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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MAYU YOUKI, TOMOYUKI HORIO, YOSHIHIRO
NISHIMURA, MARIKO HAYASHI, YUYA INOMATA, and HIROSHI
NAKAMURA

Appeal 2020-000116
Application 13/823,971
Technology Center 1700

Before ADRIENE LEPIANE HANLON, JEFFREY R. SNAY, and
BRIAN D. RANGE, *Administrative Patent Judges*.

RANGE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the
Examiner’s decision to reject claims 1, 2, 4–8, 10, 11, 13, 15, 16, and 18–20.
We have jurisdiction under 35 U.S.C. § 6(b). We REVERSE.

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 DAI
NIPPON PRINTING CO., LTD. Appeal Br. 2.

CLAIMED SUBJECT MATTER²

Appellant describes the invention as relating to an antistatic hard coat film. Spec. ¶ 1. The film could be used, for example, for various image display devices such as LCD displays. *Id.* ¶ 2. The film seeks to avoid “white muddiness” and have good antistatic properties while inhibiting interference fringe patterns. *Id.* ¶ 7. Claim 1 is the only independent claim on appeal, and we reproduce it below with emphases added to certain key recitations:

1. An antistatic hard coat film comprising
a triacetyl cellulose substrate, and
a hard coat layer formed on the triacetyl cellulose
substrate,

wherein the hard coat layer comprises an antistatic agent, a (meth)acrylate resin, and a polymer of a (meth)acrylate monomer,

wherein the hard coat layer is a cured product of a film formed by applying a composition for producing the hard coat layer on the triacetyl cellulose substrate, the composition comprising the antistatic agent, the (meth)acrylate resin, and the (meth)acrylate monomer,

the triacetyl cellulose substrate comprises a permeation layer formed by permeation of the (meth)acrylate monomer from the hard coat layer side of an interface toward the side opposite from the hard coat layer,

the antistatic hard coat film satisfies Formulas (1), (2), and (3):

$$3 \mu\text{m} \leq T \leq 18 \mu\text{m} \quad \text{Formula (1)}$$

² In this Decision, we refer to the Final Office Action dated September 17, 2018 (“Final Act.”), the Appeal Brief filed March 11, 2019, corrected April 22, 2019 (“Appeal Br.”), the Examiner’s Answer dated August 7, 2019 (“Ans.”), and the Reply Brief filed October 4, 2019 (“Reply Br.”).

$$0.3 T \leq t \leq 0.9 T \quad \text{Formula (2)}$$

$$2 \mu\text{m} \leq T - t \leq 11 \mu\text{m} \quad \text{Formula (3)}$$

where T denotes the total thickness (μm) of the permeation layer and the hard coat layer, and t denotes the thickness (μm) of the permeation layer,

the antistatic hard coat film exhibits a haze of less than 0.5%, and

the antistatic hard coat film exhibits good white muddiness resistance

the antistatic hard coat film being prepared by drying the film under the drying conditions below, the drying of the film starting within 20 seconds from completion of the application of the composition;

the drying conditions being:

Drying temperature: 40 to 80°C;

Drying time: 20 to 70 seconds; and

Air velocity for drying: 5 to 20 m/min.

REFERENCES

The Examiner relies upon the prior art below in rejecting the claims on appeal:

Name	Reference	Date
Iwata et al. ("Iwata")	US 2009/0015926 A1	Jan. 15, 2009
Horio et al. ("Horio")	US 2009/0075074 A1	Mar. 19, 2009
Suzuki et al. ("Suzuki")	US 2010/0027117 A1	Feb. 4, 2010
Yoshihara	US 2010/0208350 A1	Aug. 19, 2010

REJECTIONS

The Examiner maintains the following rejections on appeal:

- A. Claims 1, 2, 4–8, 10, 11, 13, 15, 16, and 18–20 under 35 U.S.C. § 103 as obvious over Horio in view of Yoshihara as evidenced by Iwata and optionally in view of Suzuki. Ans. 3.
- B. Claims 1, 2, 5–8, 10, 13, 16, 19, and 20 under 35 U.S.C. § 103 as obvious over Yoshihara optionally in view of Suzuki. *Id.* at 7.

OPINION

The Examiner has the initial burden of establishing a *prima facie* case of obviousness under 35 U.S.C. § 103. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992) (“[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.”). To establish a *prima facie* case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art or the inferences and creative steps a person of ordinary skill in the art would have employed. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007); *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988).

To resolve the issues before us on appeal, we focus on the Examiner’s findings and determinations that relate to the error Appellant identifies. For both rejections A and B, the Examiner finds that Yoshimoto suggests claim 1’s thickness Formula (3). Ans. 3–4 (“Yoshihara discloses . . . thicknesses excluding the mixed layer T-t of at least 2 microns”), 7 (same). In particular, the Examiner determines that only mixed layer 12a of Yoshihara

corresponds to claim 1's permeation layer (having thickness t) while intermediate layer 12b and localized layer 12c of Yoshihara combine to correspond to claim 1's hard coat layer (having thickness $T-t$). Ans. 10; *see also* Yoshihara Fig. 2 (depicting layers).

Appellant does not dispute that Yoshihara's mixed layer 12a corresponds to claim 1's permeation layer or that Yoshihara's localized layer 12c corresponds to claim 1's top layer. Appeal Br. 5–7. Appellant argues, however, that the Examiner errs in determining that Yoshihara's intermediate layer 12b is not a permeation layer. *Id.* at 7; Reply Br. 2–3. Appellant's argument is persuasive.

We begin our analysis by considering the meaning of claim 1's terms “permeation layer” and “hard coat layer.” The Specification states that “the permeation layer is a layer in which the cured (meth)acrylate monomer and the materials of the triacetyl cellulose substrate are mixed.” Spec. 8:14–16. In contrast, the Specification indicates that the hard coat layer should exclude substrate materials because the hard coat layer “is interfered by the components of the triacetyl cellulose substrate.” *Id.* at 7:5–11; *see also* Reply Br. 2.

Yoshihara teaches that its “mixed layer 12a includes the binder matrix and transparent substrate component.” Yoshihara ¶ 73. Yoshihara also refers to its mixed layer 12a as an “other layer . . . in which the binder matrix component of the antistatic hard coat layer and the transparent substrate component are mixed.” *Id.* ¶ 80. Thus, mixed layer 12a corresponds to a permeation layer in the parlance of claim 1, consistent with the Examiner's findings. Ans. 10.

Yoshihara states that intermediate layer 12b, like mixed layer 12a, is also an “other layer.” Yoshihara ¶ 86. Most importantly, Yoshihara explains that intermediate layer 12b and mixed layer 12a contain the same type of materials. *Id.* ¶ 91. Thus, Yoshihara is best understood as teaching that intermediate layer 12b, like mixed layer 12a, is a binder matrix component of the antistatic hard coat layer and transparent substrate components. *Id.* ¶ 80. Yoshihara intermediate layer 12b, therefore, is a permeation layer in the parlance of claim 1 and Appellant’s Specification. Spec. 8:8–16.

Although Yoshihara refers to the intermediate layer as having hard coat functionality (Ans. 11; Yoshihara ¶ 84), Yoshihara makes these statements when referring to the term “hard coat” more broadly than claim 1 uses the term “hard coat.” In particular, Yoshihara refers to layers 12a, 12b, and 12c collectively as forming antistatic hard coat layer 12. Yoshihara ¶¶ 77, 82–84, Fig. 2. In other words, Yoshihara distinguishes layers 12a, 12b, and 12c while each of these layers form portions of a hard coat layer rather than distinguishing, as claim 1 does, between a hard coat layer and permeation layer that each form portions of an antistatic hard coat film.

We next assess whether Yoshihara teaches a film that satisfies claim 1’s Formula (3). The “ $T-t$ ” of Formula (3) is the thickness of the permeation layer and the hard coat layer together (“ T ”) minus the thickness of the permeation layer alone (“ t ”). Appeal Br. 10 (Claims App.). The “ $T-t$ ” is, therefore, the thickness of the hard coat layer alone. Because Yoshihara’s intermediate layer 12b is a permeation layer (for the reasons explained above), Yoshihara’s only hard coat layer is localized layer 12c. Yoshihara suggests that localized layer 12c should have a thickness of 50–400 nm. Appeal Br. 6 (citing Yoshihara ¶¶ 108–109). The Examiner does not provide

a reason why a person of skill in the art would have modified Yoshihara's localized layer 12c to be at least 2000 nm (i.e., 2 μ m) as Formula (3) requires.

Because the Examiner does not adequately explain why the teachings of the combined references meet all recitations of claim 1 (considering Formula (3) in particular), we do not sustain the Examiner's rejections of claim 1. Because the Examiner's treatment of the dependent claims does not cure this error, we also do not sustain the Examiner's rejection of those claims.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 4-8, 10, 11, 13, 15, 16, 18-20	103	Horio, Yoshihara, Iwata, Suzuki		1, 2, 4-8, 10, 11, 13, 15, 16, 18-20
1, 2, 5-8, 10, 13, 16, 19, 20	103	Yoshihara, Suzuki		1, 2, 5-8, 10, 13, 16, 19, 20
Overall Outcome				1, 2, 4-8, 10, 11, 13, 15, 16, 18-20

REVERSED