of interest of a patient is reconstructed from the magnetic resonance signals (MRI) or the X-ray beam projections (CT)" (Spec. 1). The Specification notes that "[b]ecause of the variability in the selection of the most appropriate angulation and off-center parameters of the imaging planes it is a difficult task to achieve good reproducibility for scans of the same patient which are repeated at different examination sessions at different times" (Spec. 1).

Appellants teach "an improved technique for the prescription of scanning parameters for tomographic imaging" (Spec. 3).

Statement of the Case

The Claims

Claims 9-15 and 21-25 are on appeal. We will focus on claim 9, which is representative and reads as follows:

> 9. A method for determining scan parameters of a scanner for a current scan volumetric image such that the current scan volumetric image will match a prior scan volumetric image, the method comprising:
>
> generating a current reference scan image of a subject;
>
> retrieving a prior scan volumetric image of said subject and corresponding scan parameters of the scanner used to generate the prior scan volumetric image from memory;
>
> comparing the current reference scan image with the prior scan volumetric image to determine orientational and positional differences therebetween;

modifying the retrieved prior scan parameters of the scanner in accordance with the determined orientational and positional differences;

conducting a diagnostic imaging scan of the subject using the modified scan parameters of the scanner to generate the current scan volumetric image that is matched with the prior scan volume images.

The prior art

The Examiner relies on the following prior art reference to show unpatentability:

Xu et al. US 6,363,163 B1 Mar. 26, 2002

The issues

The rejection as presented by the Examiner is as follows:

Claims 9-15 and 21-25 stand rejected under 35 U.S.C. § 102(e) as anticipated by Xu (Ans. 3).

35 U.S.C. § 102(e) anticipation rejection over Xu

The Examiner argues that the "Xu reference teaches an iterative matching of the two sets of images where the scanner has the capability of image reconstructing based on a number of input parameters" (Ans. 4). The Examiner further contends that the "current application does not explicitly claim the step of generating a separate third scan. The step of 'conducting a scan using the modified parameters' does not distinguish the application claims from the Xu reference, which clearly teaches the steps of iterative matching and the image reconstruction process" (Ans. 4).

Appellants argue that "[o]nce the patient has been scanned using the Xu procedure, the patient leaves the scanner and the scanner is used to scan

a new patient" (App. Br. 11). Appellants contend that "[b]y contrast, while using the technique of the present application, the patient must remain in the scanner after the patient is scanned and a first current image, particularly a reference or survey image, is generated" (App. Br. 11). Appellants argue that "[**c**]**laim 9** emphasizes these distinctions over Xu by referencing three images produced by three different scans: a prior scan image . . . a current reference scan image . . . and a current scan volumetric image" (App. Br. 12).

In view of these conflicting positions, we frame the anticipation issue before us as follows:

Does the disclosure of Xu teach a diagnostic method for determining scan parameters which includes "conducting a diagnostic imaging scan of the subject using the modified scan parameters of the scanner"?

Findings of Fact

1. Xu teaches a method "related to temporal analysis of medical images and, in particular, to the analysis of computed tomographic images using automated temporal subtraction" (Xu, col. 1, ll. 37-40).

2. Xu teaches that "First (step **10**) and second (step **11**) three-dimensional images of a patient are obtained. The first and second images typically correspond to current and previous images of the same subject. The first and second images may also be two previous images of the same subject" (Xu, col. 4, ll. 58-62).

3. Xu teaches that the "images may be obtained directly from a scanner or may be obtained from a storage device. Typically the previous

section images are from an earlier scan and have been stored" (Xu, col. 5, ll. 8-11).

4. Xu teaches that "[o]nce the portions of the images that contain the anatomic feature are identified, the correspondence between the first and second images is determined" (Xu, col. 6, ll. 27-29).

5. Xu teaches that "[a]fter the establishment of the one-to-one section correspondence in the current and previous images . . . the initial registration of the paired section images is performed. . . . The initial registration of the corresponding section images in the two scans included two steps: a rotation correction and the determination of vertical and horizontal shifts of the previous section image relative to the current section image" (Xu, col. 7, ll. 34-44).

6. Xu teaches that the "input parameters may be adjusted to produce a better match of the current and previous images" (Xu, col. 10, ll. 1-2).

Discussion of 35 U.S.C. § 102(e) anticipation rejection over Xu

While Xu teaches obtaining reference scans and comparing a reference scan with a current scan (FF 1-6), we agree with Appellants that Xu fails to anticipate claim 9 because Xu does not teach the final step of "conducting a diagnostic imaging scan of the subject using the modified scan parameters of the scanner to generate the current scan volumetric image that is matched with the prior scan volume images" (Claim 9). In order to anticipate, the prior art must teach all of the limitations of the claim. *See In re Omeprazole Patent Litigation*, 483 F.3d 1364, 1371 (Fed. Cir. 2007).

("Anticipation requires disclosure of each and every claim limitation in a single prior art reference, either explicitly or inherently.")

We are not persuaded by the Examiner's argument that the "reconstruction step is based on the modified parameters to generate newly reconstructed images (col. 9 lines 65-67, col. 10 lines 1-3) and this adequately meets the claimed subject matter of conducting a scan using modified parameters to generate a new image" (Ans. 4). The portion of Xu cited by the Examiner refers to reconstructing the images, not "conducting a diagnostic imaging scan of the subject using modified scan parameters" as required by claim 9. In fact, Xu does not modify the parameters on the scanner prior to the scan, as in claim 9, instead, Xu matches already scanned images (*see* Xu, col. 8, ll. 10-34).

We are also not persuaded by the Examiner's argument that "Xu further teaches repeating the method with the newly reconstructed images" (Ans. 5). Xu taught repetition so that the "input parameters may be adjusted to produce a better match of the current and previous images" (Xu, col. 10, ll. 2-3). Xu did not teach repetition in order to "conduct[] a diagnostic imaging scan of the subject using the modified scan parameters" (claim 9).

We therefore reverse the 35 U.S.C. § 102(e) anticipation rejection of claims 9-15 and 21-25 as anticipated by Xu.

CONCLUSION

In summary, we reverse the 35 U.S.C. § 102(e) anticipation rejection of claims 9-15 and 21-25 as anticipated by Xu.

REVERSED

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
595 MINER ROAD
CLEVELAND OH 44143