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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/624,697	02/18/2015	Edward R. BAREISS	67097-2893PUS1; 75898US02	2524
54549	7590	10/01/2020	EXAMINER	
CARLSON, GASKEY & OLDS/PRATT & WHITNEY 400 West Maple Road Suite 350 Birmingham, MI 48009			WONG, ELTON K	
			ART UNIT	PAPER NUMBER
			3745	
			NOTIFICATION DATE	DELIVERY MODE
			10/01/2020	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte EDWARD R. BAREISS

Appeal 2019-004563
Application 14/624,697
Technology Center 3700

Before STEFAN STAICOVICI, MICHELLE R. OSINSKI, and
PAUL J. KORNICZKY, *Administrative Patent Judges*.

KORNICZKY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE¹

Pursuant to 35 U.S.C. § 134(a), Appellant² appeals from the Examiner's Final decision to reject claims 1–6, 8–19, 21, 23, and 24. Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

CLAIMED SUBJECT MATTER

The claims are directed to a gas turbine engine component. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1 A component, comprising:

an airfoil that extends to a tip shroud, said airfoil including an internal cooling passage that extends inside a body;

wherein said tip shroud is comprised of a first material, said tip shroud defining at least one opening to said internal cooling passage;

a cover attached to said tip shroud and covering said at least one opening, said cover comprised of a second material, said cover positioned and configured to adapt relative to an uneven surface of said tip shroud, and said uneven surface being an outer diameter surface of said tip shroud; and

a braze alloy employable to braze said cover to said tip shroud and comprised of a third material, wherein said first material, said second material and said third material are different materials.

¹ In this Decision, we refer to (1) the Examiner's Final Office Action dated September 5, 2018 ("Final Act."), Advisory Action dated November 23, 2018 ("Adv. Act."), and Answer dated March 22, 2019 ("Ans."), and (2) Appellant's Appeal Brief dated February 5, 2019 ("Appeal Br.") and Reply Brief dated May 22, 2019 ("Reply Br.").

² We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as United Technologies Corporation. Appeal Br. 1.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Deptowicz	US 5,599,166	Feb. 4, 1997
Nenov	US 2005/0091848 A1	May 5, 2005
Rucker	US 2007/0141385 A1	June 21, 2007
Sadler	US 2007/0183897 A1	Aug. 9, 2007
Poon	US 8,292,587 B2	Oct. 23, 2012
Bischof	US 8,413,877 B2	Apr. 9, 2013

REJECTIONS

1. Claims 5 and 13 stand rejected under 35 U.S.C. § 112(b) as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.³ Ans. 7; *see also* Final Act. 3–4; Adv. Act. 2.

2. Claims 1, 3, 6, 8, 10, 11, and 15 stand rejected under 35 U.S.C. § 102(a)(1) as being anticipated by Poon. Final Act. 5–6.

3. Claims 2 and 14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Poon and Rucker. Final Act. 6–7.

4. Claims 4, 5, 9, 12, and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Poon and Bischof. Final Act. 7–10.

5. Claims 16, 17, and 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Poon, Sadler, and Nenov. Final Act. 10–11.

6. Claims 18 and 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Poon, Sadler, Nenov, and Rucker. Final Act. 11–12.

³ The rejection of claims 1–4, 6, 8–12, 14, 15, 21, and 24 is withdrawn. Adv. Act. 2; Ans. 7.

7. Claim 21 stands rejected under 35 U.S.C. § 103 as being unpatentable over Poon and Sadler. Final Act. 12–13.

8. Claim 23 stands rejected under 35 U.S.C. § 103 as being unpatentable over Poon, Sadler, Nenov, Rucker, and Deptowicz. Final Act. 13.

Appellant seeks our review of these rejections.

OPINION

Rejection 1: Claims 5 and 13 as being Indefinite

The Examiner finds that the term “AMS 4777” recited in claims 5 and 13 is indefinite. Final Act. 4. The Examiner acknowledges that AMS 4777 is a part of the “Aerospace Material Specifications” standard for identifying alloys but requests further confirmation of the specific standard referenced in the Specification because there is a possibility that the standard may change and render the claim indefinite. *Id.*; *see also* Adv. Act. 2 and Ans. 7.

Appellant argues that “one could readily determine the meaning of the term at the time of filing” and “a proper construction is the ‘meaning given to the term by those of ordinary skill in the art at the time of the invention.’” Appeal Br. 8 (citing MPEP § 2173.02). Even if the ASM standard referred to in the claims should change over time, the ASM standard referred to in the claims was in existence when the application was filed and would remain available for reference despite later changes to the standard. One of ordinary skill in the art could readily determine the bounds of claims 5 and 13 based upon the standard that was in effect at the time Appellant’s application was filed, and we do not sustain the rejection of claims 5 and 13 as indefinite.

Rejection 2: Claims 1, 3, 6, 8, 10, 11, and 15 as Anticipated by Poon

Appellant argues claims 1, 3, 6, 8, 10, 11, and 15 as a group. Appeal Br. 3–4. We select independent claim 1 as the representative claim, and claims 3, 6, 8, 10, 11, and 15 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner finds that Poon discloses all of the limitations in claim 1 including a “cover positioned and configured to adapt relative to an uneven surface of said tip shroud, and said uneven surface being separate and distinct from said at least one opening.” Final Act. 5. The Examiner explains that “[s]urfaces of casted components, such as [the] blade in Poon, inherently have uneven surfaces due to manufacturing processes. Such a fact is known to those of ordinary skill in the art and are normally accounted for in design tolerances.” Final Act. 2–3 (citing Glasspoole, 4:58–63 (Glasspoole, et al., US 6,183,193 B1, issued Feb. 6, 2001, “Glasspoole”)). The Examiner construes “uneven surface” to broadly refer to “a surface with any feature affecting the continuous, planar nature of the surface such as, but not limited to, roughness, protrusions, ridges, depressions, gaps, and the like.” Ans. 4. The Examiner explains that this meaning of “uneven surface” is consistent with its usage in claim 1 and the Specification. Ans. 4 (citing Spec. ¶¶ 11 (“[T]he cover is positioned and configured to adapt relative to an uneven surface of the tip shroud”), 23 (“[T]he method includes positioning the cover at an uneven surface of a tip shroud of the blade and adapting the cover to conform to the uneven surface.”), and 52 (“The relatively thin thickness T [of cover 82] enables the cover 82 to conform to irregular surfaces during assembly.”)).

Appellant argues that the Examiner's rejection is erroneous. Appeal Br. 3–4; *see also* Reply Br. 1–2. Appellant argues that “the grooves 1002 in Figure 10 of Poon are not ‘an outer diameter surface of said tip shroud’ as required by” claim 1. Reply Br. 2. According to Appellant, “Figure 10 of Poon, taken along line 10-10 of Figure 9, appears to show the grooves being inward of an outer diameter surface of the tip shroud 980.” *Id.* at 3.

Appellant's argument is not persuasive because Poon's Figure 9 discloses that grooves 1002 are on the outer diameter surface of tip shroud 980. The Examiner correctly finds that Figure 9 shows cross-section line 10-10 with arrows pointed upwards so that the view in Figure 9 is looking up towards the top of the tip shroud and the dotted-lines in Figure 10 suggest that grooves 1002 are not in the same plane as the cross section. Poon also states “a cover plate (not shown) is disposed over the second side 986 of the tip shroud 980 and over the groove[s] 1002” (Poon, 7:59–64), and, thus, teaches that grooves 1002 are on the tip shroud. Appellant does not define the term “uneven surface,” persuasively explain why the Examiner's construction of “uneven surface” is inconsistent with the usage in the claims or the Specification, or explain why grooves 1002 do not constitute an “uneven surface” as construed by the Examiner.

For the reasons above, the rejection of claim 1 is sustained. Claims 3, 6, 8, 10–11, and 15 fall with claim 1.

Rejections 3–4: Claims 2, 4, 5, 9, 12–14

Appellant argues that the rejections of claims 2, 4, 5, 9, 12–14 are erroneous for the same reasons discussed above in connection with claim 1. Appeal Br. 7. As discussed above in connection with claim 1, Appellant's

arguments are not persuasive. Thus, the rejection of claims 2, 4, 5, 9, 12–14 are sustained.

*Rejection 5: Claims 16, 17, and 19
as Unpatentable over Poon, Sadler, and Nenov*

The Examiner finds that the combined teachings of Poon, Sadler, and Nenov disclose all of the limitations of claims 16, 17, and 19. Final Act. 10–11; *see also* Ans. 5–7.

Claim 16

Appellant argues that the Examiner’s rejection of claim 16 is erroneous for several reasons. First, Appellant argues that the Examiner admits that (1) Poon does not disclose knife edge seals or positioning the alleged cover between knife edge seals, (2) Poon does not teach a repair method for the turbine blade 900, and (3) Sadler lacks a cover plate. Appeal Br. 5 (citing Final Act. 10).

Appellant’s arguments are not persuasive because Appellant is attacking the teachings of Poon and Sadler individually. Nonobviousness, however, cannot be established by attacking the references individually when the rejection is predicated upon a combination of prior art disclosures. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Here, the Examiner’s rejection of claim 16 is based on the combination of Poon, Sadler, and Nenov. The Examiner relies on Sadler, not Poon, for its disclosure of knife edge seals and positioning the alleged cover between knife edge seals. Final Act. 10. The Examiner relies on Nenov, not Poon, for its disclosure of a repair method for the turbine blade. *Id.* Finally, the Examiner relies on Poon, not Sadler, for its disclosure of a cover plate. *Id.*

Appellant does not address the rejection as articulated by the Examiner, and, thus, does not identify error by the Examiner.

Second, Appellant argues that the Examiner's reasoning for combining Poon and Sadler is erroneous because "Sadler does not disclose a cover between the alleged pair of rails," and, thus, "due to the lack of teaching in the cited art and the fact that this feature is only present in Appellant's disclosure, it logically follows that the only reason to modify the references with this location is gleaned from Appellant's disclosure in an exercise of impermissible hindsight reconstruction." Appeal Br. 5. Similarly, Appellant argues that the Examiner's reasoning for combining Poon and Nenov is erroneous because the "Examiner does not point to any objective evidence that one would modify Poon in the manner proposed by the Examiner when considering the teachings of Nenov as a whole." *Id.* at 6.

Appellant's arguments are not persuasive because an express teaching or motivation in Poon, Sadler, or Nenov is not required; instead, the Examiner need only articulate a reason to combine the references with some rational underpinning to support the legal conclusion of obviousness. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Here, Appellant does not address adequately the Examiner's rationales for combining: (1) Poon and Sadler—to modify Poon's blade to have a pair of rails as taught by Sadler because "the introduction of knife seals would help minimize the leakage in the flow path between the blade and the outer seal of the turbine;" and (2) Poon and Nenov—to modify the Poon-Sadler's method such that it is a repair method because "Nenov acknowledges the utility of brazing for repairing a gas turbine engine part." Final Act. 10–11. Appellant does not

address the rejection as articulated by the Examiner, and, thus, does not identify error.

For the reasons above, the rejection of claim 16 is sustained.

Claim 17

Appellant does not address the rejection of claim 17, and because the arguments for the claim from which claim 17 depends were unpersuasive, the rejection is likewise sustained.

Claim 19

Appellant argues that the rejection of claim 19 is erroneous for the same reasons discussed above in connection with claim 1. Appeal Br. 6. As discussed above in connection with claim 1, Appellant's arguments are not persuasive. Thus, the rejection of claim 19 is sustained.

Rejection 6: Claims 18 and 24 as Unpatentable over Poon, Sadler, Nenov, and Rucker

Appellant argues that the rejection of claims 18 and 24 is erroneous for the same reasons discussed above in connection with claim 16, and Rucker does not remedies the deficiencies of Poon, Sadler, and Nenov. Appeal Br. 7. As discussed above in connection with claim 16, Appellant's arguments are not persuasive. Thus, the rejection of claims 18 and 24 is sustained.

Rejection 7: Claim 21 as Unpatentable over Poon and Sadler

Appellant argues that the rejection of claim 21 is erroneous for the same reasons discussed above in connection with claim 16. Appeal Br. 6–7. As discussed above in connection with claim 16, Appellant’s arguments are not persuasive. Thus, the rejection of claim 21 is sustained.

*Rejection 8: Claim 23
as Unpatentable over Poon, Sadler, Nenov, Rucker, and Deptowicz*

Appellant does not address the rejection of claim 23, and because the arguments for the claims from which claim 23 depends were unpersuasive, the rejection is likewise sustained.

CONCLUSION

The Examiner’s rejections of claims 1–6, 8–19, 21, 23, and 24 are
AFFIRMED.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
5, 13	112(b)	Indefiniteness	5, 13	
1, 3, 6, 8, 10–11, 15	102(a)(1)	Poon	1, 3, 6, 8, 10–11, 15	
2, 14	103	Poon, Rucker	2, 14	
4, 5, 9, 12, 13	103	Poon, Bischof	4, 5, 9, 12, 13	
16, 17, 19	103	Poon, Sadler, Nenov	16, 17, 19	
18, 24	103	Poon, Sadler, Nenov, Rucker	18, 24	
21	103	Poon, Sadler	21	
23	103	Poon, Sadler, Nenov, Rucker, Deptowicz	23	
Overall Outcome			1–6, 8–19, 21, 23, 24	

TIME PERIOD FOR RESPONSE

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