Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte ROBERT JOSEPH ORLANDO and PAUL COOKER

Appeal No. 2003-1557
Application No. 09/817,884

ON BRIEF

Before COHEN, ABRAMS and BAHR, Administrative Patent Judges.

BAHR, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-3 and 8-14. Claims 4-7, the only other claims pending in this application, stand withdrawn from consideration as being directed to non-elected species.

We REVERSE.

BACKGROUND

The appellants' invention relates to a method of increasing service intervals of a gas turbine engine by increasing temperature margins (specification, page 1). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The examiner has not rejected the claims on the basis of prior art under 35 U.S.C. § 102 or 103.[1]

The following rejections are before us for review.

Claims 1-3 and 8-14 stand rejected under 35 U.S.C. § 101 as being inoperative and thus lacking utility.[2]

Claims 1-3 and 8-14 also stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the final rejection and answer (Paper Nos. 10 and 15) for the examiner's complete reasoning in

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[1] In this regard, we note that it is not apparent to us why "[t]he condition of the disclosure precludes a complete examination," as indicated on page 4 of the final rejection. In light of our disposition of the rejections before us, it would appear that, upon return of this application to the primary examiner, a complete examination of the subject matter of this application is in order.

[2] We, like appellants on page 1 of their brief, note that the final rejection did not expressly include a rejection of the claims under 35 U.S.C. § 101 but, also like appellants, conclude from the final rejection as a whole that this was the intent of the examiner's discussion on pages 2-4 of the final rejection.

support of the rejections and to the brief and reply brief (Paper Nos. 14 and 16) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

The rejection under 35 U.S.C. § 101

We perceive the basis of the examiner's rejection of the claims under 35 U.S.C. § 101 as being inoperative and thus lacking utility to be the fact that, given the mathematical model discussed on pages 7 and 8 of appellants' specification, the adjusted core exhaust nozzle area of 476.8 square inches produces substantially the same thrust for a fully deteriorated engine as a core exhaust nozzle area of 442.4 square inches. Thus, according to the examiner, appellants' method of adjusting the nozzle area has no utility. The examiner also comments that the use of different units (scales) for different temperatures[3] on pages 7 and 8 of appellants' specification and the fact that appellants have not specified the detailed "algorithm" or mathematical model discussed on pages 7 and 8 of their specification has led the examiner to the

[3] The use of different units (Rankine, Fahrenheit or Centigrade) is inconsequential, as the conversion from one scale to another for compatibility is simple and well known.

conclusion that the "program" [sic, perhaps mathematical model] is inoperative (final rejection, page 3).

While an inoperative invention does not satisfy the requirement of 35 U.S.C. § 101 that an invention be "useful" (See In re Harwood, 390 F.2d 985, 989, 156 USPQ 673, 676 (CCPA 1968)), the Court of Appeals for the Federal Circuit has stated that "[t]o violate § 101 the claimed device must be totally incapable of achieving a useful result." Brooktree Corp. v. Advanced Micro Devices, Inc., 977 F.2d 1555, 1571, 24 USPQ2d 1401, 1412 (Fed. Cir. 1992).

In this instance, appellants' method comprises adjusting at least one engine parameter selected from the group of engine parameters including a nozzle area and a rotor speed in order to extend the useful serviceable life of a gas turbine engine by increasing a limiting gas temperature margin, i.e., reducing a limiting gas temperature, such as the high pressure turbine exhaust gas temperature. Appellants' specification (page 5) identifies examples (use of turbine blades having pivotable trailing edge portions, trailing edge portions of ablatable material which erodes at a predetermined rate during engine operation and removable inserts) of ways to adjust selected areas of the turbine and gives examples of variable exhaust nozzle configurations on pages 5 and 6. Appellants' specification also indicates that rotor speed may also be adjusted during operation to effect like temperature margin increases.

Appellants have also indicated on pages 6-8 of their specification that the

variation of the selected engine parameter will also have an impact on other engine parameters which can be assessed by trial and error or predicted using empirical models and conventional optimization programs and the examiner has not contested that one skilled in the art at the time of appellants' invention would have been able to develop such an empirical model or that such optimization programs were known in the art at the time of appellants' invention and would be effective in predicting engine performance. Further, using such a mathematical model, appellants have illustrated on pages 7 and 8 of their specification that adjustment of the core exhaust nozzle area could produce a decrease in high pressure turbine exhaust gas temperature of 37 C for a fully deteriorated engine while still producing a net thrust of approximately 13,000 pounds.

While the examiner appears to be correct that the nozzle area adjustment modeled by appellants does not produce an improvement in thrust, it does produce a lower high pressure turbine exhaust gas temperature resulting in an increase of 37 C in the limiting gas temperature margin, which is the stated utility of appellants' method. As the examiner has offered no reasoning or evidence to dispute appellants' results, the examiner's rejection of appellants' claims as being directed to an invention which is inoperative and thus lacks utility cannot be sustained.

The enablement rejection

Insofar as the enablement requirement is concerned, the dispositive issue is whether the appellant's disclosure, considering the level of ordinary skill in the art as of the date of the appellant's application, would have enabled a person of such skill to make and use the appellant's invention without undue experimentation. In re Strahilevitz, 668 F.2d 1229, 1232, 212 USPQ 561, 563-64 (CCPA 1982). In calling into question the enablement of the appellant's disclosure, the examiner has the initial burden of advancing acceptable reasoning inconsistent with enablement. Id.

In rejecting appellants' claims as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention, the examiner simply points out that the algorithm or mathematical model used to predict the effects of engine parameter adjustments is undisclosed and that appellants use different units (scales) for different temperatures in their specification. Be that as it may, the examiner has not even alleged, much less provided reasoning or evidence, that one skilled in the art at the time of appellants' invention would not have been able, without undue experimentation, to develop such models. As for the use of different temperature scales, the conversion to a single scale would have presented no problem to one of ordinary skill in the art, as the formulas for conversion are simple and extremely well known. Accordingly, the examiner has not met the initial burden of advancing acceptable reasoning inconsistent with enablement. It follows that the rejection under 35 U.S.C. § 112, first paragraph, cannot be sustained.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-3 and 8-14 under 35 U.S.C. § 101 and § 112, first paragraph, is reversed.

REVERSED

IRWIN CHARLES COHEN Administrative Patent Judge	)
NEAL E. ABRAMS Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
JENNIFER D. BAHR Administrative Patent Judge	)

JDB/ki

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