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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte WALEED M. SAID and RANDALL BAX

Appeal 2019-003433
Application 15/016,338
Technology Center 2800

Before JEFFREY T. SMITH, KAREN M. HASTINGS, and
DONNA M. PRAISS, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1, 3–14, 16, and 18–20. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE and enter a NEW GROUND OF REJECTION pursuant to our authority under 37 C.F.R. § 41.50(b) against claims 1, 3–14, 16, and 18–20 under 35 U.S.C. § 112(b), as indefinite.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. The real parties in interest are Hamilton Sundstrand Corporation. (Appeal Br. 2.)

STATEMENT OF THE CASE

Appellant's invention is generally directed to a method for detecting a high impedance fault in an electrical circuit including comparing an operational model of an electrical circuit against an expected operations model of the electrical circuit. (Spec ¶ 4.) Claim 1 illustrates the subject matter on appeal and is reproduced below:

1. A method for detecting a high impedance fault in an electrical circuit comprising:
 - comparing an operational model of an electrical circuit against an expected operations model of the electrical circuit;
 - determining that a high impedance fault exists within the electrical circuit in response to a deviation between the operational model and the expected operations model by at least a predetermined amount; and
 - activating a fault protection circuit in response to determining that a high impedance fault exists.

Appeal Br. 10, Claims Appendix.

Appellant (*see* Appeal Br., *generally*) requests review of the following rejections from the Examiner's Final Office Action (Final Act. 3–10):

- I. Claim 1 rejected under U.S.C. § 102(a)(1) anticipated by Valdez (US 2009/0296289 A1; Dec. 3, 2009).
- II. Claims 5–7 and 9–13 rejected under U.S.C. § 102(a)(1) anticipated by Mirafzal (US 2008/0080106 A1; Apr. 3, 2008).
- III. Claims 3 and 4 rejected under 35 U.S.C. § 103 as unpatentable over Mirafzal in view of Bono (US Pub. No. 2007/0236849 A1; Oct. 11, 2007).
- IV. Claims 8, 14, and 20 rejected under 35 U.S.C. § 103 as unpatentable over Mirafzal in view of Valdez.

V. Claim 16 rejected under 35 U.S.C. § 103 as unpatentable over Mirafzal, Valdez in view of Gilpatrick (US 2010/0243086 A1; Sept. 30, 2010).

VI. Claims 18 and 19 rejected under 35 U.S.C. § 103 as unpatentable over Mirafzal, Valdez in view of Bono.

OPINION

For the reasons set forth below, we are unable to ascertain the metes and bounds of the claimed subject matter, we procedurally reverse the prior art rejections of claims 1, 3–14, 16, and 18–20, and enter a new ground of rejection of this claim under 35 U.S.C. § 112(b).²

REJECTION UNDER § 112(b)

Claims 1, 3–14, 16, and 18–20 are rejected under 35 U.S.C. § 112(b), as indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor regards as the invention.

The evaluation of a claim with respect to prior art begins with understanding the “meaning” of the claim. Our reviewing court has instructed that “[i]t is the applicants’ burden to precisely define the invention, not the PTO’s . . . [35 U.S.C. § 112(b)] puts the burden of precise claim drafting squarely on the applicant.” *In re Morris*, 127 F.3d 1048, 1056 (Fed. Cir. 1997).

² Our analysis applies to independent claims 1, 5, and 14. We limit our discussion to independent claim 1.

During prosecution, a claim is examined for compliance with 35 U.S.C. § 112(b) by determining whether the claim meets threshold requirements of clarity and precision. After applying the broadest reasonable interpretation to the claim, if the metes and bounds of the claimed invention are not clear, the claim is indefinite and should be rejected. *In re Packard*, 751 F.3d 1307, 1310–11 (Fed. Cir. 2014) (“[W]hen the USPTO has initially issued a well-grounded rejection that identifies ways in which language in a claim is ambiguous, vague, incoherent, opaque, or otherwise unclear in describing and defining the claimed invention, and thereafter the applicant fails to provide a satisfactory response, the USPTO can properly reject the claim as failing to meet the statutory requirements of § 112(b).”

The test for definiteness under 35 U.S.C. § 112(b), is whether “those skilled in the art would understand what is claimed when the claim is read in light of the specification.” *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986). Merely that a claim is broad does not mean that it is indefinite. See *In re Johnson*, 558 F.2d 1008, 1016 n.17 (CCPA 1977); *In re Miller*, 441 F.2d 689, 693 (CCPA 1971); *In re Gardner*, 427 F.2d 786, 788 (CCPA 1970). However, if a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring an applicant to more precisely define the metes and [*5] bounds of the invention by holding the claim unpatentable under 35 U.S.C. § 112(b), as indefinite. *Ex parte Miyazaki*, 89 USPQ2d 1207, 1211–12 (BPAI 2008) (precedential). Moreover, “[t]he scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention.” *Datamize, LLC v. Plumtree Software, Inc.*, 417 F. 3d 1342, 1350 (Fed. Cir. 2005).

The metes and bounds of the “deviation” between “the operational model” and “the expected operations model” as these phrases are used in the context of

independent claims 1, 5 and 14, and additionally by the phrase “by at least a predetermined amount” as this phrase is used in the context of claims 1 and 5 cannot be ascertained from Appellant’s original disclosure, for at least the following reasons.

We do not find a limiting description or definition in Appellant’s Specification of “the operational model” and “the expected operations model.” The Specification states that “[t]he operational model is a mathematical model of the operations of the electrical powertrain 30, and is generated according to any known mathematical modeling system.” Spec. ¶ 43 (underlining added). The Specification states that “[t]he expected mathematical model is a theoretical mathematical model of the expected operations of the electrical powertrain 30 based on the parameters set by the controller 50.” Spec. ¶ 45.

Appellant’s Specification does not describe the basis for determining “the operational model.” Rather, Appellant’s Specification indicates that the operational model is generated according to any known mathematical modeling system without providing guidance for determining the requirements of the mathematical modeling system.

The Specification states that “the expected mathematical model” is a theoretical mathematical model of the expected operations of the electrical powertrain; however, the Specification does not provide guidance for determining the requirements of the mathematical model. Appellant’s Specification further states:

In some examples, the expected mathematical model is purely conceptual and is based solely on ideal component calculations. In other examples, the expected mathematical model is based at least in part on empirical operations data generated from one or more physical powertrains.

Spec. ¶ 45.

Accordingly, Appellant's Specification does not describe the basis for determining "the expected operations model."

Appellant's Specification does not describe the basis for determining the "deviation." For example, the Specification discloses:

In another example of any of the above described exemplary methods for detecting a high impedance fault in an electrical circuit, the deviation between the operational model and the expected operations model is at least one of a deviation between at least one of a deviation between a common mode current of the three phase supply of the operational model and a common mode current of the three phase supply of the expected operations model; a deviation between a DC link common mode current of the operational model and a DC link common mode of the expected operations model; and a deviation between a value dependent on at least one of the common mode current of the three phase power supply and the DC link common mode current of each of the operational model and the expected operations model.

Spec. ¶ 16.

The Specification further states:

Once the expected mathematical model and the operational model are generated, the processor 52 compares the operational model against the expected mathematical model, and determines a magnitude of deviation between the two models in a "Compare Model With Expected Mathematical Model" process 250. The magnitude of the deviation is then compared against a threshold value in a "Does Deviation Between Models Exceed Threshold" check 260. In some examples, the deviation is a deviation between a common mode current of the three phase supply, a DC link common mode current, or a value dependent on one or both of the common mode current of the three phase power supply and the DC link common mode current.

Spec. ¶ 46.

The Specification does not provide guidance for determining the acceptable variance between the expected mathematical model and the operational model by at least a predetermined amount. The Specification also does not provide guidance

for determining the threshold.

It is further recognized the Specification does not include any exemplary embodiments that depict the operational model, the expected operations model, and the acceptable deviation therebetween.

Accordingly, due to the unlimited nature of the “operational model” and the “expected operation model” recited in independent claims 1, 5, and 14, and the lack of disclosure in Appellant’s Specification of properly describing the acceptable deviation therebetween, one of ordinary skill in the art would be unable to determine if a high impedance fault exists as recited in claims 1, 5, and 14. Independent claims 1, 5, and 14 are therefore of indefinite scope. Accordingly, we enter a NEW GROUND OF REJECTION of claims 1, 3–14, 16, and 18–20 under 35 U.S.C. § 112(b), as being indefinite, pursuant to our authority under 37 C.F.R. § 41.50(b).

PRIOR ART REJECTIONS

Having determined that the subject matter of independent claims 1, 5, and 14 are indefinite, we are unable to determine the propriety of the prior art rejection of claims 1, 3–14, 16, and 18–20. The review of the rejections under 35 U.S.C. §§ 102(a) and 103 would require considerable speculation as to the scope of the claims. Such speculation would not be appropriate. *In re Steele*, 305 F.2d 859, 862 (CCPA 1962). We, therefore, procedurally reverse the rejections under 35 U.S.C. §§ 102(a) and 103. We emphasize that this is a technical reversal of the prior art rejections, and not a reversal based upon the merits of the rejections.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed	New rejection
1, 3–14, 16, 18–20	112(b)	Indefiniteness			1, 3–14, 16, 18–20
1	102(a)	Valdez		1	
5–7, 9–13	102(a)	Mirafzal		5–7, 9–13	
3, 4	103	Mirafzal, Bono		3, 4	
8, 14, 20	103	Mirafzal, Valdez		8, 14, 20	
16	103	Mirafzal, Valdez, Gilpatrick		16	
18, 19	103	Mirafzal, Valdez, Bono		18, 19	
Overall Outcome					1, 3–14, 16, 18–20

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b), which provides that a “new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” 37 C.F.R. § 41.50(b) also provides that the Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. . . .
- (2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. . . .

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

REVERSED; 37 C.F.R. § 41.50(b)