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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte LISA I. BRILLIANT, BECKY E. ROSE,
YUAN DONG, and STANLEY J. BALAMUCKI

Appeal 2020-001489
Application 13/409,305
Technology Center 3700

Before JOHN C. KERINS, KEN B. BARRETT, and SEAN P. O'HANLON,
Administrative Patent Judges.

KERINS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–8, 12–18, and 22–27, the only claims currently pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ The term “Appellant” is used herein to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies United Technologies Corp., as the real party in interest. Appeal Br. 1.

THE CLAIMED SUBJECT MATTER

Appellant's invention relates to a turbine engine having a low pressure bleed with a bleed trailing edge extending into a core flowpath. Claim 1 is illustrative, and is reproduced below:

1. A turbine engine comprising:

a compressor section having at least a low pressure compressor, and a core flowpath passing through said low pressure compressor, said core flowpath having an inner diameter and an outer diameter, wherein said outer diameter has a slope angle of between approximately 0 degrees and approximately 15 degrees relative to an engine central longitudinal axis;

a combustor in fluid communication with the compressor section;

a turbine section in fluid communication with the combustor; and

said low pressure compressor further comprising an exit guide vane located in a low pressure compressor outlet section of said core flowpath and a low pressure bleed located between a low pressure compressor rotor and said exit guide vane, wherein said low pressure bleed further comprises a bleed trailing edge extending into said core flowpath beyond said outer diameter of said core flowpath, at the axial position where the bleed trailing edge is located.

THE REJECTIONS

The Examiner rejects:

(i) Claims 1–8, 12–18, and 22–27 under 35 U.S.C. § 103(a) as being unpatentable over Merry (US 2010/0247306 A1, published Sept. 30, 2010) in view of either Frost (US 5,123,240, issued June 23, 1992) or Carscallen (US 5,845,482, issued Dec. 8, 1998);

(ii) Claims 1, 2, 4–7, 12, 14–17, 22, and 24–27 under 35 U.S.C. § 103(a) as being unpatentable over Moniz (US 2007/0137175 A1, published June 21, 2007) in view of either Frost or Carscallen;

(iii) Claims 1, 2, 4–8, 12–18, and 22–27 under 35 U.S.C. § 103(a) as being unpatentable over Starr (US 2010/0223903 A1, published Sept. 9, 2010) in view of either Lewis (US 2005/0265825 A1, published Dec. 1, 2005) or Walsh (“*Gas Turbine Performance*,” Second Edition 2004, Blackwell Science Ltd), optionally in view of Merry or Moniz, and further in view of Frost or Carscallen;

(iv) Claims 1–8, 12–18, and 22–27 under 35 U.S.C. § 103(a) as being unpatentable over Suciu (US 2009/0056306 A1, published Mar. 5, 2009) in view of either Lewis or Walsh, optionally in view of Merry or Moniz, and further in view of Frost or Carscallen;

(v) Claims 1–8, 12–18, and 22–27 under 35 U.S.C. § 103(a) as being unpatentable over Merry in view of either Lewis or Walsh, optionally in view of Moniz, and further in view of Frost or Carscallen; and

(vi) Claims 1, 2, 4–8, 12–18, and 22–27 under 35 U.S.C. § 103(a) as being unpatentable over Orlando (US 2008/0098715 A1, published May 1, 2008) in view of any of Suciu, Merry, and Moniz, and further in view of

either Lewis or Walsh, optionally in view of Moniz, and further in view of Frost or Carscallen.²

A rejection of claims 1–8, 12–18 and 22–27 appearing at paragraph 6 starting on page 3 of the Final Action is withdrawn by the Examiner. Ans. 25–26.

A rejection of claims 1–8, 12–18, and 22–27 appearing at paragraph 11 starting on page 25 of the Final Action is withdrawn by the Examiner as being a substantial duplicate of a rejection appearing at paragraph 10 thereof. Ans. 26.

ANALYSIS

All of Rejections (i)–(vi)

None of the arguments presented by Appellant are identified as being specific to any individual ground of rejection, and we therefore assume that Appellant intends that they apply equally to each of the rejections. Appeal Br. 4–6; Reply Br. 2–4. Appellant further does not present any separate arguments directed to particular claims, and we regard the claims as being argued as a single group. *Id.* We take claim 1 as representative of the group, and claims 2–8, 12–18, and 22–27 stand or fall with claim 1.

The issues joined by Appellant and the Examiner on appeal involve the Examiner’s findings and conclusions as to the obviousness of modifying the various principal references in view of the teachings of either Frost or Carscallen to provide a low pressure bleed with a bleed trailing edge that

² Frost and Carscallen are not included in the initial statement of this ground of rejection, but are applied in the rejection in a manner that is substantially identical to the manner used in all other rejections on appeal. Final Act. 30–35.

extends into a core flowpath beyond an outer diameter of the core flowpath. *See, e.g.*, Final Act. 11, 13–14; Appeal Br. 4–6. The Examiner takes the position, for example, that whereas Merry does not teach that its bleed trailing edge extends in the manner set forth in claim 1, Frost and Carscallen teach a bleed trailing edge having the claimed construction, and concludes that it would have been obvious to modify Merry so as to have a bleed trailing edge extending into the core flowpath beyond the outer diameter of the core flowpath, in order to enhance scooping of the flow in the core flowpath, and/or improve compressor stage operation and efficiency. Final Act. 11. The other grounds of rejection include essentially the same findings and conclusions.

Appellant argues that “[t]he Examiner’s presentation of the rejections as grouped combinations renders it unclear what rationale is being applied to what combination.” Appeal Br. 4. Appellant particularly takes issue with the rejections that are presented in the format, “A in view of B or C, in further view of D or E,” arguing that the Examiner fails to provide explicit analysis directed to each of the possible permutations arising from the use of that format. *Id.*

We note initially that this argument is not seen as being directed to rejections (i) and (ii) above, in that those are not presented in the complained-of format. As to rejections (iii)–(vi) above, we have reviewed the findings made by the Examiner and find them to be compliant in the sense that they clearly identify where or how each limitation of the rejected claims is met by the one or more references cited in each rejection. *See In re Jung*, 637 F. 3d 1356, 1363 (Fed. Cir. 2011) (explaining that a rejection must be set forth in sufficiently articulate and informative manner as to meet

the notice requirement of § 132, such as by identifying where or how each limitation of the rejected claims is met by the prior art references).

Appellant does not identify with specificity any instance where the Examiner has failed to comply with this standard.

Along the same lines, Appellant further argues that the Examiner's rationale in support of the conclusions of obviousness is inconsistent, in that the Examiner alternately concludes that it would have been obvious to modify the bleed trailing edge of the various principal references such that it extends into the core flowpath, and that, elsewhere, it would have been obvious to incorporate the entire variable bleed structure as taught by Frost or Carscallen. Appeal Br. 4–5. According to Appellant, this points to a failure to clearly articulate the reasons why the claimed invention would have been obvious. *Id.* at 5.

We agree with Appellant that the Examiner states that both a modification of an existing bleed trailing edge and a modification to include a variable bleed structure would have been obvious. That, however, does not compel a determination that the rejections fail to clearly articulate the reasons why the invention would have been obvious. The Examiner succinctly responds to this and other arguments advanced by Appellant, stating that “the projection of [sic, or] extension of the trailing edge into the core flowpath enhances the scooping of the bleed . . . regardless of whether the bleed is variable or not, by the simple fact that by extending into the flow, it is exposed to a greater surface to capture the bleed air.” Ans. 33. Furthermore, Appellant presents arguments as to each of the proposed modifications, and does not appear to be confused that each is an articulated proposed modification. Appeal Br. 5–6. We are thus not apprised of

Examiner error on the basis that the reasons supporting obviousness are not clearly articulated.

Appellant additionally argues that the proposed modification in view of Frost or Carscallen is in error, in that the variable bleed structure in each reference is positioned downstream of an exit guide vane, and in that a person of ordinary skill in the art “would have had no reason to expect the bleed structure to be able to fit within the claimed gas turbine engine upstream of the exit guide vane,” i.e., between a low pressure compressor rotor and the exit guide vane, as claimed. Appeal Br. 5–6.

We first note that this argument applies only to the Examiner’s proposal to add a variable bleed structure as taught by either Frost or Carscallen to the various principal references. The Examiner responds that the sizing of the bleed scoops and valves in the proposed modification are contingent on the size of the original bleed structures in the principal references, and such a variable bleed structure would be readily accommodated based on the size of the bleed passage in the principal references. Ans. 28.

Appellant has not pointed to any portion of the Frost or Carscallen references that would inform a person of ordinary skill in the art that the variable bleed structure is positioned where it is, as opposed to being upstream of an exit guide vane, based on space constraints. Appellant’s argument is thus seen as being merely attorney argument not supported by the evidence of record. *Invitrogen Corp. v. Clontech Labs, Inc.*, 429 F.3d 1052, 1068 (Fed. Cir. 2005) (explaining that unsubstantiated attorney argument is no substitute for competent evidence).

In contrast, the Examiner's position regarding sizing a variable bleed structure in accordance with any existing space constraints appears to be something that would be within the level of ordinary skill for an engine designer in this art. As such, we disagree with Appellant's contention that the person of ordinary skill would not have a reasonable expectation that the proposed modification would not be successfully achieved. *See* Appeal Br. 6.

Appellant argues, as to the proposed modification to simply extend the trailing edge existing in each of the principal references such that it extends into the core flowpath, that this amounts to an improper isolation of that aspect of Frost and Carscallen from its overall context. Appeal Br. 6. Appellant argues that the benefit identified by the Examiner as a reason to make the proposed modification, i.e., enhanced scooping of flow and/or improving compressor stage operations, "appears to be derived from the variable nature of the bleed structures combined with the extension into the flowpath, and not the extension of the trailing edge alone." *Id.* Appellant additionally argues that "the enhanced engine operations are achieved by the variability of the bleed, and not by the extension of the trailing edge into the flowpath." *Id.*

As to the latter, Appellant cites to no evidence in the record in support of the assertion; but even if we credit the argument, it does not apply to the other reason provided by the Examiner; i.e., enhanced scooping to better remove debris from the core flowpath. As to the former, we have already indicated our agreement with the Examiner's position that the projection of the bleed trailing edge into the core flowpath enhances the scooping of the bleed regardless of whether the bleed is variable or not, in that, by extending

into the flow, the bleed trailing edge is exposed to a greater surface to capture the bleed air. *See* Ans. 33. It is our view that a person of ordinary skill in the art would not view this form of proposed modification as an improper isolation of one feature or function from another (variable bleed). “A person of ordinary skill is also a person of ordinary creativity, not an automaton.” *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

The Examiner and Appellant further exchange positions directed to whether enhanced engine operation is as a result only of providing a variable bleed structure. Ans. 30–32; Reply Br. 3–4. We need not reach these arguments, given the foregoing analysis, which indicates that we are not apprised of error in the Examiner’s rejection.

Rejections (i)–(vi) are sustained as to claim 1. Claims 2–8, 12–18, and 22–27 fall with claim 1 for each rejection applied to each of those claims.

CONCLUSION

The rejection of claims 1–8, 12–18, and 22–27 under 35 U.S.C. § 103(a) as being unpatentable over Merry and Frost or Carscallen is affirmed.

The rejection of claims 1, 2, 4–7, 12, 14–17, 22, and 24–27 under 35 U.S.C. § 103(a) as being unpatentable over Moniz in view of either Frost or Carscallen is affirmed.

The rejection of claims 1, 2, 4–8, 12–18, and 22–27 under 35 U.S.C. § 103(a) as being unpatentable over Starr in view of either Lewis or Walsh, optionally in view of Merry or Moniz, and further in view of Frost or Carscallen, is affirmed.

The rejection of claims 1–8, 12–18, and 22–27 under 35 U.S.C.

§ 103(a) as being unpatentable over Suciu in view of either Lewis or Walsh, optionally in view of Merry or Moniz, and further in view of Frost or Carscallen, is affirmed.

The rejection of claims 1–8, 12–18, and 22–27 under 35 U.S.C.

§ 103(a) as being unpatentable over Merry in view of either Lewis or Walsh, optionally in view of Moniz, and further in view of Frost or Carscallen, is affirmed.

The rejection of claims 1, 2, 4–8, 12–18, and 22–27 under 35 U.S.C.

§ 103(a) as being unpatentable over Orlando in view of any of Suciu, Merry, and Moniz, further in view of either Lewis or Walsh, optionally in view of Moniz, and further in view of Frost or Carscallen, is affirmed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–8, 12–18, 22–27	103(a)	Merry, Frost, Carscallen	1–8, 12–18, 22–27	
1, 2, 4–7, 12, 14–17, 22, 24–27	103(a)	Moniz, Frost, Carscallen	1, 2, 4–7, 12, 14–17, 22, 24–27	
1, 2, 4–8, 12–18, 22–27	103(a)	Starr, Lewis, Walsh, Merry, Moniz, Frost, Carscallen,	1, 2, 4–8, 12–18, 22–27	
1–8, 12–18, 22–27	103(a)	Suciu, Lewis, Walsh, Merry, Moniz, Frost, Carscallen	1–8, 12–18, 22–27	
1–8, 12–18, 22–27	103(a)	Merry, Lewis, Walsh, Moniz, Frost, Carscallen	1–8, 12–18, 22–27	
1, 2, 4–8, 12–18, 22–27	103(a)	Orlando, Suciu, Merry, Moniz, Lewis, Walsh, Moniz, Frost, Carscallen	1, 2, 4–8, 12–18, 22–27	

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Overall Outcome			1-8, 12-18, 22-27	
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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(a)(1)(iv).

AFFIRMED