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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GARY D. ROBERGE, CHARLES R. LEJAMBRE, and CHARLES R. WATSON

Appeal 2012-007873[1]
Application 11/689,651[2]
Technology Center 3700

Before NINA L. MEDLOCK, KEVIN W. CHERRY, and JAMES A. WORTH, *Administrative Patent Judges.*

CHERRY, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Gary D. Roberge, Charles R. Lejambre, and Charles R. Watson (Appellants) seek review under 35 U.S.C. § 134 of a final rejection of claims 1–20 and 22–25, the only claims pending in the application on appeal. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

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[1] Our decision references the Appellants' Appeal Brief ("App. Br.") filed November 21, 2011, and Reply Brief ("Reply Br.") filed April 16, 2012, and the Examiner's Answer ("Ans.") mailed February 15, 2012.

[2] Appellants' Appeal Brief identifies United Technologies Corporation as the real party in interest (App. Br. 2).

Appellants' claimed invention relates to a gas turbine engine with a variable fan nozzle that includes a protective coating (Spec. ¶ 1).

Claim 1, which is reproduced below, is illustrative of the claimed subject matter on appeal.

> 1. A variable area fan nozzle for use with a gas turbine engine system, comprising:
>
> a nozzle section that is moveable between a plurality of positions to change an effective area associated with a bypass airflow through a fan bypass passage of a gas turbine engine;
>
> a protective coating on the nozzle section that resists change in the effective area of the nozzle section caused by environmental conditions; and
>
> a primer layer between the nozzle section and the protective coating.

(App. Br. 10, Claims App'x).

Rejections

Claims 1–9, 11–20, and 22–25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Lair (US 7,093,793 B2, iss. Aug. 22, 2006), Putnam (US 2006/0281861 A1, pub. Dec. 14, 2006) and Nagato (US 2008/0085416 A1, pub. Apr. 10, 2008).

Claim 10 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Lair, Putnam, Nagato, and Rudolph (US 5,114,100, iss. May 19, 1992).

ANALYSIS

Claims 1–3, 5–8, 11, 16–20, and 22–25

Appellants argue claims 1–3, 5–8, 11, 16–20, and 22–25 as a group (App. Br. 3–5). We select claim 1 as representative, and claims 2, 3, 5–8, 11, 16–20, and 22–25 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii) (2011).

We are not persuaded by Appellants' argument that the Examiner's interpretation of Nagato is not justified because the cited portion of Nagato (paragraphs 114 and 117) does not teach siloxane top layers (App. Br. 3–4). As the Examiner acknowledged in the Answer, the incorrect paragraphs were cited in the Final Rejection (Ans. 7). The Examiner corrected those citations to paragraphs 146 and 150 (*id.*). The Examiner further noted that Nagato's primary purpose in the proposed combination is to provide a primer layer, and Putnam is relied upon for the "top layer" (*id.* at 7–8). The Examiner submitted that paragraphs 146 and 150 of Nagato were cited to show that it was known to use a protective layer, as taught by Putnam, with a primer as taught by Nagato (*id.* at 8). We have reviewed the correct cited paragraphs of Nagato and agree with the Examiner that these paragraphs do show the use of a silicone-based top layer with the primer of Nagato. We further note that Appellants appear to concede this point (Reply Br. 2).

We are also not persuaded by Appellants' argument that the Examiner erred because the claimed subject matter as a whole would not have been obvious at the time of the invention (App. Br. 4–5; Reply Br. 2). Appellants submit that the claimed subject matter as a whole is directed to the use of a protective coating on a nozzle section to resist change in the effective area of the nozzle section caused by environmental conditions (App. Br. 4). Appellants argue that the premise of using a protective coating on a nozzle differs from the premise of using coatings on airfoils and is not recognized in the cited references, so the claimed nozzle and protective coating yield results that would not have been predicted from the cited references (*id.*). We agree with the Examiner, however, that the proposed combination of Lair, Nagato, and Putnam discloses the limitations of claim 1, and that a

person of ordinary skill would have been motivated to make the combination for the benefit of preventing ice formation that degrades aerodynamic properties of the nozzle. Appellants' contentions that the prior art does not recognize the "premise" of the invention are not persuasive, because it is not necessary for a finding of obviousness that all the advantages of a claimed invention are recognized by the prior art or that the motivation of one of ordinary skill in the art be the same as the applicant's motivation. *See In re Kemps*, 97 F.3d 1427, 1430 (Fed. Cir. 1996); *In re Dillon*, 919 F.2d 688, 693 (Fed. Cir. 1990) (en banc). Here, the Examiner's reasoning is sufficient to establish a prima facie case and Appellants have cited no specific *evidence* in support of their contention of unexpected results to rebut this case. *See In re Lindner*, 457 F.2d 506, 508 (CCPA 1972).

We are also not persuaded by Appellants' argument that the Examiner erred because a person of ordinary skill would not have had a reasonable expectation of success in making the proposed combination (App. Br. 5–6; Reply Br. 3). Appellants argue that in the Nagato reference, the substrate may be any of various materials, the top coat layer is formed from a curable fluorine-containing resin and the primer is formed with a composition that includes polydiorganosiloxane that is designed to adhere to the fluorine-containing topcoat layer (App. Br. 5; Reply Br. 3). Appellants contend that Putnam's anti-icing coating, on the other hand, contains solid or liquid, or both, anti-icing oils or fillers. Appellants assert that the anti-icing liquids/oils/fillers render the coating icephobic (App. Br. 5; Reply Br. 3). Appellants submit that the composition in Putnam changes the adhesion properties of the coating such that ice, which normally adheres to fluorocarbon elastomers, does not adhere to the composition of Putnam (*id.*).

Appellants assert that "[t]herefore, one would also reasonably expect that other materials that normally adhere to fluorocarbon elastomers, such as the primer layer of Nagato, would also not adhere to the icephobic composition of Putnam" (*id.*). We agree with the Examiner, however, that Putnam teaches silicone based protective layers (paragraph 14) and Nagato teaches a primer layer used with a top layer that is also silicone based (Ans. 9). Appellants have cited no evidence nor provided any explanation to support their conclusion that Nagato's primer layer is sufficiently similar to ice that the icephobic coatings of Putnam will not adhere to it. In the absence of any evidence to support their contentions, Appellants have not met the burden of rebutting the prima facie case of obviousness. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981) ("[o]nce a prima facie case of obviousness [is] established . . . , the burden shift[s] to appellant to rebut it"). Thus, we sustain the rejection of claims 1–3, 5–8, 11, 16–20, and 22–25.

Claim 4

We are not persuaded by Appellants' argument that the Examiner erred because the Examiner failed to provide any reasoning to support the rejection of claim 4 (App. Br. 6; Reply Br. 3–4). In the Answer, the Examiner provided a detailed explanation of the reasoning and claim construction underlying the rejection of claim 4, with citations to the prior art relied upon. This is sufficient to put the Appellants on notice of the rejection. *See In re Jung*, 637 F.3d 1356, 1362–63 (Fed. Cir. 2011).

We are also not persuaded by Appellants' argument that the Examiner erred in rejecting claim 4 because the Examiner's claim construction of this claim is improper (App. Br. 6; Reply Br. 3–4). Claim 4 depends on claim 3 and recites "wherein [the] nozzle section includes an outermost surface that

comprises a polymer composite material" (App. Br. 10, Claims App'x). The Examiner determined that the "outermost surface" of the "nozzle section," as recited in claim 4, includes the protective coating applied to the nozzle section (Ans. 10). Based on that interpretation, the Examiner found that Putnam discloses a protective coating that is a polymer composite and forms the outermost surface of the nozzle section (*id*.).

Appellants assert that the Examiner's construction is inconsistent with, and precluded by the claim language (App. Br. 6; Reply Br. 3–4). Appellants argue that claim 1, from which claim 4 indirectly depends, recites "a protective coating on the nozzle section" (*id.*). Appellants contend that when the language of claim 1 is read together with the language of claim 4, "[t]he implication is that the protective coating recited in base claim 1 is located on the outermost surface comprising the polymer composite material" (*id*. at 6). Appellants argue that "[t]herefore, the Examiner's argument is improperly directed at the protective coating being a polymer composite rather than the claimed outermost surface of the nozzle section" (*id.*). However, we agree with the Examiner that under the broadest reasonable construction, the "outermost surface" of the "nozzle section" can include the protective layer. Appellants seek to read the limitation into claim 4 that the outermost surface must be the surface of the nozzle without the protective or primer layers applied. We decline to read this limitation into the claim absent some definition or disclaimer in the Specification. *See In re Morris*, 127 F.3d 1048, 1053–54 (Fed. Cir. 1997). Appellants have not identified such a definition or disclaimer. Thus, we sustain the rejection of claim 4.

Claims 9 and 12–15

We are not persuaded by Appellants' arguments that the Examiner erred in rejecting claims 9 and 12–15 by improperly relying on the rationale of "design choice" (App. Br. 7; Reply Br. 4). Appellants contend that "the bypass air flow must maintain the predetermined effective area of the nozzle in order to obtain the desired effect, such as a desired pressure ratio across a fan of the gas turbine engine" (*id.* at 4). Thus, Appellants assert that the claimed coatings and areas yield results that would not have been predicted from the cited references, which only use such coatings for aerodynamic efficiency reasons (*id.*). However, we agree with the Examiner that Putnam discloses that it is desirable to apply icephobic coatings on components of a gas turbine engine, including inlets and propeller fan blades, to prevent ice build-up (Ans. 10–11). Therefore, we agree with the Examiner that selecting a particular one of these locations for applying such a coating would have been obvious to a person of ordinary skill in the art at the time of the invention. Thus, we sustain the rejection of claims 9 and 12–15.

Claim 10

We are not persuaded by Appellants' argument that the Examiner erred in rejecting claim 10 because the Examiner failed to show that there was a reasonable expectation of success in the combination of Lair, Putnam, Nagato, and Rudolph (App. Br. 7–8; Reply Br. 5). Appellants contend that applying the coating of Putnam over the surface having perforations would block the holes through which the hot air is discharged (App. Br. 8). Appellants further argue that ice adhesion is prevented by providing a weak boundary between the ice and the surface and that applying a coating over a perforated surface would cause dimpling or other surface texture on the

coating surface, which would mechanically aid ice adhesion (*id.*). The Examiner submits that the combination discloses the limitations of claim 10 and that the methods used in Putnam for applying the coating—spraying, electrostatic spraying, and dipping—can be performed without clogging the holes (Ans. 11). In addition, the Examiner explains that Rudolph uses the perforations to discharge hot air meaning that the hot air received through the perforations would be melting the ice, not aiding ice adhesion (*id.*).

We agree with the Examiner that the combination of Lair, Putnam, Nagato, and Rudolph discloses the limitations of claim 10 and that a person of ordinary skill would have been motivated to make this combination to ensure that the engine would stay ice-free (Ans. 7). Appellants have simply failed to point to any evidence that would establish that coatings such as Putnam would clog the holes or that the holes would aid ice adhesion. Moreover, Appellants have failed to provide a specific, technical analysis as to why the Examiner's reasoning is incorrect. In the absence of such an analysis, Appellants have not met the burden of rebutting the prima facie case of obviousness. *See In re Keller*, 642 F.2d at 425. Thus, we sustain the rejection of claim 10.

DECISION

The rejections of claims 1–20 and 22–25 are affirmed.

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) (2011).

AFFIRMED

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