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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHUSAKU SHIBATA, KATSUNORI TAKADA,
And HIROYUKI TAKEMOTO

Appeal 2018-001664
Application 14/112,496
Technology Center 1700

Before CATHERINE Q. TIMM, N. WHITNEY WILSON, and
JENNIFER R. GUPTA, *Administrative Patent Judges*.

WILSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants¹ appeal under 35 U.S.C. § 134(a) from the Examiner's September 6, 2016 decision finally rejecting claims 1, 5–7, and 9–16.² We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We affirm.

¹ The Appeal Brief identifies NITTO DENKO CORPORATION as the real party in interest (Appeal Br. 2).

² Claim 3 was canceled in an Amendment under 37 C.F.R. § 1.116 filed May 8, 2017, which was entered by the Examiner in an Advisory Action After the Filing of an Appeal Brief dated May 15, 2017.

CLAIMED SUBJECT MATTER

Appellants' disclosure is directed to an optical laminate which includes a base material layer formed of a (meth)acrylic resin film, a hard coat layer, and a penetration layer formed by the composition for forming the hard coat layer penetrating into the meth(acrylic) resin film (Abstract, Spec. ¶6). Details of the claimed invention are set forth in claim 1, which is reproduced below from the Claims Appendix of the Appeal Brief:

1. An optical laminate, comprising:
 - a base material layer formed of a (meth)acrylic resin film, wherein the (meth)acrylic resin film has a weight-average molecular weight of 10,000 to 500,000, and
 - a hard coat layer formed by applying a composition for forming a hard coat layer to the (meth)acrylic resin film, wherein:
 - the composition for forming a hard coat layer contains a compound (A) having 9 or more radically polymerizable unsaturated groups, and a compound (B1) having 2 to 8 radically polymerizable unsaturated groups;
 - wherein compound (A) has a weight-average molecular weight of 2,000 or more, and
 - a content of the compound (A) is 15 wt% to 100 wt% with respect to all curable compounds in the composition for forming a hard coat layer
 - further comprising, between the base material layer and the hard coat layer, a penetration layer formed through penetration of the composition for forming a hard coat layer into the (meth)acrylic resin film, wherein the penetration layer has a thickness of 1.2 μm or more.

REJECTIONS

I. Claims 1, 5–7, and 13–16 are rejected under 35 U.S.C. § 103(a) as unpatentable over Shimano³ in view of Kitagishi,⁴ and further in view of Yoshihara.⁵

II. Claims 9–12 are rejected under 35 U.S.C. § 103(a) as unpatentable over Shimano in view of Kitagishi and Yoshihara, and further in view of Mimura.⁶

DISCUSSION

Claim 1. The Examiner finds that Shimano discloses each element of claim 1, except that (1) while Shimano discloses a base material made of an acrylic resin it does not disclose a base material made of a (meth)acrylic resin, and (2) while Shimano teaches that its base material is penetrable, it does not specifically disclose that its hard coat material would penetrate the base layer to a thickness of 1.2 micrometers or more (Final Act. 3–4, citing Shimano ¶¶ 1, 2, 5, 6, 9, 24, 39, 40, 60, 118, 119, 147).

With regard to difference (1), the Examiner finds that Kitagishi teaches that (meth)acrylic resins are useful as a broad category of acrylic resins in optical laminates (Final Act. 3). Therefore, according to the

³ Shimano et al., JP 2009-084328, published April 23, 2009.

⁴ Kitagishi et al., US 2010/0047484 A1, published February 25, 2010.

⁵ Yoshihara, US 2010/0227085 A1, published September 9, 2010.

⁶ Mimura et al., US 2005/0008863 A1, published January 13, 2005.

Examiner, it would have been obvious to use a (meth)acrylic resin as the base material layer in Shimano's optical laminate (Final Act. 4).

With regard to difference (2), the Examiner finds that Yoshihara is in the same field of endeavor of hard coat layers for use in display device applications and teaches that it is known to have the material of hard coat layer mix with the materials of a substrate layer to a penetration depth of greater than 0.5 micrometers, which would overlap with a penetration depth of greater than 1.2 micrometers (Final Act. 4, citing Yoshihara ¶¶ 3, 17, 22). The Examiner further finds that Yoshihara discloses providing a mixed gradient layer between the base layer and a hard coat layer with low-refractive index properties, like that of Shimano, helps to prevent optical interference between the low refractive index layer and the underlying layer (Final Act. 4, citing Yoshihara ¶ 36). Therefore, according to the Examiner, it would have been obvious to prepare Shimano's optical laminate such that the hard coat layer penetrates into the base material to a depth of more than 1.2 micrometers (*id.*).

Appellants argue that a heating temperature of at least 80°C is needed to produce a penetration layer with a thickness of at least 1.2 µm (Appeal Br. 10). Appellants further argue that Shimano does not disclose or suggest a penetration layer with the requisite thickness, or the necessary steps to achieve such a layer (Appeal Br. 11). According to Appellants, Shimano limits heating to no more than 80°C, which cannot produce a penetration layer having the claimed depth (*id.*). This argument is not persuasive because the Examiner has persuasively explained why the teachings of Yoshihara would have suggested to a person of skill in the art a penetration layer of at least 1.2 µm. Final Act. 4 (discussing Yoshihara's disclosure of

mixed layer thickness of 0.5 μm or more). Appellants' arguments that Shimano does not disclose the claimed limitations are unpersuasive because the rejection is based on a combination of references, not the disclosure of Shimano alone.

Appellants also argue that Shimano discloses a wide selection of materials and methods, "the majority of which would not result in a penetration layer as per the presently claimed invention" (Appeal Br. 11). According to Appellants, the Examiner has not adequately established why a person of skill in the art would have selected an acrylic resin from a broader list of possible materials for the base layer (Appeal Br. 11–12). This argument is not persuasive because Shimano explicitly recites that acrylate resins can be used as the base material (Shimano ¶ 119). Thus, it would be obvious to select an acrylate resin as the base material. Appellants argue that "[t]he fact that a claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness" (Appeal Br. 12, citing *In re Baird*, 16 F.3d 380, 382 (Fed. Cir. 1994)). However, Appellants' reliance on *Baird* is misplaced because, in *Baird*, the prior art only disclosed a generic chemical formula which included the claimed compound (bisphenol A) but did not specifically disclose that compound. In this instance, as noted above, Shimano discloses the use of acrylate resins as the base material.

Appellants also argue that the Examiner's reliance on the disclosure of Yoshihara is improper because:

it is evident that Yoshihara does not teach, disclose or suggest that *a penetration layer formed through penetration of the composition for forming a hard coat layer into the (meth)acrylic resin film, wherein the penetration layer has a thickness of 1.2 μm or more can be formed when a base material*

layer formed of a (meth)acrylic resin film; and a hard coat layer formed by applying a composition for forming a hard coat layer to the (meth)acrylic resin film, wherein: the composition for forming a hard coat layer contains a compound (A) having 9 or more radically polymerizable unsaturated groups and a compound (B1) having 2 to 8 radically polymerizable unsaturated groups are used.

(Appeal Br. 14). This argument is not persuasive because it once again does not account for the fact that the rejection is based on a combination of references. That Yoshihara alone does not disclose the claimed invention is not persuasive of reversible error in the rejection. Appellants “cannot show non-obviousness by attacking references individually where, as here, the rejections are based on a combination of references.” *In re Keller*, 642 F.2d 413, 426 (CCPA 1981).

Finally, Appellants argue that they have demonstrated the criticality of the limitation that the hard coat layer contains a compound (A) having 9 or more radically polymerizable unsaturated groups (Appeal Br. 15–16). Appellants rely on a comparison between Comparative Examples 3 and 4, which use hexa- or heptafunctional urethane acrylic oligomers (*id.*).

It is well settled that Appellants have the burden of showing unexpected results. *In re Freeman*, 474 F.2d 1318, 1324 (CCPA 1973); *In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). The burden requires Appellants to proffer factual evidence that actually shows unexpected results relative to the closest prior art, *see In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991), and that is reasonably commensurate in scope with the protection sought by claim 1 on appeal, *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983); *In re Clemens*, 622 F.2d 1029, 1035 (CCPA 1980); *In re Hyson*, 453 F.2d 764, 786 (CCPA 1972). As explained by the

Examiner (Ans. 8–9), Appellants have not demonstrated that the improved hardness of the films is unexpected, particularly in light of the disclosure in Shimano of the same compound having good hardness properties.

Moreover, the showing proffered by Appellants is not commensurate in scope with claim 1, which recites a broad molecular weight range for the (meth)acrylic resin film and broad range of components for the composition used to form the hard coat layer.

With regards to dependent claims 5–7, 9 and 13, Appellants suggest that the claimed limitations impart certain desirable properties to the claimed optical laminates (Appeal Br. 16–18). However, these arguments are not persuasive of reversible error in the rejections of these claims because they do not adequately show that the claim limitations impart unexpected properties to the claimed laminates. Nor have Appellants adequately refuted the Examiner findings as set forth in the Final Action which support the rejections of those claims.

Appellants do not present any separate patentability arguments for dependent claims 14–16, but instead argue that these claims would not have been obvious over the combination of references for at least the same reasons as claim 1. Appeal Br. 18–19. As discussed above, we are not persuaded of reversible error in the rejection of claim 1 or, therefore, of reversible error in the rejection of claims 14–16.

CONCLUSION

We AFFIRM the rejection of claims 1, 5–7, and 13–16 under 35 U.S.C. § 103(a) as unpatentable over Shimano in view of Kitagishi, and further in view of Yoshihara.

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Application 14/112,496

We AFFIRM the rejection of claims 9–12 under 35 U.S.C. § 103(a) as unpatentable over Shimano in view of Kitagishi and Yoshihara, and further in view of Mimura.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED