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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* BRIAN D. MERRY, GABRIEL L. SUCIU, and  
JAMES D. HILL

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Appeal 2018-004123  
Application 14/614,785  
Technology Center 3700

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Before BENJAMIN D. M. WOOD, NATHAN A. ENGELS, and  
PAUL J. KORNICZKY, *Administrative Patent Judges*.

WOOD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant<sup>1</sup> appeals under 35 U.S.C. § 134 from a rejection of claims  
1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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<sup>1</sup> “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as United Technologies Corporation. Appeal Brief (“App. Br.”) 1.

### THE CLAIMED SUBJECT MATTER

The claims are directed to a gas turbine engine having a section with a thermally isolated area. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A gas turbine engine, comprising:
  - a first compressor having a first overall pressure ratio, the first compressor being a low pressure compressor;
  - a second compressor having a second overall pressure ratio, the second compressor being a high pressure compressor downstream of the first compressor, wherein a ratio of the first overall pressure ratio to the second overall pressure ratio is greater than or equal to about 2.0; and
  - wherein a section of the gas turbine engine includes a thermally isolated area.

### REFERENCES

Piemmons <sup>2</sup>	US 5,232,339	Aug. 3, 1993
Glasspoole	US 6,183,193 B1	Feb. 6, 2001
Giffin	US 6,672,072 B1	Jan. 6, 2004
Hasel	US 8,277,174 B2	Oct. 2, 2012

### REJECTIONS

Claims 1–20 are rejected under 35 U.S.C. 112(b) as indefinite.

Claims 1–5, 7–11, 13, 14, and 16–20 are rejected under 35 U.S.C. § 103 as unpatentable over Piemmons and Hasel.

Claims 6 and 12 are rejected under 35 U.S.C. § 103 as unpatentable over Piemmons, Hasel, and Glasspoole.

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<sup>2</sup> Although the first named inventor of this patent appears to be “Plemmons,” we conform to the Examiner’s and Appellant’s usage of “Piemmons.”

Claim 15 is rejected under 35 U.S.C. § 103 as unpatentable over Piemmons, Hasel, Glasspoole, and Giffin.

## ANALYSIS

### *Claims 1–20—Indefiniteness*

Independent claims 1 and 17 both recite “a ratio of the first overall pressure ratio to the second overall pressure ratio is greater than or equal to about 2.0.” App. Br. 8, 10 (claims app.). Claims 2 and 18, which depend from claims 1 and 17 respectively, require the claimed ratio to be “greater than about 3.0.” *Id.* Claims 3 and 19, which depend from claims 2 and 17 respectively, require the claimed ratio to be “less than or equal to about 6.0.” The Examiner determines that “it is not clear what the metes and bounds of the term ‘about’ is in the terms ‘about 2’, ‘about 3’ and ‘about 3 [sic, 6].” Final Act. 3. Appellant responds that the Specification gives guidance as to the meaning of “the term ‘about.’” App. Br. 3. According to Appellant, one of ordinary skill in the art would be able to understand this language, because “[t]he specification states that ‘[t]erms such as ‘generally,’ ‘substantially,’ and ‘about’ are not intended to be boundaryless terms, and should be interpreted consistent with the way one skilled in the art would interpret the term.’” *Id.* (quoting Spec. ¶ 54 (emphasis added by Appellant)). Appellant further argues that “all that is required is a *reasonable* degree of precision,” but “[t]he Examiner is requiring *exacting* precision, which is inconsistent with the test for definiteness.” *Id.* at 4.

As Appellant correctly notes, exacting precision in claim language is not required, and a claim using a term of degree such as “about” is not indefinite when the Specification provides “some standard for measuring

that degree.” *Biosig Instr., Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015). Further, “an applicant may . . . overcome an indefiniteness rejection by providing evidence that the meaning of the term of degree can be ascertained by one of ordinary skill in the art when reading the disclosure.” MPEP § 2173.05(b)(I).

Here, Appellant relies on paragraph 54 of the Specification, as noted above. This provision does not shed light on a standard by which “about 2.0,” “about 3.0,” etc. may be measured, however, but merely applies to terms such as “about” the general principal that claim terms are to be accorded “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *In re Packard*, 751 F.3d 1307, 1317 (Fed. Cir. 2014) (quoting *Phillips v. AWH Corp.*, 415 F.3d 1302, 1312–13 (Fed. Cir. 2005)). Appellant does not identify, and we are unable to find, any other provision of the Specification that helps determine an objective standard for determining the metes and bounds of “about 2.0.” Nor has Appellant proffered extrinsic evidence or persuasive argument that does so. Accordingly, we sustain the Examiner’s rejection of claims 1–20 as indefinite.

*Claims 1–5, 7–11, 13, 14, and 16–20—  
Unpatentability—Piemmons and Hasel*

In rejecting claims 1–5, 7–11, 13, 14, and 16–20 as unpatentable over Piemmons and Hasel, the Examiner finds that Piemmons teaches all of the limitations of these claims—including a thermally isolated area—except for the claimed ratio of first and second overall pressure ratios of between 3

and 6.<sup>3</sup> Final Act. 4. For those limitations, the Examiner relies on Hasel, particularly Figure 5. The Examiner determines that “it would have been obvious to adapt the cooling teaching of Piemmons et al. to the well-known overall pressure ratio of compressors in order [to] reduce the stress on the compressor parts.” *Id.*

Appellant responds that the ratios on which the Examiner relies—those enclosed by area “S1” on the graph depicted in Figure 5 of Hasel—relate to three-spool engines, whereas Piemmons teaches a two-spool engine. App. Br. 4. Appellant further notes that Hasel also teaches ratios specifically for two-spool engines—those enclosed by area “S2” in the Figure 5 graph—which are “far less than 1.” *Id.* According to Appellant, “[o]ne skilled in the art would be inclined to apply Hasel’s two-spool teachings to Piemmon’s two-spool engine, but that would *not* result in the claimed combination because Hasel’s S2 ratios are not ‘greater than or equal to about 2.0.’” *Id.* at 6.

As Appellant notes, Hasel teaches, among other things, pressure ratios for three-spool engines that appear to overlap with the claimed pressure ratios, and pressure ratios for two-spool engines that are outside of the claimed pressure ratio range. We agree with Appellant that one of ordinary

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<sup>3</sup> In rejecting the claims under 35 U.S.C. § 103, the Examiner interprets the terms “about 2,” “about 3,” and “about 6” to be, respectively, 2, 3, and 6. Final Act. 3 (“Examiner for this office action is interpreting the term [‘about’] to be ‘equal.’”). Appellant criticizes this approach because, in Appellant’s view, it “effectively ignores the term ‘about.’” App. Br. 3. We disagree. It is, instead, the Examiner’s effort to advance prosecution of the claims notwithstanding the Examiner’s determination of the claims’ indefiniteness. Indeed, we do the same in addressing the Examiner’s obviousness rejection.

skill in the art would generally be expected to use the two-spool ratios for two-spool engines, and three-spool ratios for three-spool engines. Although the contrary is possible, the Examiner has not provided evidence or persuasive argument to support that possibility.

The Examiner argues that the claims are not limited to two-spool engines. Ans. 5. We agree. The problem is that the Examiner relies on Piemmon's *two-spool* engine in formulating this rejection. See Final Act. 4 (stating, in support of this rejection, that Piemmons discloses "a low speed spool (34, Fig. 1)" and "a high speed spool (32, Fig. 1)."); Ans. 5 (same). As a consequence, and as discussed above, one of ordinary skill in the art would be led to apply Hasel's two-spool-engine pressure ratios. The Examiner has not articulated a rejection based on a three-spool turbine.<sup>4</sup>

Because the combination of Piemmons's two-spool engine with Hasel's two-spool ratios does not teach or suggest all of the limitations of independent claims 1 and 17, as well as dependent claims 2–5, 7–11, 13, 14, 16, and 18–20, and we are not persuaded that one of ordinary skill in the art would use Hasel's three-spool pressure ratios in a two-spool gas turbine engine, we do not sustain this rejection.

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<sup>4</sup> In an October 10, 2017 Advisory Action, the Examiner describes a different combination of Piemmons and Hasel. See Oct. 10, 2017 Advisory Act. 2 (stating that Piemmons's teaching of cooling to reduce thermal distortion is being applied to Hasel's teaching of a three-spool turbine engine). This is clearly not the rejection that the Examiner articulates in the Final Action and Answer, however, where the Examiner relies on Piemmons's two-spool engine and Hasel's pressure ratios. Final Act. 4; Ans. 5.

*Remaining Rejections*

The Examiner's rejections of claims 6 and 12 as unpatentable over Piemmons, Hasel, and Glasspoole; and claim 15 as unpatentable over Piemmons, Hasel, Glasspoole, and Giffin; rely on the erroneous finding that one of ordinary skill in the art would have combined Piemmons's two-spool engine with Hasel's three-spool pressure ratios. Final Act. 5. Neither Glasspoole nor Giffin is relied on to cure this deficiency. Therefore, we decline to sustain these rejections.

DECISION

For the above reasons, the Examiner's rejection of claims 1–20 is affirmed. Specifically:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–20	112(b)	Indefiniteness	1–20	
1–5, 7–11, 13, 14, 16–20	103	Piemmons, Hasel		1–5, 7–11, 13, 14, 16–20
6, 12	103	Piemmons, Hasel, Glasspoole		6, 12
15	103	Piemmons, Hasel, and Giffin		15
<b>Overall Outcome</b>			1–20	1–20

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED