The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte DOUGLAS W. AKERS

Appeal No. 2005-0855
Application No. 10/269,807

HEARD: May 18, 2005

Before PATE, MCQUADE, and BAHR, Administrative Patent Judges.
MCQUADE, Administrative Patent Judge.

DECISION ON APPEAL

Douglas W. Akers originally took this appeal from the final rejection (mailed June 16, 2003) of claims 1 and 8 through 39, all of the claims pending in the application. After the appellant's main and reply briefs (filed October 3, 2003 and January 13, 2004) and an examiner's answer (mailed December 1, 2003) had been made of record, the examiner issued an Office action (mailed February 25, 2004) reopening prosecution and entering superseding rejections of all of the claims. Pursuant to 37 CFR § 1.193(b)(2)(ii), the appellant then submitted a request that the appeal be reinstated (filed April, 14, 2004) and

a supplemental brief (filed August 2, 2004). The examiner, implicitly granting the request, entered a second answer (mailed September 14, 2004) and forwarded the application to this Board for review of the new rejections of claims 1 and 8 through 39.

THE INVENTION

The invention relates to “methods . . . for performing non-destructive testing of materials using positron annihilation” (specification, page 1). Representative claim 1 reads as follows:

1. A method, comprising:
determining whether a specimen to be tested includes at least one positron emitter therein that will be activated in response to photon bombardment;
selecting a positron emitter to be activated;
determining a threshold photon energy required to activate the selected positron emitter;
determining a half-life of the selected positron emitter; and
when the half-life of the selected positron emitter is less than a selected half-life, then performing a rapid activation/analysis process, said rapid activation/analysis process comprising:
activating for an activation time the selected positron emitter by bombarding the specimen with photons having energies at least as great as the threshold photon energy;
detecting for a detection time gamma rays produced by annihilation of positrons with electrons in the specimen; and
repeating said steps of activating for an activation time and detecting for a detection time until detecting a sufficient number of gamma rays to determine at least one material characteristic of said specimen;

when the half-life of the selected positron emitter is greater than or equal to the selected half-life, then performing a normal activation/analysis process, said normal activation/analysis process comprising:

activating the selected positron emitter by bombarding the specimen with photons having energies at least as great as the threshold photon energy; and

detecting gamma rays produced by annihilation of positrons with electrons in the specimen.

THE REJECTIONS

Claims 1 and 8 through 39 stand rejected under 35 U.S.C. § 112, first paragraph, as being based on a specification which fails to comply with the enablement requirement.

Claims 1 and 8 through 39 also stand rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter the appellant regards as the invention.

Attention is directed to the main, reply and supplemental briefs and the second answer for the respective positions of the appellant and the examiner regarding the merits of these rejections.[1]

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[1] In the Office action which reopened prosecution, claims 1 and 8 through 10 additionally stood rejected under 35 U.S.C. § 112, first paragraph, as being based on a specification which fails to comply with the written description requirement. Upon reconsideration, the examiner has withdrawn this rejection (see page 2 in the second answer). Presumably, the examiner also has withdrawn any reasoning relating to the two remaining rejections

(continued...)

DISCUSSION

I. Preliminary matter

In the supplemental brief (see pages 3, 4 and 17) and second answer (see pages 11 and 12), the appellant and the examiner debate the propriety of the Office action which reopened prosecution subsequent to appeal. As this matter is not directly connected with the merits of any issue involving a rejection of claims, it is reviewable by petition to the Director rather than by appeal to this Board (see In re Hengehold, 440 F.2d 1395, 1403-04, 169 USPQ 473, 479 (CCPA 1971), and hence will not be further addressed in this decision.

II. The 35 U.S.C. § 112, first paragraph, rejection

The dispositive issue with respect to the enablement requirement of 35 U.S.C. § 112, first paragraph, is whether the appellant's disclosure, considering the level of ordinary skill in the art as of the date of the application, would have enabled a person of such skill to make and use the claimed invention without undue experimentation. In re Strahilevitz, 668 F.2d 1229, 1232, 212 USPQ 561, 563-64 (CCPA 1982). In calling into

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[1](...continued)
which was set forth in the Office action but not restated in the second answer (see Ex parte Emm, 118 USPQ 180, 181 (Bd. App. 1957)).

question the enablement of the disclosure, the examiner has the initial burden of advancing acceptable reasoning inconsistent with enablement. Id.

The examiner considers the appellant's disclosure to be non-enabling in four respects:

> . . . There is neither an adequate description nor enabling disclosure as to what is encompassed by the term, "activating a positron emitter". A "positron emitter" is inherently already activated, i.e., it is radioactive.
>
> At best, the use of the term "activating a positron emitter" is superfluous.
>
> At worst, the term would imply that a positron emitter is either being transformed to another positron emitter or its energy level is further raised by the energy of the activating photon. There is no support in the specification for either one of these two alternatives [second answer, page 3];
>
> There is neither an adequate description nor enabling disclosure as to how and in what manner potential interferences in the data are accounted for in the analysis. For example, Claim 1 recites the step of bombarding the specimen with photons at least as great as the threshold photon energy required to activate the selected positron emitter and detecting gamma rays produced by annihilation of positrons with elections in the specimen.
>
> . . . [T]here is no support as to how one would differentiate between the signals from the selected positron emitter and from the non-selected ones [second answer, pages 6 and 7];
>
> There is neither an adequate description nor enabling disclosure as to how and in what manner one should select an algorithm from a plurality of available algorithms, modify/manipulate the selected algorithm and evaluate the constants in the selected

> algorithm to fit Appellant's situation. Appellant himself admits in the specification that there is not only one known algorithm but rather a plurality of known positron lifetime algorithms (e.g. see paragraph 0058), Doppler broadening algorithms (paragraph 0057) and three-dimensional imaging algorithms (e.g., see paragraph 0060).
>
> . . . There is no support as to how and in what manner one selects the specific algorithm to use for the two activation/analysis processes, to evaluate requisite constants and to modify the selected algorithm to Appellant's situation [second answer, page 7];

and

> There is neither an adequate description nor enabling disclosure as to how and in what manner one can determine when the half-life of the selected positron emitter is less than a selected half-life (*sic*), where the composition of the specimen is unknown and it is this composition that is desired to be determined. The same lack of support exists for the determination of when the half-life of the selected positron emitter is more than a selected half-life (*sic*) [second answer, page 8].

A fair assessment of the appellant's disclosure shows that the references therein to "activating" a positron emitter through photon bombardment of the specimen would be understood by the artisan as synonymous with "producing" or "forming" the positron emitter from a stable precursor. For example, the specification states that "photons 16 from the photon source 12 <u>produce</u> such neutron-deficient isotopes . . . referred to herein in the alternative as 'positron emitters'" (page 7, emphasis added), and

that “one way for generating positrons is through the formation within the specimen 18 of neutron-deficient isotopes, i.e., positron emitters” (page 20, emphasis added). In the same vein, the specification describes Tables I and II (on pages 21 and 22) as identifying “those isotopes that may be converted into positron emitters by photon bombardment” (page 20, emphasis added). Thus, even if the appellant’s description of “activating” a positron emitter is somewhat inaccurate as urged by the examiner, it is so only in the most hyper-technical sense. Read in context, the appellant’s terminology would not pose any enablement problem from the perspective of a person having ordinary skill in the art.

The examiner’s concerns as to possible interference between respective signals produced by the selected positron emitter and non-selected positron emitters and as to the half-life of the selected positron emitter also are unfounded, primarily because they are not commensurate with the scope of the invention disclosed and claimed by the appellant. In this regard, the claims do not exclude the activation of multiple positron emitters, and indeed the appellant’s specification (see pages 8, 13 and 14) actually allows for such activation. The claims also

do not require the composition of the specimen to be unknown, and are not directed to a method for determining the composition of the specimen.

Finally, while the appellant's disclosure does not convey much detail as to the various algorithms described therein, these algorithms admittedly are generally known in the art. The examiner has failed to advance any cogent reasoning as to why the disclosure would not have enabled a person having ordinary skill in the art to employ these algorithms, without undue experimentation, to the extent required by the appealed claims.

Hence, the examiner's position that the appellant's disclosure, considering the level of ordinary skill in the art as of the date of the application, would not have enabled a person of such skill to make and use the claimed invention without undue experimentation is not well taken. Therefore, we shall not sustain the standing 35 U.S.C. § 112, first paragraph, rejection of 1 and 8 through 39.

III. The 35 U.S.C. § 112, second paragraph, rejection

The second paragraph of 35 U.S.C. § 112 requires claims to set out and circumscribe a particular area with a reasonable degree of precision and particularity. In re Johnson, 558 F.2d

1008, 1015, 194 USPQ 187, 193 (CCPA 1977). In determining whether this standard is met, the definiteness of the language employed in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. Id.

The examiner views the appealed claims to be indefinite for reasons essentially similar to those listed above in connection with the enablement rejection. In this regard, the examiner points to the claim limitations relating to (1) the activation of a positron emitter, (2) the positron lifetime, Doppler broadening, three-dimensional imaging and activation/analysis process algorithms and (3) the determination of the half-life of the selected positron emitter (see pages 9 through 11 in the second answer). For the reasons explained previously, the limitations pertaining to the activation of a positron emitter would have been readily understood by the artisan when read in light of the underlying specification. Furthermore, the examiner’s criticisms of the claim limitations pertaining to the algorithms and the half-life of the selected positron emitter

focus on the breadth of these limitations. It is well settled, however, that mere breadth does not equate to indefiniteness. In re Miller, 441 F.2d 689, 169 USPQ 597, 600 (CCPA 1971). Accordingly, the examiner's contention that the appealed claims are indefinite is unpersuasive.

Thus, we shall not sustain the standing 35 U.S.C. § 112, second paragraph, rejection of claims 1 and 8 through 39.

SUMMARY

The decision of the examiner to reject claims 1 and 8 through 39 is reversed.

REVERSED

WILLIAM F. PATE, III Administrative Patent Judge	)	
JOHN P. MCQUADE Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JENNIFER D. BAHR Administrative Patent Judge	)	

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