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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TAISUKE ISEDA and MASAHIRO IWAMOTO

Appeal 2019-000410
Application 15/121,076
Technology Center 1700

Before ROMULO H. DELMENDO, LINDA M. GAUDETTE, and
LILAN REN, *Administrative Patent Judges*.

REN, *Administrative Patent Judge*.

DECISION ON APPEAL¹

¹ The record on appeal includes the Specification of August 24, 2016 (“Spec.”), the Examiner’s Final Action of April 19, 2018 (“Final Act.”), Appeal Brief of August 28, 2018 (“Appeal Br.”), the Examiner’s Answer of September 28, 2018 (“Ans.”), and Reply Brief of October 19, 2018 (“Reply Br.”).

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant,² Mitsubishi Belting Ltd., appeals from the Examiner's decision to reject claims 1–8 and 10–14. Final Act. 3–6. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

CLAIMED SUBJECT MATTER

The claims are directed to a conductive composition and conductive molded article. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A conductive composition comprising a conductive metal powder and a resin component, wherein the conductive metal powder comprises at least a metal flake having a crystalline structure in which a metal crystal grows in a flake shape, and the resin component comprises an aromatic amine skeleton.

Claims Appendix (Appeal Br. i).

² We use the word “Appellant” to refer to “Applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Mitsubishi Belting Ltd. Appeal Br. 2.

REFERENCES

The prior art references relied upon by the Examiner are:

Basheer	US 5,891,367	Apr. 6, 1999
Takuya	JP 2004183010	July 2, 2004
Nobuo	JP 2011187194	Sept. 22, 2011

Chemical Reaction Powder, 2016 Fukuda Metal Foil & Powder Co., Ltd., (accessed Nov. 20, 2017), available at <https://www.fukuda-kyoto.co.jp/03product-e/data1-04.html> (“Fukuda”).³

REJECTIONS

Claims 1–8 and 10–14 are rejected under 35 U.S.C. § 103 as being unpatentable over Nobuo in view of evidence provided by Fukuda. Final Act. 3.

Claims 1–4, 7, 8, and 10–14 are rejected under 35 U.S.C. § 103 as being unpatentable over Basheer in view of Takuya. Final Act. 5.

OPINION

*Rejection of Claim 1 Based on Nobuo As Evidenced by Fukuda*⁴

The Examiner finds that Nobuo describes a conductive paste that “contains conductive particles, an epoxy resin, a curing agent” that may include “aliphatic polyamines, alicyclic polyamines, [and] aromatic polyamines.” Nobuo ¶¶ 6, 10 (cited in Final Act. 4). The Examiner finds that the conductive particles used in Nobuo are “silver particles having a scaly

³ Appellant does not argue whether Fukuda is prior art to the claims of the pending application.

⁴ Appellant does not present separate arguments for the obviousness rejection of claims 3–8, 10, and 11 over Nobuo and Fukuda. *See, e.g.*, Appeal Br. 4–5, 8–13. These claims, therefore, stand or fall with the obviousness rejection of claim 1 over Nobuo and Fukuda. *See id.*; *see also* 37 C.F.R. § 41.37(c)(1)(iv).

shape.” *Id.* ¶ 8 (cited in Final Act. 4). The Examiner finds that an example in Nobuo uses AgC-A as conductive particles which Fukuda evidences as having a flake particle shape. Final Act. 4 (citing Nobuo ¶ 14 and Fukuda). Appellant does not dispute these findings but argues instead that the Examiner erred by using “non-preferred disclosures” and that Nobuo “identifies no such advantage for aromatic polyamines and provides no examples in which aromatic polyamines are used.” Appeal Br. 4. Appellant also faults the Examiner for failing to explain why a skilled artisan would have chosen the aromatic polyamines from the prior art teaching that “aliphatic polyamines, alicyclic polyamines, [and] aromatic polyamines” may be used in a conductive adhesive. *Id.*; Nobuo ¶ 10.

“[W]e reiterate that ‘all disclosures of the prior art, including unpreferred embodiments, must be considered’ in determining obviousness.” *In re Burckel*, 592 F.2d 1175, 1179 (CCPA 1979). In this case, the Appellant does not dispute the Examiner’s finding that prior art teaches a conductive composition having aromatic polyamines as a curing agent. *Compare* Final Act. 3, *with* Appeal Br. 4; *see also* Nobuo ¶¶ 6, 10. Whether the prior art considers aromatic polyamines as a preferred embodiment does not patentably distinguish the prior art from the recited composition.

Appellant’s argument that “Nobuo is admittedly silent on the conductive particles having a crystalline structure grown in a flaky shape; and the Final Office Action relies only on inherency based on a single example in Nobuo” (Appeal Br. 5) does not identify error in the Examiner’s findings in support of the rejection that Fukuda teaches a conductive particle having a flake shape as recited in claim 1 (Final Act. 3). Appellant’s argument attacks the references individually, rather than considering what

the combined references would have suggested to the person of ordinary skill in the art, and is therefore unpersuasive. “Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.” *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). No reversible error has been identified and we sustain the Examiner’s rejection of claim 1 based on Nobuo and Fukuda.

*Rejection of Claim 1 Based on Basheer & Takuya*⁵

The Examiner finds that Basheer teaches or suggests “an aromatic amine skeleton” as recited in claim 1 based on the definition provided by the Specification. Ans. 7 (citing Spec. ¶ 11). More specifically, the Specification provides:

Incidentally, the “resin component having an aromatic amine skeleton” means a resin component having an aromatic amine skeleton or residue (particularly, an aromatic polyamine skeleton or residue) in a cured or solidified state and includes not only a resin in which an aromatic amine (particularly, an aromatic polyamine) is used as a reaction component but also a resin composition containing a resin [sic] and an aromatic amine (particularly, an aromatic polyamine).

Spec. ¶ 11. The Examiner thus concludes that “a composition that comprises a resin and an aromatic amine meets this definition, even if they are not reacted.” Ans. 8.

Appellant argues that “Basheer describes epoxy resins . . . which plainly do not have an aromatic amine skeleton” and that “[d]imethylamino

⁵ Appellant does not present separate arguments for the obviousness rejection of claims 3–8, 10, and 11 over Basheer and Takuya. *See, e.g.*, Appeal Br. 8. These claims, therefore, stand or fall with the obviousness rejection of claim 1 over Basheer and Takuya. *See id.*; *see also* 37 C.F.R. § 41.37(c)(1)(iv).

methyl phenol, which may be introduced as an accelerator . . . would not affect the skeleton of the epoxy resin” (Appeal Br. 8) without addressing the Examiner’s findings based on the definition in the Specification. *See, e.g.*, Reply Br. No reversible error has therefore been identified here.

*Rejection of Claim 2 Based on Nobuo As Evidenced by Fukuda*⁶

Claim 2 depends from claim 1 and additionally recites “a metal flake having a value X represented” by a recited equation.

Appellant argues that the Specification provides “techniques to control crystal growth” which are not mentioned in Nobuo or Fukuda and therefore the Examiner reversibly erred in finding that the prior art composition would be characterized by the value X recited in claim 1. Appeal Br. 7 (citing Spec. ¶¶ 26–33).

Appellant’s argument is unpersuasive for at least two reasons. First, both claims 1 and 2 are composition claims and neither recites the crystal growth process specified by Appellant. Appellant’s argument, based on a feature not recited in the claims, cannot impart patentability to claims. *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998). We further note that the Specification provides that “[a]s the metal flakes, commercially available products may be used or the metal flakes may be synthesized by conventional methods” (Spec. ¶ 34), which is consistent with the Examiner’s finding that the prior art metal flake composition is similar to the recited

⁶ Appellant argues as a group the obviousness rejection of claims 2 and 12–14 over Nobuo and Fukuda. *See, e.g.*, Appeal Br. 6–7. We select claim 2 as representative and claims 12–14 stand or fall with claim 2 for the obviousness rejection over Nobuo and Fukuda. *See id.*; *see also* 37 C.F.R. § 41.37(c)(1)(iv).

metal flake composition as they are produced by the same process. Final Act. 4; Ans. 6–7.

Second, the Specification provides that “the degree of crystallinity in the metal flake can be estimated by using the diffraction intensity in X-ray diffraction as an index.” Spec. ¶ 30. The Specification goes on to provide that “[i]ncidentally, the value X by the X-ray diffraction described above is simply referred to as ‘value X’ in some cases.” *Id.* The Specification is therefore consistent with the Examiner’s finding that the recited “value X” is a parameter or property of the metal flake. *See* Ans. 7–8. The Examiner finds that the Specification does not show that the crystal growth process cited by Appellant is required for the metal flake to exhibit the recited “value X” – a finding undisputed by Appellant. *Compare* Ans. 7, with Reply Br. 5.

Based on the foregoing analysis, we sustain the rejection of claim 2 based on Nobuo as evidenced by Fukuda.

*Rejection of Claim 2 Based on Basheer & Takuya*⁷

Appellant’s arguments with regard to the obviousness rejection of claim 2 over Basheer and Takuya mirror those raised for the obviousness rejection of claim 2 over Nobuo as evidenced by Fukuda. *See* Appeal Br. 9 (“As discussed previously, such adaptations include employing techniques to control crystal growth, as described in the specification at ¶¶ [0026]-[0033].”). We sustain the rejection of claim 2 over Basheer and Takuya based on the analysis provided in detail *supra*.

⁷ Appellant argues as a group the obviousness rejection of claims 2 and 12–14 over Basheer and Takuya. *See, e.g.*, Appeal Br. 8–9. We select claim 2 as representative and claims 12–14 stand or fall with claim 2 for the obviousness rejection over Basheer and Takuya. *See id.*; *see also* 37 C.F.R. § 41.37(c)(1)(iv).

Unexpected Results

Appellant argues that the Examiner reversibly erred in failing to consider Table 1 of the Specification as evidence of unexpected results. Appeal Br. 10–12.

“To be particularly probative, evidence of unexpected results must establish that there is a difference between the results obtained and those of the closest prior art, and that the difference would not have been expected by one of ordinary skill in the art at the time of the invention.” *Bristol-Myers Squibb Co. v. Teva Pharm. USA, Inc.*, 752 F.3d 967, 977 (Fed. Cir. 2014). “Mere improvement in properties does not always suffice to show unexpected results. In our view, however, when an applicant demonstrates *substantially* improved results . . . and *states* that the results were *unexpected*, this should suffice to establish unexpected results *in the absence of evidence to the contrary.*” *In re Soni*, 54 F.3d 746, 751 (Fed. Cir. 1995).

In this case, Appellant argues that “Table 1 demonstrates that these unexpectedly improved properties are attributable to this particular combination of components” (Appeal Br. 10) without showing that the comparisons are made between the invention and the closest prior art. *See In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991) (“[W]hen unexpected results are used as evidence of nonobviousness, the results must be shown to be unexpected compared with the closest prior art.”); *see also* Appeal Br. 12 (arguing, without evidentiary support or identifying the closest prior art, that “[t]he data presented in Table 1 of the specification amply demonstrates the subject matter of claim 1 is non-obvious over the closest prior art”). As the Examiner points out, claim 1 is not limited to the type and quantity of the aromatic amine used in the examples in Table 1.

Final Act. 7. The Examiner also points out that Appellant has made no showing that the recited “conductive metal powder” is limited to the silver flake used in the examples in Table 1. *Id.* Nor does claim 1 recite a particular quantity of the metal powder – unlike the examples in Table 1 which are based on respective quantities of the silver flake. *Id.* Appellant does not address these findings that the examples are not commensurate in scope with the claim but argues instead that “[t]he Examples and the Comparative Examples employ similar concentrations of components, demonstrating that the unexpected effects are seen across different types of aromatic amines as well as different types of silver flakes.” Appeal Br. 11. Because the record before us does not show that the examples in Table 1 are commensurate in scope with claim 1, we discern no reversible error in the Examiner’s evaluation of the evidence in support of the unexpected results argument.

CONCLUSION

The Examiner’s rejections are affirmed.

More specifically,

CONCLUSION

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
1–8, 10–14	103	Nobuo, Fukuda	1–8, 10–14	
1–4, 7, 8, 10–14	103	Basheer, Takuya	1–4, 7, 8, 10–14	
Overall Outcome			1–8, 10–14	

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FINALITY AND 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