UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM MACOMBER LEUE and DEBORAH JOY WALTER

Appeal 2008-2204
Application 10/779,084
Technology Center 2800

Decided: August 12, 2008

Before EDWARD C. KIMLIN, ROMULO H. DELMENDO, and KAREN M. HASTINGS, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from a final rejection of all pending claims (claims 1-40). (Final Office Action entered September 28, 2006). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Appellants' invention relates to a system for detecting contraband hidden within articles such as luggage or mail parcels. (Spec. ¶ 0001). The system includes an acquisition subsystem having a computer tomography (CT) scanner to identify regions of interest within the articles and an alternate modality subsystem to analyze the regions of interest. (*Id.* ¶ 0008).

Representative claim 1 reads as follows:

> 1. A system for detecting a contraband object within an article, comprising:
>
> an acquisition subsystem including a three-dimensional computed tomography scanner that produces volumetric data;
>
> a reconstruction subsystem adapted to identify and distinguish regions of interest from regions of no interest within an article; and
>
> an alternate modality subsystem adapted to then analyze the regions of interest to identify a contraband object.

The prior art references relied upon by the Examiner to reject the claims on appeal are:

Peschmann	U.S. 5,367,552	Nov. 22, 1994
Husseiny	U.S. 5,600,303	Feb. 4, 1997
Krug	U.S. 5,642,393	Jun. 24, 1997
Gregerson	U.S. 2004/10013225 A1	Jan. 22, 2004
Grady	U.S. 6,789,941 B1	Sep. 14, 2004
Bijjani	U.S. 6,816,571 B2	Nov. 9, 2004
Ellenbogen	U.S. 2004/10258 199 A1	Dec. 23, 2004

The following rejections are before us for review:

Claims 1-3, 8-10, 14, 15, 20-22, 24-27, 29, 30, 33, 35, and 37-39 are rejected under 35 U.S.C. § 102(e) as anticipated by Ellenbogen.

Claims 4, 16, 28, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable in view of Ellenbogen and Krug.

Claims 5, 6, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable in view of Ellenbogen and Gregerson.

Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable in view of Ellenbogen, Gregerson, and Grady.

Claims 11, 12, 23, 31, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable in view of Ellenbogen and Husseiny.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable in view of Ellenbogen, Husseiny, and Peschmann.

Claims 32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable in view of Ellenbogen and Bijjani.

ISSUES[1]

Have Appellants shown reversible error in the Examiner's finding that Ellenbogen anticipates the subject matter of claims 1-3, 8-10, 14, 15, 20-22, 24-27, 29, 30, 33, 35, and 37-39?

Have Appellants shown the Examiner reversibly erred in determining claims 4-7, 11-13, 16-19, 23, 28, 31, 32, 34, 36, and 40 would have been obvious to one of ordinary skill in the art over the applied prior art?

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[1] Appellants also request entry of after final amendments (submitted December 1, 2006), and note that they consider the Final Office Action improper. (App. Br. 2, ll. 19-24). These issues are not appealable, but petitionable; therefore, they are outside the scope of review of the Board of Patent Appeals and Interferences. The review of these issues should have been requested by petition to the appropriate deciding authority in a timely manner. 37 C.F.R. § 1.181 (2006).

FINDINGS OF FACT

1. Appellants' Specification does not provide a definition for an "alternate modality subsystem." (Spec. ¶¶ 0001-0026).
2. The claimed "alternate modality subsystem" encompasses CT subsystems as well as non-CT subsystems; Appellants' Specification does not describe "alternate modality subsystems" as *non-CT systems*. (Spec. ¶¶ 0001-0026).
3. A person having ordinary skill in the art would have understood from reading the Specification that an "alternate modality subsystem" includes a subsystem that operates by an alternate (i.e., different) modality (i.e., mode or manner) subsystem relative to the initial CT scanner of the acquisition subsystem.
4. Ellenbogen discloses a CT detection system where "baggage is scanned by [an] initial CT scan according to any known methods or processes," and if a potential threat is suspected, the baggage is transferred to a second CT scan where "[a]dditional information from the secondary CT scan is used to determine whether a threat exists." (¶ 0012).
5. Ellenbogen describes a subsystem where "the [sub]system uses a secondary CT scan with different operating properties to further analyze objects which cannot be resolved by an initial CT scan." (¶ 0044).
6. Ellenbogen states that the second CT scan is performed by a high energy CT scanner or a high resolution CT scanner (*Id.* ¶ 0030).
7. Because the first and second CT subsystems, disclosed by Ellenbogen, work by different principles, a person having ordinary skill in the art

would have understood that these are "alternate modality subsystems" within the context of the present invention.

8. Ellenbogen's description of prior art dual energy CT scanning techniques including a "stacked detector array for dual energy acquisition" and "pulsed dual or multi-energy X-ray source" (¶¶ 0038, 0039) is indistinguishable from the "alternate modality" detector described in Appellants' Specification as a "dual energy x-ray unit" which "measures x-ray attenuation from at least two energy bins in the x-ray spectrum." (Spec. ¶ ¶ 0021, 0022).

9. Ellenbogen discloses the initial CT scanner (i.e., the acquisition subsystem) is used to identify a region of interest "acquiring x-ray views from at least 180 degrees around an object." (¶ 0020).

10. Ellenbogen discloses "data acquired from these views are mathematically reconstructed into a tomographic or slice image through the object or a three dimensional representation of the object." (¶ 0020).

PRINCIPLES OF LAW

"To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

"[T]he PTO must give claims their broadest reasonable construction consistent with the specification. Therefore, we look to the specification to see if it provides a definition for claim terms, but otherwise apply a broad interpretation." *In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007) (Citation omitted).

ANALYSIS

Claims 1-3, 8-10, 14, 15, 20-22, 24-27, 29, 30, 33, 35, and 37-39

Appellants group claims 1-3, 8-10, 14, 15, 20-22, 24-27, 29, 30, 33, 35, and 37-39 together, and do not argue the separate patentability of the claims. Accordingly, we select claim 1 as representative of the rejected claims and confine our discussion to this claim. 37 C.F.R. § 41.37(c)(1)(vii) (2006).

The Examiner found:

> Ellenbogen et al. discloses a system and method comprising an acquisition subsystem including a three-dimensional computed tomography scanner (fig. 2, #110) that produces volumetric data (paragraph 20, lines 20-23) and serving as a pre-scan modality (paragraph 42, lines 1 -*7),* a reconstruction subsystem (paragraph 20, line 2 1) adapted to identify (paragraph 29, lines 1-5) and distinguish regions of interest from regions of no interest within an article (paragraph 42, lines 1-3), and an alternate modality subsystem (fig. 2, #120 or 130) adapted to then analyze the regions of interest (paragraph 42, lines 3-7) to identify a contraband object or explosive (title), wherein the alternate modality subsystem necessarily comprises a detector (fig. 2, #120 or 130) having a modality with a sensitivity complementary to the computed tomography scanner (paragraph 30), and a necessary transportation means for transporting the article (paragraph 30, line 4, "automatically") between the acquisition subsystem (fig. 2, #110) and the alternate modality subsystem (fig. 2, #120 or 130).

(Ans. 4, ll. 3-15).

Appellants' only arguments with respect to the Examiner's findings are that "Ellenbogen does not teach the use of a three-dimensional computed tomography scanner in conjunction with an *alternate modality* subsystem,"

and that "Ellenbogen does not teach the use of *volumetric data*." (App. Br. 7, ll. 14-19).

Alternate Modality Subsystem.

Appellants contend that "[n]o modality systems are disclosed or even mentioned in the reference other than CT." (*Id*. 7, ll. 27-28). Although acknowledging that Ellenbogen discloses "first and secondary CT scans may be based on different principles, they are plainly the same modality of CT." (*Id*. 7, l. 28 through 8, l. 1). Furthermore, Appellants argue that "a modality alternate to a CT system must be a modality other than a CT system." (*Id*. 8, l. 4). We do not find Appellants arguments persuasive.

Initially, we look to construe the claim term "alternate modality subsystem." In interpreting the meaning of claim terms, we first look to the Specification to determine whether Appellants have established a definition for the claim terms in question. Here, we do not find any definition in Appellants' Specification for an "alternate modality subsystem." (FF 1). Accordingly, we give the claim terms their broadest reasonable construction consistent with the Specification. *In re ICON Health and Fitness, Inc.*, 496 F.3d at 1379. The broadest reasonable interpretation of an "alternate modality subsystem," as that term would be understood by one skilled in the relevant art, includes a subsystem that operates by an alternate (i.e., different) modality (i.e., mode or manner) subsystem relative to the initial CT scanner of the acquisition subsystem. (FF 3). That is, the alternate modality subsystem includes CT subsystems as well as non-CT subsystem. (FF 2).

We now turn to the prior art reference. In the CT scanning system disclosed by Ellenbogen, "baggage is scanned by the initial CT scan

according to any known methods or processes," and if a potential threat is suspected, the baggage is transferred to a second CT scan where "[a]dditional information from the secondary CT scan is used to determine whether a threat exists." (FF 4). Ellenbogen states that the second CT scan is performed by a high energy CT scanner or a high resolution CT scanner (FF 6). As described by Ellenbogen, "the system uses a secondary CT scan with different operating properties to further analyze objects which cannot be resolved by an initial CT scan." (FF 5). Because Ellenbogen's second CT subsystem works by different principles relative to the first CT subsystem, it is an "alternate modality subsystem" within the context of the present invention. (FF 7).

Indeed, our interpretation of the prior art second CT scan subsystem as an "alternate modality detectors" is consistent with examples of alternate modality detectors Appellants describe in their Specification. (Spec. ¶ 0021). Ellenbogen's description of the prior art dual energy CT scanning with a "stacked detector array for dual energy acquisition" and "pulsed dual or multi-energy X-ray source" is indistinguishable from the "alternate modality" detector described in Appellants' Specification as a "dual energy x-ray unit," which "measures x-ray attenuation from at least two energy bins in the x-ray spectrum," disclosed in Appellants' Specification. (FF 8). Appellants have not relied on any evidence indicating the contrary.

Appellants also argue that "in the present application, alternate modalities *may* include non-CT X-ray imaging systems." (Emphasis added. Reply Br. 1, ll. 28-29; App. Br. 7, ll. 16-17). Even though non-CT X-ray imaging *may* be included in the claimed subject matter, the claim is not limited to only such systems. The Specification does not define "alternate

modality subsystems" as *non-CT systems*, and the broadest reasonable interpretation of "alternate modality subsystems," consistent with the Specification encompasses CT and non-CT systems. (FF 2, 3). For these reasons, Appellants have not demonstrated that the Examiner erred in finding the prior art discloses an "alternate modality subsystem," as recited in the claims.

Volumetric Data.

Appellants also argue that Ellenbogen does not disclose using volumetric data because Ellenbogen discloses using volumetric reconstruction, which is not the same as using volumetric data. (App. Br. 8, ll. 9-15). Appellants state that "[t]hose skilled in the art would simply never confuse 'volumetric data' or 'volumetric CT' with volumetric reconstruction based upon slices, as taught by Ellenbogen." (*Id.* 8, ll. 16-19). Appellants' arguments alone are unpersuasive to show the Examiner erred in determining the claimed subject matter obvious.

Ellenbogen discloses the initial CT scanner (i.e., the acquisition subsystem) is used to identify a region of interest "by acquiring x-ray views from at least 180 degrees around an object. (FF 9). Thereafter, the "data acquired from these views are mathematically reconstructed into a tomographic or slice image through the object or a three dimensional representation of the object." (FF 10). As found by the Examiner, "[t]hese slices for building an image of a volume must necessarily use volumetric data in order to put the slices together to form a volume that is comprehensible for viewing. Without volumetric data from coordinates that define the location of points in a volume of the object, one would not be able

to effectively build a three-dimensional representation of the object." (Ans. 11, ll. 4-8).

Appellants have not shown that the Examiner's reasoned position is in error. The collection of data from the initial CT scan is necessarily "volumetric data" because it is used to construct a three dimensional (i.e., volumetric) representation. Appellants have not directed us to any persuasive evidence that the prior art conventional CT scanner cannot produce volumetric data, as recited in the claim. Appellants' arguments do not satisfy their burden to show the Examiner erred in finding the claimed subject matter known in the prior art. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974) ("Attorney's argument in a brief cannot take the place of evidence.").

Claims 4-7, 11-13, 16-19, 23, 28, 31, 32, 34, 36, and 40

Appellants do not rely on separate arguments in support of patentability for claims 4-7, 11-13, 16-19, 23, 28, 31, 32, 34, 36, and 40. Therefore, for the reasons as discussed above, Appellants have not shown that the Examiner erred in determining these claims obvious in view of the prior art.

CONCLUSION

Appellants have failed to show the Examiner reversibly erred in finding claims 1-3, 8-10, 14, 15, 20-22, 24-27, 29, 30, 33, 35, and 37-39 anticipated by Ellenbogen.

Appellants have also failed to show that the Examiner reversibly erred in concluding that one of ordinary skill in the art would have found the

subject matter of appealed claims 4-7, 11-13, 16-19, 23, 28, 31, 32, 34, 36, and 40 obvious to one of ordinary skill in the art over the applied prior art.

Accordingly, the decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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GENERAL ELECTRIC COMPANY (PCPI)
C/O FLETCHER YODER
P.O. BOX 692289
HOUSTON, TX 77269-2289