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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES T. AUXIER, PARTH JARIWALA, MARK F. ZELESKY,
and BRET M. TELLER

Appeal 2018-000453
Application 14/686,945
Technology Center 3700

Before STEFAN STAICOVICI, BENJAMIN D. M. WOOD, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

O'HANLON, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ appeals under 35 U.S.C. § 134(a) from the Examiner's final decision rejecting claims 1–20. We have jurisdiction over this appeal under 35 U.S.C. § 6(b). We *reverse*.

¹ Appellant is the Applicant, United Technologies Corporation, which, according to the Appeal Brief, is the real party in interest. Appeal Br. 1.

In explaining our Decision, we refer to the Specification filed April 15, 2015 and amended January 30, 2017 (“Spec.”), the Final Office Action dated February 27, 2017 (“Final Act.”), the Appeal Brief filed June 14, 2017 (“Appeal Br.”), the Examiner’s Answer dated August 23, 2017 (“Ans.”), and the Reply Brief filed October 18, 2017 (“Reply Br.”).

SUMMARY OF THE INVENTION

Appellant’s claimed invention relates to a cooling configuration in a gas turbine engine airfoil. Spec. ¶ 1. Claims 1 and 10 are independent. Claim 1 is reproduced below from page 8 (Claims Appendix) of the Appeal Brief with paragraph structure added, and is illustrative of the claimed subject matter:

1. A component for a gas turbine engine comprising:
 - pressure and suction walls that together provide an exterior surface and respectively provide pressure and suction sides,
 - a cooling passage in the component includes a serpentine passageway having first and second passes respectively configured to provide fluid flow in opposite directions from one another,
 - the first pass includes first and second portions nested relative to one another and overlapping in a thickness direction,
 - the first portion extends to both of and is at least partially defined by the pressure and suction walls,
 - the second portion extends to both of and is at least partially defined by the pressure and suction walls,
 - the first and second portions adjacent to one another by sharing a common wall that extends to both of the pressure and suction walls,
 - the first portion provided more substantially on the suction side than the pressure side, and
 - the second portion provided more substantially on the pressure side than the suction side.

REFERENCES

The Examiner relies on the following prior art references in rejecting the claims on appeal:

Pietraszkiewicz	US 2006/0292005 A1	Dec. 28, 2006
Lee	US 2007/0128032 A1	June 7, 2007

REJECTIONS

- I. Claims 1–20 stand rejected under 35 U.S.C. § 112(a) as failing to comply with the written description requirement.
- II. Claims 1–20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Lee and Pietraszkiewicz.

ANALYSIS

Rejection I

The Examiner rejects claims 1–20 as failing to comply with the written description requirement of 35 U.S.C. § 112(a). Final Act. 5–6. The Examiner notes each of independent claims 1 and 10 recites that each of the first and second portions “extends to both of and is *at least partially* defined by the pressure and suction walls.” *Id.* (emphasis added). The Examiner finds that these claims, therefore, are not supported by the written description because “the first 112 and second 114 portions are defined by the pressure 86 and suction 88 walls, but not *fully* defined by the pressure 86 and suction 88 walls, as is encompassed by the . . . claim language.” *Id.* at 6 (emphasis added). The Examiner clarifies the rejection by stating that “the phrase ‘at least partially defined by’ encompasses ‘fully defined by’, which latter phrase” is not supported by the written description. Ans. 4. Thus, the Examiner’s rejection is based on a claim interpretation that “at least partially

defined by the pressure and suction walls” allows for the first and second portions to be “fully” defined by the pressure and suction walls.

“The test for the sufficiency of the written description ‘is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the *claimed* subject matter as of the filing date.’” *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 682 (Fed. Cir. 2015) (emphasis added) (quoting *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc)). The Examiner has failed to consider the entirety of the claim language. Each of claims 1 and 10 recites “the first and second portions adjacent to one another by sharing a common wall that extends to both of the pressure and suction walls.” Appeal Br. 8, 9 (Claims. App.). Each independent claim, therefore, requires that the each of the first and second portions is defined, in part, by the common wall. Accordingly, we disagree with the Examiner’s interpretation that the claims allow for the first and second portions to be fully defined by only the pressure and suction walls.

For the foregoing reasons, we do not sustain the rejection of claims 1–20 as failing to comply with the written description requirement.

Rejection II

The Examiner rejects claims 1–20 as being unpatentable over Lee and Pietraszkiwicz. Final Act. 7–10. The Examiner finds that Lee discloses a component for a gas turbine engine substantially as recited in independent claim 1, including a cooling passageway (cooling circuit 34 in conjunction with cooling circuit 36)² having a first pass (inlet channel 40 in conjunction

² Parentheticals refer to the terminology of the cited references.

with inlet channel 42) and a second pass (channels 48), the first pass including first and second portions (inlet channel 40 and inlet channel 42). *Id.* at 7. The Examiner relies on Pietraszkiewicz to teach nested first (path 128) and second (path 126) portions of a first pass. *Id.* at 8–9. The Examiner reasons that it would have been obvious to a person having ordinary skill in the art to form Lee’s device with nested first and second first pass portions, as taught by Pietraszkiewicz, “for the purpose of forming a truss-type rib arrangement that increases structural rigidity to enable nesting.” *Id.* at 9. The Examiner relies on the same findings and reasoning in rejecting independent claim 10. *Id.* at 7–9. In the Answer, the Examiner finds that “Pietraszkiewicz inherently possess the same properties of Appellant’s nested triangular truss-shaped configuration, namely increased structural rigidity,” and reiterates that “Pietraszkiewicz would be more structurally rigid than Lee, since it forms a triangular truss-shaped configuration, with angled common walls 142.” Ans. 9–10.

Appellant notes that Lee includes “partition 46 [that] divid[es] the airfoil 12 substantially along the camber line of the airfoil,” and argues that “[t]his structure is described as desirable, for example, for providing substantial strength that withstands significant centrifugal loads.” Appeal Br. 4–5 (citing Lee ¶¶ 44, 61). Appellant further argues that “[t]here is no evidence that Pietraszkiewicz would be *more* structurally rigid than [Lee], which already includes walls that extend between the pressure and suction walls, and a chordwise wall that further stiffens the airfoil.” *Id.* at 5; *see also* Reply Br. 4.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of

obviousness. *See In re Fine*, 837 F.2d 1071, 1073–74 (Fed. Cir. 1988). Although the analysis need not identify explicit teachings directed to the claimed subject matter, “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements *in the way the claimed new invention does.*” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (emphasis added). As such, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.* (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

We agree with Appellant that the Examiner has failed to set forth a rational underpinning for the proffered modification of Lee’s airfoil. As correctly noted by Appellant, Lee’s imperforate partition 46 “divide[s] the airfoil **12** substantially equally along the camber line of the airfoil.” Lee ¶ 44; *see also* Appeal Br. 5 (citing same). Lee explains that

the imperforate partitions **46** that separate the three inlet channels from each other in the widest region of the airfoil avoid stress concentrations associated with cooling holes, and extend completely through the blade to the base of the dovetail *to provide a rigid structure* for carrying the substantial centrifugal loads to the supporting rotor disk.

Lee ¶ 33 (emphasis added). The Examiner has not provided any supporting evidence or persuasive technical reasoning supporting the finding that Pietraszkiewicz’s cooling path and rib structure would provide *increased* structural rigidity than provided by Lee’s structure. *See* Final Act. 9. Nor does the Examiner’s reference to Appellant’s Specification provide support for the finding that a “truss-shaped configuration” inherently provides *more* structural rigidity than provided by Lee’s structure. *See* Ans. 9–10. Instead,

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the rejection relies on conclusory statements, which fail to evidence unpatentability. *See KSR*, 550 U.S. at 418.

Accordingly, we do not sustain the rejection of independent claims 1 and 10 as being obvious over Lee and Pietraszkiewicz. For the same reasons, we do not sustain the rejection of claims 2–9, which depend from claim 1, and claims 11–20, which depend from claim 10. *See In re Fine*, 837 F.2d at 1076 (“Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.”).

DECISION

The Examiner’s decision to reject claims 1–20 is reversed.

REVERSED