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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MASAYUKI SAITO and YOSHIMASA FURUSATO

Appeal 2018-006189
Application 14/849,607
Technology Center 1700


KENNEDY, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner’s decision rejecting claims 1 and 3–21. We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM.

BACKGROUND

The subject matter on appeal relates to liquid crystal compositions. E.g., Spec. ¶ 1; Claim 1. Claim 1 is reproduced below from page 11 (Claims Appendix) of the Appeal Brief:

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1 The Appellants are the Applicants, JNC Corporation and JNC Petrochemical Corporation, and the real parties in interest are identified as JNC Corporation and named inventor Masayuki Saito. See App. Br. 1.
1. A liquid crystal composition that has a negative dielectric anisotropy, and contains at least one compound selected from the group of compounds represented by formulas (1-2) and (1-3) as a first component, and a compound represented by formula (2) as a second component:

![Chemical structure](image)

wherein, in formulas (1-2) and (1-3), R1 and R2 are independently alkyl having 1 to 12 carbons, alkoxy having 1 to 12 carbons, alkenyl having 2 to 12 carbons, alkenyloxy having 2 to 12 carbons, or alkyl having 1 to 12 carbons in which at least one hydrogen is replaced by fluorine or chlorine.

REJECTIONS ON APPEAL

The claims stand rejected under 35 U.S.C. § 103 as follows:

1. Claims 1, 3–10, 18, and 19 as unpatentable over Tong (US 2016/0054602 A1, published Feb. 25, 2016 and claiming priority to an application dated Aug. 25, 2014) in combination with either Lewis

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2 The Office Action Summary attached to the Final Action lists claims 1 and 3–21 as rejected. Consistent with that, the Appellants list claims 1 and 3–21 as currently pending and rejected. See App. Br. 1. The headers of the Examiner’s rejections, however, do not include claim 21. See generally Final Act.; Ans. We observe that, in the Answer, the Examiner states that claim 21 is “obvious under 35 U.S.C. 103 for the same reasons as independent claim 1 as a matter of law.” E.g., Ans. 23. The Appellants do not raise any issues concerning claim 21 and instead state that it is argued as a group with claim 1 as representative. See App. Br. 3. Accordingly, we do not separately address claim 21 in this Decision.
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(GB 2 339 778 A, published Feb. 9, 2000) or Geelhaar (WO 89/02425, published Mar. 23, 1989);

2. Claims 1, 3–10, 18, and 19 as unpatentable over Baron (US 2016/0032189 A1, published Feb. 4, 2016 and claiming priority to an application dated July 30, 2014) in combination with either Lewis or Geelhaar;


ANALYSIS

After review of the cited evidence in the appeal record and the opposing positions of the Appellants and the Examiner, we determine that the Appellants have not identified reversible error in the Examiner’s rejections. Accordingly, we affirm the rejections for reasons set forth below, in the Final Action, and in the Examiner’s Answer. See generally Final Act. 2–20; Ans. 3–30.

The Appellants state that “it is proper to treat claims 1 and 3–21 as a group.” App. Br. 3. We select claim 1 as representative, and the remaining claims will stand or fall with claim 1.

Rejection 1

The Examiner finds that Tong teaches a dielectrically negative liquid crystal medium comprising a compound that falls within the scope of formula (2) of claim 1. Final Act. 2. The Examiner finds that Tong “further
teaches the liquid crystal medium additionally comprises a compound” that falls within the scope of formula (1-2) of claim 1. *Id.* at 3. However, the Examiner finds that Tong “does not provide the motivation to combine” the two compounds as required by claim 1. *Id.*

The Examiner finds that Lewis teaches liquid crystal materials comprising a compound that “is the mirror image to Tong’s formula [that falls within the scope of claim 1 formula (1-2)],” and that Lewis teaches that the compound “has high dielectric biaxiality which provides faster response times and decreased switching voltages.” *Id.* at 4.

The Examiner finds that Geelhaar also teaches liquid crystal materials comprising the same compound as that disclosed by Lewis, and that Geelhaar teaches that the compound “provides a broad mesophase range and a comparable low viscosity and can be used to influence the dielectric and/or optical anisotropy and/or for the viscosity and/or the spontaneous polarization and/or the mesophase range and/or the tilt angle and/or the pitch when added to liquid crystalline base[d] materials.” *Id.*

The Examiner finds that it would have been obvious to combine the two compounds of Tong because Lewis and Geelhaar teach benefits, identified above, to including the compound that falls within the scope of claim 1 formula (1-2) in liquid crystal compositions. *Id.* at 5.

In the Examiner’s Answer, the Examiner provides an alternative, independent rationale for making a liquid crystal composition that includes both compounds of Tong. Ans. 18–19. Specifically, the Examiner finds that the compositions of Examples 14, 15, 22, and 23 of Tong include both a compound that falls within the scope of claim 1 formula (2) and a compound that is very similar to, “and considered equivalent to,” a compound that falls
within the scope of claim 1 formula (1-2). *Id. at 18.* The Examiner finds that it would have been obvious to substitute Tong’s compound that actually falls within the scope of claim 1 formula (1-2) for Tong’s “equivalent” compound in Examples 14, 15, 22, and 23 because the two compounds are known equivalents. *Id. at 18–19.* We observe that the alternative rationale relies on Tong alone and does not require any additional reference.

As to the alternative rationale, although the Appellants file a Reply Brief, the Appellants do not acknowledge, address, or otherwise contest the Examiner’s reasoning. Accordingly, we affirm Rejection 1 based on the uncontested alternative rationale in the Examiner’s Answer. Additionally, we observe that “[i]t is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose.” *In re Kerkhoven,* 626 F.2d 846, 850 (CCPA 1980). There is no dispute that Tong teaches compounds that fall within the scope of formulas (1-2) and (2) as suitable for use in liquid crystal compositions.

Turning to the rationale from the Final Action (i.e., the rationale that relies on Lewis and/or Geelhaar), the Appellants argue that Lewis and Geelhaar are concerned with liquid crystal materials that use “chiral smectic liquid crystals,” which have “very different properties and require[] different working principles as compared with . . . nematic phase liquid crystal[s],” such as those used in Tong’s liquid crystal medium. App. Br. 4. The Appellants argue that a person of ordinary skill in the art would not have expected the benefits disclosed by Lewis and Geelhaar when combining a chiral smectic compound with a nematic compound. *Id. at 4–5.*
That argument is not persuasive for at least the reason that it is attorney argument unsupported by evidence or persuasive technical reasoning. See In re Pearson, 494 F.2d 1399, 1405 (CCPA 1974) (“Attorney’s argument in a brief cannot take the place of evidence.”). The Appellants provide no persuasive reason that a person would not expect the benefits identified by the Examiner if a chiral smectic compound were combined with a nematic compound. Indeed, the Appellants acknowledge that Lewis itself discloses mixtures of chiral smectic compounds and at least certain, specific nematic compounds. Reply Br. 2 (“[B]y referring to Lewis’ disclosure, a skilled artisan would only know that the formula I of Lewis could be mixed with general smectic compounds or some specific nematic compounds.”).

As the Appellants also acknowledge, id. at 4, Tong is not limited to liquid crystal mixtures comprising nematic compounds, but instead states, e.g., that a mixture “is preferably a nematic LC mixture,” Tong ¶ 174 (emphasis added). As set forth above, the Examiner finds, and the Appellants do not dispute, that Tong discloses both a compound that falls within the scope of claim 1 formula (1-2) and a compound that falls within the scope of claim 1 formula (2), and the Appellants themselves indicate that the compound that falls within the scope of claim 1 formula (1-2) (i.e., the compound of Lewis and Geelhaar) may be a chiral smectic compound. Thus, it appears that Tong itself broadly contemplates mixtures of chiral smectic compounds and nematic compounds, even if nematic mixtures are preferred. On this record, we are not persuaded that a person of ordinary skill in the art would not have made the combination proposed by the Examiner because a person of ordinary skill in the art would not have
expected to realize the benefits identified by the Examiner. *Cf. PAR Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1198 (Fed. Cir. 2014) (“The reasonable expectation of success requirement for obviousness does not necessitate an absolute certainty for success.”); *cf. also Kerkhoven*, 626 F.2d at 850 (“It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose.”).

With little elaboration, the Appellants also argue that Lewis and Geelhaar are not analogous to the claimed invention. App. Br. 4–5. That argument is not persuasive. Both Lewis and Geelhaar are analogous art for at least the reason that they are from the same field of endeavor (liquid crystal materials) as the claimed invention. *See In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

On this record, we are not persuaded of reversible error in the Examiner’s rejection of claim 1. *See 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 . . .”).

**Rejection 2**

The disclosure of Baron is very similar to the disclosure of Tong, and Rejection 2 is similar to Rejection 1. The Appellants raise no arguments beyond those discussed above. *See App. Br. 6–7. We are not persuaded by those arguments for reasons set forth above. We affirm Rejection 2.*

**Rejections 3 & 4**

The Examiner finds that Klasen-Memmer teaches a dielectrically negative liquid crystal composition comprising a compound that falls within
the scope of claim 1 formula (1-2). Final Act. 11. The Examiner finds that Klasen-Memmer “further teaches the liquid crystal composition comprises one or more compounds of formula IV,” one of which (compound IV-1c) falls within the scope of claim 1 formula (2). *Id.* at 12. However, the Examiner finds that Klasen-Memmer “does not provide the motivation to combine the specific compounds.” *Id.*

The Examiner finds that Czanta teaches a liquid crystal composition comprising a compound that falls within the scope of claim 1 formula (2), and that Czanta teaches that the compound “lowers the rotational viscosity” of the composition. *Id.* The Examiner determines that it would have been obvious to combine the two compounds “in order to lower the rotational viscosity.” *Id.* at 12–13.

The Appellants argue that, because some of Czanta’s examples comprising the compound that falls within the scope of claim 1 formula (2) (CC-3-V) have higher rotational velocities than examples that do not comprise the compound that falls within the scope of claim 1 formula (2), “a decrease in rotational viscosity is not an effect that could reasonably be expected from adding the compound CC-3-V.” App. Br. 7–8.

That argument is not persuasive. Even the examples relied on by the Appellant, e.g., Example 4, are described as having “low rotational viscosity.” The fact that other examples in Czanta have lower rotational viscosity does not indicate that a person of ordinary skill in the art would not have expected CC-3-V to provide a low rotational viscosity when combined with Klasen-Memmer. Czanta broadly describes improved properties of its compositions as including improved properties including lower viscosities. *E.g.*, Czanta at 1:33–38, 2:21–40, Examples (cols. 33–56). Even if Czanta’s
disclosures would not have provided absolutely certainty of obtaining desirable results, they provide a reasonable expectation of desirable results. See PAR Pharm., 773 F.3d at 1198 (certainty of success not required to establish obviousness).

The Appellant also argues that Czanta is nonanalogous art because it concerns compositions with positive dielectric anisotropy while the claimed invention concerns negative dielectric anisotropy. App. Br. 8. That argument is not persuasive. Czanta is analogous art for at least the reason that it is from the same field of endeavor (liquid crystal materials) as the claimed invention. See Bigio, 381 F.3d at 1325.

We affirm the Examiner’s rejection of claim 1.

The Appellant raises no separate arguments concerning the claims subject to Rejection 4, which depend, directly or indirectly, from claim 1. Accordingly, we likewise affirm Rejection 4.

CONCLUSION

We AFFIRM the Examiner’s rejections of claims 1 and 3–21.

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

AFFIRMED