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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE
THE PATENT TRIAL AND APPEAL BOARD

Ex parte HIROSHI OGAWA,¹
TATSUHIRO SUWA, AND CHEONG HUN SONG

Appeal 2016-007823
Application 13/155,872
Technology Center 1700

Before MARK NAGUMO, JAMES C. HOUSEL, and
N. WHITNEY WILSON, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

Hiroshi Ogawa, Tatsuhiro Suwa, and Cheong Hun Song (“Ogawa”) timely appeal under 35 U.S.C. § 134(a) from the Final Rejection² of all pending claims 2–7, 9, and 11–19. We have jurisdiction. 35 U.S.C. § 6. We affirm.

¹ The real party in interest is identified as Cheil Industries, Inc. (Appeal Brief, filed 2 February 2016 (“Br.”), 2.)

² Office Action mailed 17 November 2015 (“Final Rejection”; cited as “FR”).

OPINION

A. Introduction³

The subject matter on appeal relates to adhesive compositions used to attach a surface protection film to an optical device such as a polarizer plate. The surface protection film protects the surface of the polarizer plate during assembly and distribution of devices such as flat panel displays.

(Spec. 1 [0002].) The adhesive composition is said to prevent bubbles at high temperature and high pressure in autoclaving, and to have excellent transparency and adherent contamination resistance. (*Id.* at 5 [0019].) As a result, the film is said to “hardly or never affect[] the quality inspection of a flat display panel,” and to have “appropriate adhesion and adhesiveness to a substrate and excellent metal corrosion resistance and low-temperature stability.” (*Id.*; *see also id.* at 31 [00118].) The adhesive is a copolymer of (meth)acrylate ester, a hydroxyl-group containing (meth)acrylate ester, and optionally, a small amount of a carboxyl group [–COOH] containing monomer. The ’872 Specification reveals that by limiting the amount of carboxyl-containing monomer to less than 0.5 wt% of total monomers of the copolymer, “adhesion is not excessively high but is properly adjusted so that the adhesive composition is easily released, and the adhesive composition hardly or never remains on an adherend when released.” (*Id.* at 4 [0018].)

³ Application 13/155,872, *Adhesive composition and surface protection film using the same*, filed 8 June 2011. We refer to the “’872 Specification,” which we cite as “Spec.”

Sole independent claim 7 is representative and reads:

A surface protection film including a protection film and an adhesive layer formed on at least one side of the protection film, wherein said adhesive layer is formed from an adhesive composition that includes:

100 parts by weight of a (meth)acrylate copolymer including
0 to less than 0.5 parts by weight of a carboxyl group containing monomer,
1 to 8 parts by weight of a hydroxyl group containing (meth)acrylic monomer, and
99 to 91.8 parts by weight of a (meth)acrylic acid ester monomer, and
having a weight average molecular weight of 100,000 g/mol to less than 1,000,000 g/mol; and

0.1 to 5 parts by weight of a carbodiimide cross-linking agent, wherein *said adhesive layer has an adhesion of 0.02 to 0.16 N/25mm* based on JIS Z0237, wherein the adhesive composition has a *gel content of 80 to 100 %* when calculated by the following Equation 2:
[Equation 2]

$$\text{Gel content(\%)} = \{(W3 - W2)/W1\} \times 100$$

wherein, in Equation 2,

W1 is a weight in grams of 0.1 g of the adhesive composition after being left at 23 °C and 50 %RH for 7 days,

W2 is a weight in grams of a 200 mesh stainless steel mesh, and

W3 is a total weight in grams of the composition and the stainless steel mesh measured by putting the adhesive composition in a bottle, adding 30 g of ethyl acetate thereto, leaving for 24 hours, filtering the contents of the bottle through the 200 mesh stainless steel mesh, and drying the mesh and the remaining materials at 90 °C for 1 hour.

(Claims App., Br. 15–16; some indentation, paragraphing, and emphasis added.)

Inspection of the amounts of monomers required by claim 7 indicates that additional monomers may be present. (Spec. 11 [0037], listing additional monomers; Fig. 1 (Table 2), preparation example 12 (monomer AM, acrylamide).) Suitable carbodiimide cross-linking agents are said to include at least two carbodiimide groups ($-N=C=N-$) in the molecular structure, and to include high molecular weight polycarbodiimides produced by decarbonation condensation reactions of the diisocyanates listed in the Specification (*id.* at 14–15 [0046]) in the presence of carbodiimide catalysts such as phospholene oxides (*id.* at 15 [0047]). The disclosed testing of adhesion “based on JIS Z0237” involves attaching pieces of surface protection film attached to polarizer plates, autoclaved at 50°C under 5 kg/cm² pressure for 20 minutes, and tensile stripping at 180° at a specified rate, temperature, and relative humidity. (*Id.* at 28 [00102].)

The Examiner maintains the following grounds of rejection^{4, 5}:

- A. Claims 2–5, 7, 9, 11, 12, and 14–19 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of

⁴ Examiner’s Answer mailed 16 June 2016 (“Ans.”).

⁵ Because this application was filed before the 16 March 2013, effective date of the America Invents Act, we refer to the pre-AIA version of the statute.

Mitsui,⁶ Takahasi'709,⁷ Takahashi '095,⁸ Yukawa,⁹
Adachi '872,¹⁰ Heilmann,¹¹ Kanner,¹² and Hiramatsu.¹³

A1.¹⁴ Claim 6 stands rejected under 35 U.S.C. § 103(a) in view of
the combined teachings of Mitsui, Takahasi'709, and
Papsin.¹⁵

⁶ Kazuma Mitsui et al., *Pressure-sensitive adhesive sheet*, U.S. Patent Application Publication 2010/0028671 A1 (4 February 2010).

⁷ Toshitaka Takahasi et al., *Aqueous dispersion adhesive composition and adhesive film*, U.S. Patent No. 7,858,709 B2 (28 December 2010), based on an application filed 1 May 2008.

⁸ Akiko Takahashi and Mami Ikeya, U.S. Patent Application Publication 2008/0033095 A1 (2008).

⁹ Yoshiyuki Yukawa, U.S. Patent Application Publication 2009/0099298 A1 (2009).

¹⁰ Takato Adachi et al., WO 2010/018872 A1 (2010); U.S. Patent Application Publication 2011/0135935 A1 (2011) has been used as an equivalent by the Examiner, without objection by Ogawa.

¹¹ Steven M. Heilmann et al., U.S. Patent Application Publication 2003/0216519 A1 (2003).

¹² Rowland W. Kanner and Larry Lee Young, U.S. Patent No. 7,070,051 B2 (2006).

¹³ Tsuyoshi Hiramatsu et al., U.S. Patent Application Publication 2007/0218276 A1 (2007).

¹⁴ The rejections of claims 6 and 13 are anomalous, in that these claims, each of which depends directly from claim 1, have been rejected over fewer references than were used to reject claim 1. It is not clear whether this is an inadvertent contraction, or whether the Examiner considers the additional references superfluous in the rejection of claim 1. If the latter, we discourage the needless elaboration of the record. This issue, not having been contested by Ogawa, has been waived in this appeal. In the event of further examination, we trust this anomaly will be resolved.

¹⁵ George A. Papsin, Jr., U.S. Patent No. 6,281,298 B1 (2001).

A2.¹⁴ Claim 13 stands rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Mitsui, Takahasi'709, and Okamoto.¹⁶

B. Claims 2, 3, 5, 7, 9, 13, and 14 stand rejected under obviousness-type double patenting in view of claims 1, 2, 6–10, 12–14, and 17–20 of Suwa.¹⁷

B. Discussion

The Board's findings of fact throughout this Opinion are supported by a preponderance of the evidence of record.

Initially, we find that although Ogawa presents arguments for the patentability of claims 6 and 13 under separate headings (Br. 11–12), those arguments do not raise substantively distinct issues of patentability apart from claim 7. Accordingly, all claims stand or fall with claim 7.

We find further that Ogawa expressly waives arguments in this appeal against Rejection B, for obviousness-type double patenting. (*Id.* at 12 § XI.) We therefore summarily affirm Rejection B. 37 C.F.R. § 41.37(c)(1)(iv) (2015).

¹⁶ Masayuki Okamoto et al., WO 2010/064623 A1 (2010); U.S. Patent Application Publication 2011/0236682 A1 (29 September 2011) has been used by the Examiner as an English language equivalent, without objection by Ogawa.

¹⁷ Tatsuhiro Suwa and Hiroshi Ogawa, *Adhesive composition*, U.S. Patent No. 8,513,363 B2 (20 August 2013), based on an application filed 27 October 2011.

Rejections A: obviousness in view of Mitsui and other references

In traversing the rejections based on Mitsui, Ogawa discusses only Mitsui and Takahasi '709. For purposes of deciding the present appeal, we accept as admitted the Examiner's uncontested findings of fact, noting that the Ogawa contests the conclusions to be drawn from the teachings of the references.

Briefly, the Examiner finds that Mitsui, like Ogawa, discloses pressure sensitive adhesive ("PSA") sheets described as being useful as protective films for optical members such as polarizing plates. The Examiner finds, and Ogawa does not dispute, that Mitsui does not disclose that the adhesives provide an adhesion of 0.02 to less than 0.16 N/25mm as required by claim 7. Rather, the Examiner finds that Mitsui describes similar adhesives, tested under similar conditions, which provide adhesion in the range of 0.2 to 3.6 N/25 mm. (FR 5, ll. 2–9, citing Mitsui, Table 2 (para 0288).) Ogawa also does not dispute the Examiner's findings that several references teach the use of carbodiimide cross linking agents to crosslink carboxyl groups. The Examiner finds further that the PSAs disclosed by Mitsui are said not to leave adhesive deposits on the surface of the substrate following removal of the film, and that Mitsui teaches that "the selection of the (meth)acrylate monomers allows for the control of the peel adhesion to an adherend (para 0139) as does the selection of the polymerizable monomers for adjusting the Tg¹⁸ (para 0150)." (*Id.* at ll. 10–

¹⁸ The Examiner finds, and Ogawa does not contest, that Kanner teaches that the Tg value is a "critical consideration" for properties of cross linked adhesives such as cohesion (related to adherend contamination resistance),

14.) The Examiner concludes it would have been obvious to provide PSA acrylic polymers having the required composition and adhesion characteristics. (*Id.* at 6, ll. 7–13.)

The Examiner finds that Mitsui is silent as to gel content, but that “Mitsui is conspicuously directed to the inclusion of crosslinking agents in amounts towards adequate heat resistance and lack of adhesive residue via cohesive strength, flowability, wetting, and lack of peeling.” (*Id.* at ll. 16–18.) The Examiner finds further that Hiromatsu teaches that crosslinking allows for control of the gel fraction of a PSA. (*Id.* at ll. 18–20.) The Examiner also finds that Takahasi ’709 teaches a PSA for laminating optical films and providing excellent heat resistance and moisture resistance that has a gel fraction ranging from 80% (below which foaming becomes a problem) to 95% (above which adequate adhesion becomes a problem). (*Id.* at 7, ll. 6–9, citing Takahasi ’709, col. 2, ll. 37–40 and col. 11, ll. 44–53.) The Examiner concludes it would have been obvious to adjust the amounts of crosslinkers to provide a PSA with a gel content within the scope of claim 7 and having the properties desired by Mitsui.

Ogawa urges that the Examiner failed to establish a prima facie case of obviousness because Mitsui would not have led the routineer to modify the disclosed PSA compositions to arrive at “the adhesive exhibiting the claimed adhesion.” (Br. 7, ll. 1–4.) More particularly, Ogawa urges, Mitsui provides, in Example 1 and Comparative Example 5, a teaching contrary to the notion that a lower adhesion would result in improved removal

as well as bond strength, peel strength, and plastic flow to wet the substrate (related to adhesiveness to substrate). (FR 6, ll. 1–6.)

properties. (*Id.* at 7, 1st full para.) Ogawa argues that both Example 1 and Comparative Example 5 have the same adhesive, but Comparative Example 5 has a lower initial adhesion, and it failed the antifouling property test—that is, it failed to be completely removed from the adherend. (*Id.*) In Ogawa’s view, these results show that “a lower adhesion does not necessarily result in improved removal properties, *viz.*, the properties purportedly required for the intended application of the Mitsui reference.” (*Id.*)

This argument is not persuasive of harmful error. As the Examiner points out (Ans. 15, last two paras.), the antifouling evaluation described by Mitsui is a test of the antifouling layer on the side of the base film opposite to the adhesive layer. It is not a test of the ability of the adhesive layer to be removed completely from the adherend. Mitsui teaches that although “the reason . . . is not evident,” using the antistatic layer provides a sheet that “is not made sticky, does not disturb product inspection, is made excellent in adhesion reliability and transparency, and can be inexpensively produced.” (Mitsui 1 [0015].) Mitsui teaches further that antifouling function was evaluated in the following manner: “an acrylic pressure-sensitive adhesive of No. 31B was adhered to the antistatic layer and then lightly wiped with a waste cloth, and whether the pressure-sensitive adhesive could be easily removed or not was confirmed.” (Mitsui 18 [0287].) The relevance of this evaluation of Mitsui’s antifouling function to the property—which is not recited in claim 7—that “the adhesive composition hardly or never remains on an adherend when released” is not clear. In any event, patentability cannot be premised on a limitation that does not appear in the claim. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (“Many of appellant’s arguments

fail from the outset because . . . they are not based on limitations appearing in the claims.”).

Ogawa argues further that there is no support for the Examiner’s conclusions that modifying compositions taught by Mitsui by adjusting the gel content as taught by Takahasi ’709 would have been expected to exhibit similar adhesions in spite of the changed gel content. (*Id.* at 9, 2d full para.)

This argument is not persuasive of harmful error in the appealed rejections. As the Examiner finds (FR 6), although Mitsui is silent as to gel content in the disclosed compositions, Takahasi ’709 teaches that aqueous dispersion adhesives intended for laminating optical films desirably have gel contents from 80% to 95%, which is entirely within the range of 80% to 100% required by claim 7. On the present record, Takahasi ’709’s teachings that below 80% gel content, foaming becomes a problem, and above 95%, adhesion becomes a problem, would have been sufficient to direct persons of ordinary skill in the art to a gel content within the range required by claim 7.

Ogawa urges further that Examples 1–10 in Table 4 of the Specification demonstrate that gel content and adhesion vary independently of one another. (*Id.* at 10, 1st full para.) Absent more details (e.g., a linear least-squares correlation analysis), we do not find this argument persuasive of reversible error. Moreover, it is at best secondary to the primary argument, which we have rejected.

Finally, Ogawa’s arguments that the Examiner used inherency arguments improperly in an obviousness rejection are addressed adequately by the Examiner. (Ans. 25–26.)

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C. Order

It is ORDERED that the rejection of claims 2–7, 9, and 11–19 is affirmed.

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