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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOY A. GALLAGHER, PHILIP R. HARSH, PU LUO, and EDWIN NUNGESSER

Appeal 2018-001586
Application 15/183,930
Technology Center 1700

Before CATHERINE Q. TIMM, JAMES C. HOUSEL, and DEBRA L. DENNETT, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[2] appeals from the Examiner's decision to reject claims 1–12 under 35 U.S.C. § 103(a) as

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[1] In explaining our Decision, we cite to the Specification of June 16, 2016 (Spec.), Final Office Action of February 10, 2017 (Final), Appeal Brief of July 5, 2017 (Appeal Br.), and Examiner's Answer of October 4, 2017 (Ans.). A Reply Brief was not filed.

[2] Appellant is the applicant, Rohm and Haas Company, which, according to the Brief, is the real party in interest. Appeal Br. 4.

obvious over Chiou[3] in view of Hermes[4] and claims 1–6 and 8–13 under 35 U.S.C. § 103(a) as obvious over Chiou in view of Devonport[5]. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The claims are directed to a composition comprising an aqueous dispersion of polymer particles and polymer beads (*see, e.g.*, claim 1) and an article comprising a leather substrate coated with a clear matte finish comprising an acrylic or styrene-acrylic polymer film and polymer beads (*see, e.g.*, claim 9). The claims further require the polymer particles (claim 1) or film (claim 9) as well as the polymer beads include structural units of a phosphorus acid monomer. The structural unit may be, for instance, a structural unit of phosphoethyl methacrylate. Spec. 2, 4. Claim 1 is illustrative of the composition:

> 1. A composition comprising an aqueous dispersion of 1) polymer particles having an average particle size of from 50 to 300 nm; and b) polymer beads having an average particle size of from 2 to 30 μm; wherein the polymer particles and the polymer beads comprise from 0.1 to 5 weight percent structural units of a phosphorus acid monomer.

Appeal Br. 14 (claims appendix).

OPINION

The primary focus of Appellant's arguments is on the rejection of claim 1 as obvious over Chiou in view of Hermes. Appeal Br. 8–13. Insofar as Appellant's arguments directed to the other claims and to the rejection of

[3] Chiou et al., US 7,829,626 B2, issued November 9, 2010.
[4] Hermes et al., US 2003/0224184 A1, published December 4, 2003.
[5] Devonport et al., US 7,071,261 B2, issued July 4, 2006.

claims 1–6 and 8–13 as obvious over Chiou in view of Devonport raise separate issues, we address them separately.

The Rejection over Chiou and Hermes

Claim 1

As to claim 1, the issue arising is: Has Appellant identified a reversible error in the Examiner's finding that the prior art provides a suggestion for including phosphoethyl methacrylate monomer to provide an acid functional pendant moiety that provides the copolymer particles and beads of Chiou with a desired acid number taking into account Appellant's evidence of unexpected results?

Appellant has not identified such an error.

In addressing Appellant's arguments, we incorporate the Examiner's well-supported and thorough response to arguments provided in the Answer. Ans. ¶¶ 39–69. We provide the following for emphasis.

Chiou discloses an aqueous composition including a film-forming binder (component B) and a polymer beads (duller component A). Chiou col. 2, ll. 6–13. The polymer beads (duller component A) have an average particle diameter of 1–20 microns, a range overlapping the 2–30 micron range of claims 1 and 9. Chiou col. 4, ll. 24–27. The film-forming binder (component B) polymers take the form of particles having an average diameter of 30–1000 nm, with the preferred range of 50–300 nm being the same as the range of claim 1. Chiou col. 9, ll. 28–33.

The film-forming binder (component B) is preferably a two-stage acrylic copolymer. Chiou col. 8, ll. 6–16. Suitable copolymers include styrene, carboxylic acid monomers, phosphoethyl (meth)acrylate (as a polar copolymerizable monoethylenically unsaturated monomer), and

acetoacetamide-containing monomers. Chiou col. 8, l. 47–col. 9, l. 24. The composition may be used to form a matte-coated leather article. Chiou col. 2, ll. 61–63; col. 10, ll. 4–16.

There is no real question that it was known in the art to functionalize small polymer particles of average diameter up to 1 micron with phosphorus acid monomers. Luo Decl. ¶ 7 (declaring small polymer particles are preferentially functionalized with phosphorus acid monomers "to provide controlled adsorption of polymer particles onto pigment particles[,] such as TiO_2 particles[,] to improve the efficiency of pigment dispersion"); Hermes ¶¶ 18, 43 (teaching functionalizing copolymer particles of 20-1000 nm average diameter); Chiou col. 9, ll. 1–10, 28–30 (teaching using phosphoethyl (meth)acrylate to add polar groups to binder particles of 30–1000 nm average diameter).

Hermes teaches functionalizing copolymer particles with an acid monomer that may be a carboxylic acid monomer, a sulfur acid monomer, or a phosphorous acid monomer, with a stated preference for carboxylic acid monomers. Hermes ¶ 43.

According to Luo, "acid monomers are known to provide colloidal stability for small polymer particles." Luo Decl. ¶ 8. Luo declares that "those skilled in the art of latexes know that functionalizing latex particles with acid groups is a way of providing colloidal stability to the polymer particles" and "for traffic paints requiring rapid curing, functionalization of latexes with carboxylic groups in the presence of an amine containing additive in the paint provides a mechanism for rapid curing of the consequent coating at low pH's." Luo Decl. ¶ 5. Luo further declares that skilled artisans would choose a carboxylic acid monomer over a phosphorus

acid monomer to achieve colloidal stability because phosphorus acid monomers "are known to propagate in the serum phase to form oligomers, which do not contribute to colloidal stability" and "traffic paints containing latexes functionalized with phosphorus acid groups are known to undergo uncontrolled flocculation." Luo ¶ 2.

Luo does not provide any evidence to support these declarations of what was known in the art. It remains that Hermes teaches, albeit as a less preferred embodiment, selecting a phosphorus acid monomer to provide the copolymer with an acid number in the range of 0.1 to 390. Hermes ¶ 43. Preferred embodiments do not constitute a teaching away from non-preferred embodiments. *In re Susi*, 440 F.2d 442, 446 n.3 (CCPA 1971). Chiou provides further evidence that it was known to add a phosphorus acid monomer (phosphoethyl (meth)acrylate) to add polar groups to a copolymer used to form particles of 30–1000 nm. Chiou col. 9, ll. 1–3, 28–30.

Luo further declares that it would not have been obvious to functionalize polymer beads, much less both polymer particles and polymer beads, with a phosphorus acid monomer because:

> Whereas acid monomers are known to provide colloidal stability for small polymer particles, polymer beads in the claimed range are too large to be stabilized by acid functionalization; the difference in surface area between the small latex particles and the large beads, which is at least ~50-fold, necessitates the use of a bulky stabilizer for the large particles; accordingly, stability of large beads is more appropriately accomplished with hydoxyethyl cellulose (HEC).

Luo Decl. ¶ 8.

Hermes' discloses that the copolymer particles typically have an average diameter in the range of from 20 nm to 1000 nm, i.e., up to 1

micron. Hermes ¶ 18. Based on this disclosure, the Examiner finds there would have been a reasonable expectation of success in using phosphorus acid monomer to achieve the desired acid number absent evidence to the contrary. Ans. ¶ 42.

The Examiner accorded due weight to the Declarant Luo's opinions on the knowledge within the art and what was not obvious to Dr. Luo. *See In re Lindell*, 385 F.2d 453, 456 (CCPA 1967) (according no weight to a declarant's opinion on the ultimate legal issue, but stating "some weight ought to be given to a *persuasively supported statement* of one skilled in the art on what was not obvious to him." (emphasis added)). Given that the Examiner's findings are supported by the disclosure of Hermes whereas Declarant Luo statement lacks evidentiary support, we, like the Examiner, determine that the evidence weighs in favor of the Examiner's finding of a reasonable expectation of success. *See In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) ("[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations.").

Appellant contends that Table 4 of the Specification illustrates the unexpected stain resistance of Appellant's formulation as compared to paints containing non-acid functionalized beads and carboxylic acid functionalized latex particles. Appeal Br. 11–12. However, we agree with the Examiner's determination that the data is not commensurate in scope with the claims. Ans. ¶ 63. For instance, as noted by the Examiner, only specific copolymer formulations were tested, but the claims encompass any polymer particles, any polymer beads, and any phosphorus monomer. *Id.*

Appellant contends that the actual monomeric composition is not relevant to patentability; rather, it is the combination of phosphorus acid functionalized beads and particles that cause the desired effect. Appeal Br. 12. But, as pointed out by the Examiner, Appellant presents no support in the Luo Declaration for this statement; it is merely an argument of counsel and this argument cannot take the place of evidence. Ans. ¶ 65. A showing of unexpected results must be based on evidence, not argument or speculation. *In re Mayne*, 104 F.3d 1339, 1343–44 (Fed. Cir. 1997); *In re Schulze*, 346 F.2d 600, 602 (CCPA 1965).

Appellant has not identified a reversible error in the Examiner's finding that the prior art provides a suggestion for including phosphoethyl methacrylate monomer in the particles and beads of Chiou to provide an acid functional pendant moiety and a desired acid number after weighing all the evidence and taking into account Appellant's evidence of unexpected results.

Claims 2–5

Under separate headings Appellant state that the references alone or in combination do not teach what is recited in these claims. However, Appellant does not address the specific findings and conclusions of obviousness set forth by the Examiner. Thus, Appellant has not identified a reversible error in the Examiner's rejection of claims 2–5.

Claims 6 and 7

Turning to claims 6 and 7, Appellant contends that these claims are further patentable because they limit the concentration of pigments. Appeal Br. 12. Claim 6 requires a substantial absence of pigments.

There is no dispute that Hermes suggests that pigments are optional. *Compare* Final 5, *with* Appeal Br. 12. But, according to Appellant, the use of phosphorus acid functionalized latexes and beads in coating formulations containing little or no pigment is unobvious. *Id.* To support this contention, Appellant's state that "according to Dr. Luo, phosphorus acid functionalization of latexes is advantageously used to adsorb latex particles to pigment particles such as TiO_2 to improve hiding; however, hiding is not a feature in unpigmented systems." *Id.*

Appellant's argument hinges on Dr. Luo's declaration that "[s]mall polymer particles are preferentially functionalized with phosphorus acid monomers for a specific reason, namely, to provide controlled adsorption of polymer particles onto pigment particles such as TiO_2 particles to improve the efficiency of pigment dispersion." Luo Decl. ¶ 7.

Although Chiou and Hermes state that pigments may be included, as pointed out by the Examiner, they are an optional additive. Ans. 17, citing Chiou col. 12, ll. 29–35; col. 13, ll. 12–19; Hermes ¶ 53.

Hermes states that the acid functional monomer, which may be phosphoethyl methacylate monomer, is added to provide the copolymer particles with an acid number from 0.1 to 390. This disclosure is not tied to the inclusion of pigment.

Devonport discloses that adding the acid monomer is an effective means for dispersing pigments. Devonport col. 16, ll. 52–59. However,

given that Hermes teaches adding pigments is optional, the weight of the evidence supports a finding that those of ordinary skill in the art understood that adding an acid functional monomer, such as phosphoethyl methacrylate monomer, would provide the desired acid number disclosed by Hermes with its benefits whether or not pigment was added.

Appellant has not identified a reversible error in the Examiner's rejection of claims 6 and 7.

The Rejection over Chiou and Devonport

As to the rejection of claims 1–6 and 8–13 as obvious over Chiou in view of Devonport, Appellant contends Devonport teaches a composition comprising an aqueous dispersion of polymer nanoparticles having an upper limit of 50 nm and a lower limit of 5% phosphorus acid functionalization; nevertheless, Devonport provides no further enlightenment on the failure of Hermes or Chiou to motivate, much less enable, the skilled artisan to functionalize the polymeric beads with a phosphorus acid monomer. Appeal Br. 11. For the reasons we discuss above, we disagree. A preponderance of the evidence supports the Examiner's finding of a reason or suggestion within the prior art to select phosphoethyl methacrylate monomer for use in the copolymer of Chiou.

CONCLUSION

We sustain the rejection of claims 1–12 under 35 U.S.C. §103(a) as obvious over Chiou in view of Hermes and the rejection of claims 1–6 and 8–13 under 35 U.S.C. § 103(a) as obvious over Chiou in view of Devonport.

DECISION

The Examiner's decision is affirmed.

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)(1).

AFFIRMED