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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STEPHEN ANTHONY KUJAK and JULIE ANN MAJURIN

Appeal 2019-002479
Application 14/777,337
Technology Center 1700

Before CATHERINE Q. TIMM, BRIAN D. RANGE, and LILAN REN, *Administrative Patent Judges.*

TIMM, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 4–6, 10–19, and 21–25. *See* Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

[1] 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 Trane International, Inc. Appeal Br. 1.

CLAIMED SUBJECT MATTER

The claims are directed to a method of treating a lubricant composition of a heating, ventilation, and air conditioning (HVAC) system (*see, e.g.*, claim 4) and a method of servicing a HVAC system (*see, e.g.*, claim 17). According to the Specification, the refrigerant of the HVAC system often includes a lubricant to lubricate load bearing surface(s), such as the bearings of a compressor. Spec. 1:12–21. Appellant adds a functional composition to the lubricant to prevent or reduce lubricant breakdown and prevent or reduce material deposits within the system. Spec. 1:24–2:4. The composition contains about 5 to 10% functional composition by weight of the lubricant. *See, e.g.*, claims 4 and 17. The functional composition includes from about 10% to about 20% by weight of an ester of a hydroxycarboxylic acid and from about 0.001% to about 0.1% by weight benzotriazole. *See, e.g.*, claims 4 and 17. Claim 4, reproduced below with the limitations most at issue highlighted, is illustrative of the claimed subject matter:

> 4. A method of treating a lubricant composition of a heating, ventilation, and air conditioning (HVAC) system, comprising:
>
> adding a functional composition to a refrigerant that includes the lubricant in the HVAC system, *the functional composition being from about 5 to 10% by weight of the lubricant,*
>
> *wherein the functional composition includes:*
>
> *from about 10% to about 20% by weight of a hydroxycarboxylic acid ester and*
>
> *from about 0.001 % to about 0.1 % by weight of benzotriazole*; and
>
> a base oil lubricant different from the lubricant being treated, the base oil lubricant is at least one selected from the

group consisting of alkylbenzene, an alkylated naphthenic, a polyalkylene glycol, a polyvinylether, a polyalphaolefin, mineral oil, and a polyol ester, and one or more of:

interfering with formation of metal carboxylates on a load bearing surface;

coating the load bearing surface so as to reduce deposition of metal carboxylates on the load bearing surface;

reducing a catalytic effect of the metal carboxylates; and

coating an expansion device or heat transfer surface of the HVAC system so as to prevent deposition of the lubricant breakdown.

Appeal Br. 18 (Claims Appendix) (emphasis and formatting added).

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Tagawa	US 2007/0275865 A1	Nov. 29, 2007
Thomas	US 2008/0026977 A1	Jan. 31, 2008
Wei	US 2012/0161065 A1	June 28, 2012

REJECTIONS

The Examiner maintains the following rejections:

Claims 4–6, 10–16, 18, and 22–25 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Wei in view of Tagawa.[2]

[2] The Examiner lists claims 7–9 as rejected, but these claims have been canceled.

Claims 17, 19, and 21 are rejected under pre-AIA35 U.S.C. § 103(a) as being unpatentable over Wei in view of Tagawa and as evidenced by, or, further in view of, Thomas.

OPINION

The Rejection over Wei in view of Tagawa

Turning first to the rejection of claims 4–16, 18, and 22–25 as obvious over Wei in view of Tagawa, we note that Appellant confines the arguments to claims 4 and 22. Appeal Br. 5–11. We select claim 4 as representative for the non-separately argued claims. We address the issues raised against the rejection of claim 4 and claim 22, separately, below.

Claim 4

Considering the Examiner's rejection of claim 4 and Appellant's arguments against it, we fashion the issue as: Has Appellant identified a reversible error in the Examiner's finding of a suggestion within Tagawa, and based on the knowledge within the prior art, of using benzotriazole in Wei's refrigeration oil as an additive component in the concentration required by claim 4?

Appellant has not identified such an error.

Wei teaches a refrigeration oil composition for HVAC systems that includes an ester of hydroxycarboxylic acid and base oil such as mineral oil. Wei ¶¶ 3, 9. Wei discloses adding "any commonly used refrigeration system additives known in the art to enhance lubricity and/or system stability." Wei ¶ 26. Wei lists anti-wear agents and metal surface deactivators as example additives. *Id.* As to concentration, Wei states:

> Typically, these additives are present only in small amounts relative to the overall lubricant composition. However, the additives may be present at any suitable concentration. In an embodiment, the additive components are used at concentrations of from less than about 0.1% by weight to as much as about 3% by weight of each additive.

Id.

There is no dispute that Wei fails to disclose selecting benzotriazole as one of the additives. *Compare* Final Act. 5, *with* Appeal Br. 6. Tagawa, however, teaches adding benzotriazole as an additive to a refrigeration oil. Specifically, Tagawa discloses adding benzotriazole to enhance the anti-wear and friction properties of a refrigeration oil that has a mineral oil base. Tagawa ¶¶ 1, 8, 59. Tagawa provides a reason to use benzotriazole as an additive component in the refrigeration oil of Wei to enhance its anti-wear and friction properties.

As to concentration, Tagawa states that benzotriazole "may be contained in any amount desired," but further states "the amount is preferably not less than 0.001% by mass, and more preferably not less than 0.005% by mass, with respect to the total amount of the composition." Tagawa ¶ 65. This is the range, according to Tagawa, that will provide the expected enhanced anti-wear and friction properties. *Id.*

Appellant contends that claim 4 requires the benzotriazole concentration be about 0.00005% to about 0.01% by weight of the lubricant and Wei and Tagawa, or their combination, do not teach or suggest using a concentration in this range. Appeal Br. 8–10.

Appellant's argument is not persuasive. Tagawa's range of 0.001% to 0.005% overlaps the 0.00005% to about 0.01% range Appellant contends is required by claim 4. This overlap creates a presumption of obviousness. *E.I.*

DuPont de Nemours & Co. v. Synvina C.V., 904 F.3d 996, 1006 (Fed. Cir. 2018).

Appellant contends that the ordinary artisan would not have selected the concentration range of Tagawa because Wei teaches a higher range and "there is no teaching or suggestion in Wei that would indicate that concentrations less than about 0.1% by weight are even functional." Appeal Br. 9. This ignores the fact that Wei's disclosure is only generically discussing additive components. It also ignores the broader suggestion of using the additive components "at any suitable concentration." Wei ¶ 26. Further, it ignores the skill of the ordinary artisan. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) ("A person of ordinary skill is also a person of ordinary creativity, not an automaton."); *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) ("[A] prior art reference must be 'considered together with the knowledge of one of ordinary skill in the pertinent art.'"); *In re Sovish*, 769 F.2d 738, 743 (Fed. Cir. 1985) (skill is presumed on the part of the artisan, rather than the lack thereof). The ordinary artisan would have reasonably expected benzotriazole to provide its known anti-wear and friction properties in Wei's refrigeration oil and would have performed routine experimentation to determine the workable or optimal concentration to use in Wei's formulation. Tagawa provides evidence that concentrations within the range of the claim would have been expected to achieve the desired anti-wear and friction result.

Appellant contends that Wei does not contemplate obtaining the benefits Appellant realizes. Appeal Br. 7; Reply Br. 4. This argument is not persuasive because "the motivation in the prior art to combine the references does not have to be identical to that of the applicant to establish obviousness." *In re Kemps*, 97 F.3d 1427, 1430 (Fed. Cir. 1996). And it is

error to look "only to the problem the patentee was trying to solve." *KSR*, 550 U.S. at 420. Tagawa provides a reason to use benzotriazole as an additive component in Wei's refrigeration oil to obtain anti-wear and friction properties and suggests that concentrations within the range of claim 4 will provide the expected property.

The Examiner finds that benzotriazole is a well-known conventional additive for refrigeration oils and was known as a metal deactivator. Final Act. 5; Ans. 8.[3] Appellant does not challenge these findings. Reply Br. 4–6. Thus, we accept the uncontested findings as fact. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (Fed. Cir. 2011) (BPAI 2010) (precedential), *cited with approval in In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) ("[I]t has long been the Board's practice to require an applicant to identify the alleged error in the examiner's rejections."); MPEP § 2144.03(C) ("To adequately traverse [a finding based on what was well-known in the art], an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art." (citing 37 C.F.R. § 1.111(b) and *In re Chevenard*, 139 F.2d 711, 713 (CCPA 1943))).

Thus, a preponderance of the evidence on this appeal record supports the Examiner's obviousness analysis based on the known use of benzotriazole as a metal deactivator as well as an anti-wear and friction property additive.

[3] Citations to "Ans." are to the Subsequent Examiner's Answer dated December 10, 2018.

Claim 22

Claim 22 depends from claim 4 and narrows the range of benzotriazole to from about 0.001% to about 0.05% by weight.

According to Appellant, the benzotriazole range recited in claim 22 requires the lubricant composition contain from about 0.00005% to about 0.005% by weight benzotriazole. Appeal Br. 11. Appellant contends that because this range overlaps even less with Tagawa's range of 0.001% to 0.005%, the Examiner has not established a prima facie case of obviousness. *Id.*

We are not persuaded. The fact that there is less of an overlap does not render the claimed method non-obvious. Even a range that merely touches the range of the claim can render the claim obvious. *In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997) (*citing In re Malagari*, 499 F.2d 1297, 1303 (CCPA 1974)). A preponderance of the evidence tends to show that the ordinary artisan would have arrived at a concentration within the overlapping portion of the range recited in claim 22.

The rejection over Wei, Tagawa, and Thomas

The Examiner rejected claims 17, 19, and 21 under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Wei in view of Tagawa and as evidenced by, or, further in view of, Thomas. Final Act. 7. Appellant argues claim 17 under a separate heading. Appeal Br. 11. But Appellant's arguments parallel those addressed above and do not address the Examiner's findings or conclusions with respect to Thomas. Thus, Appellant has not identified a reversible error in the rejection of claim 17.

CONCLUSION

The Examiner's decision to reject claims 4–6, 10–19, and 21–25 is AFFIRMED.

DECISION SUMMARY

Claim(s) Rejected	**35 U.S.C. §**	**Reference(s)/Basis**	**Affirmed**	**Reversed**
4–16, 18, 22–25	103(a)	Wei, Tagawa	4–6, 10–16, 18, 22–25	
17, 19, 21	103(a)	Wei, Tagawa, Thomas	17, 19, 21	
Overall Outcome			4–6, 10–19, 21–25	

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