

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RAJ D. PATEL, MICHAEL A. HOPPER,
VLADISLAV SKOROKHOD, RICHARD P.N. VEREGIN,
MICHAEL S. HAWKINS and PAUL J. GERROIR

Appeal 2006-2507
Application 10/106,473
Technology Center 1700

Decided: November 9, 2006

Before GARRIS, TIMM, and GAUDETTE, *Administrative Patent Judges*.
GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 23 and 39, the only claims pending in this application. Claims 1-22, 24-38 and 40 have been cancelled. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

The claims are directed to aggregation and coalescence processes for the preparation of toner compositions containing magnetite. Claims 23 and 39 are illustrative of the invention and are reproduced below:

23. A process for the preparation of toner comprising preparing a blend by mixing a latex emulsion, a wax dispersion, and a colorant dispersion comprising an acicular magnetite dispersion and a carbon black dispersion; adding to the blend a coagulant to initiate aggregation; and heating the aggregate, wherein said heating comprises a first heating and a second heating wherein the first heating temperature is below about the glass transition temperature of a polymer contained in the latex emulsion, and the second heating is at a temperature above about the glass transition temperature of the polymer contained in the latex emulsion;

wherein

(i) said acicular magnetite is contained in water, and an anionic surfactant, or a nonionic surfactant, and said carbon black is contained in water and an anionic surfactant, or a nonionic surfactant, and wherein said latex emulsion is comprised of an anionic surfactant, water and resin;

(ii) wherein said colorant dispersion is blended with said latex emulsion, and thereafter adding a wax dispersion comprised of submicron wax particles of from about 0.1 to about 0.5 micron in diameter by volume, which wax is dispersed in an anionic surfactant;

(iii) wherein said coagulant is a polymetal halide to thereby initiates flocculation or aggregation of said resin latex, said magnetite, said carbon black, and said wax;

(iv) heating the resulting mixture below about the glass transition temperature (T_g) of the latex resin to form toner sized aggregates;

(v) adding to the formed toner aggregates a second latex comprised of resin suspended in an aqueous phase containing an ionic surfactant and water;

(vi) adding to the resulting mixture a base to thereby change the pH which is from about 2 to about 2.9 to arrive at a pH of from about 7 to about 8 for the resulting toner aggregate mixture;

(vii) heating the resulting aggregate suspension of (vi) above about the T_g of the latex resin of (i);

(viii) optionally retaining the mixture temperature at from about 70°C to about 95°C optionally for a period of about 10 to about 60 minutes, followed by a pH reduction with an acid to arrive at a pH of about 5 to about 6 to assist in permitting the fusion or coalescence of the toner aggregates;

(ix) further retaining the mixture temperature from about 85°C to about 95°C for a period of from 12 to about 20 hours to assist in permitting the fusion or coalescence of the toner aggregates and wherein the toner resulting possesses a smooth morphology;

(x) washing the resulting toner slurry; and

(xi) isolating the toner.

39. A process comprising the heating of a mixture of a magnetite dispersion, a colorant dispersion, a latex emulsion, and a coagulant, wherein said coagulant is a polymetal halide, and wherein said mixture is aggregated by heating below the latex resin glass transition temperature, and thereafter heating above the latex resin glass transition temperature, and wherein there is further included a polymetal silicate, and wherein said aggregate mixture is at a pH of from about 6.5 to about 7.5, and wherein said latex is comprised of resin, nonionic surfactant, ionic surfactant, and water, and wherein said coagulant is the polymetal halide polyaluminumchloride, and wherein said polymetal silicate is a polyaluminum sulfo silicate.

GROUNDS OF REJECTION

The Examiner relies on the following prior art references as evidence of unpatentability:

Lundy et al.	US 5,552,252	Sep. 3, 1996
Patel et al.	US 6,132,924	Oct. 17, 2000

Kmiecik-Lawrynowicz et al. US 6,294,306 B1 Sep. 25, 2001

The rejections as presented by the Examiner are as follows:

1. Claim 23 is rejected under 35 U.S.C. 103(a) as unpatentable over Patel in view of Lundy and in further view of Kmiecik-Lawrynowicz
2. Claim 39 is rejected under 35 U.S.C. 103(a) as unpatentable over Kmiecik-Lawrynowicz in view of Lundy.

We affirm as to both grounds of rejection.

DISCUSSION

Claim 23

Claim 23 is rejected under 35 U.S.C. § 103(a) as unpatentable over Patel in view of Lundy and in further view of Kmiecik-Lawrynowicz. The Examiner found that Patel discloses the invention as claimed, with the exception of:

- (1) “the claimed process where a colorant dispersion comprising an acicular magnetite and a carbon black dispersion are used as the colorant for combination with the latex and wax dispersion” and
- (2) “retaining the aggregates at a time of from 12 to about 20 hours.”

Answer 5. Lundy is relied on for a disclosure of toners that contain magnetite particles (Answer 6). The Examiner relies on Kmiecik-Lawrynowicz for a teaching of retaining aggregates at temperatures of 60 to 95 °C for about 1 to 10 hours to form toner particles having a size of about 1 to about 25 microns. *Id.* Appellants traverse the rejection of claim 23 on the

sole basis that the prior art fails to disclose or suggest claim step (ix), i.e., retaining the mixture temperature *for a period of from 12 to about 20 hours* to permit further coalescence (Br. 2; Reply Br. 1).

The Examiner's position is that

[t]he heating time is a result-effective variable because it controls the toner size. Given that a broad heating time is disclosed in each reference and that the greatest heating time is disclosed as a relative value in Kmiecik-Lawrynowicz, the artisan would be expected to optimize the heating time to give the particles of specified size, which overlap between Patel and Kmiecik-Lawrynowicz.

Examiner's Answer 6.

Appellants argue that the Examiner has failed to establish a prima facie case of obviousness because the Examiner has not explained why one of ordinary skill in the art would have been motivated to use a heating time of 12 hours, which is outside the range taught by both Patel¹ and Kmiecik-Lawrynowicz (Reply Br. 1-2). Appellants dispute the Examiner's finding that one of ordinary skill in the art would understand Kmiecik-Lawrynowicz's disclosure of heating for "*about 10 hours*" as suggesting a time of 12 hours (Answer 9). Reply Br. 3. Appellants maintain that one of ordinary skill in the art would more likely look to the overlapping portion of the Patel and Kmiecik-Lawrynowicz ranges. *Id.* at 2.

A claimed invention is unpatentable if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill

¹Patel teaches retaining the mixture temperature for a period of 0.5 to 6 hours to achieve a toner particle size of about 2 to 25 microns.

in the art.” 35 U.S.C. § 103. Therefore, a reference disclosure must be evaluated for all that it fairly teaches and not only for what is indicated as preferred. *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

According to the Examiner, “[a] heating time of 12 hours is reasonably suggested because the artisan has guidance to heating times above 10 hours and knows from the references what features are to be optimized by this heating” (Answer 9). Whether optimization of a parameter would have been prima facie obvious depends upon what the prior art discloses with respect to that parameter. *See In re Sebek*, 465 F.2d 904, 907, 175 USPQ 93, 95 (CCPA 1972). In this case, the Examiner found that the prior art teaches that toner size is controlled by heating time. Moreover, the Examiner correctly noted that Kmiecik-Lawrynowicz’s use of the term “about” indicates that the inventors did not intend to limit the claimed ranges to their exact end-points. *See In re Harris*, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1954 (Fed. Cir. 2005).

In our view, the Examiner’s findings are sufficient to establish a prima facie case of obviousness, such that the burden shifted to Appellants to rebut the Examiner’s showing of obviousness. *See In re Dillon*, 919 F.2d 688, 692, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (*en banc*). We note that our reviewing court and its predecessor have, in a number of cases, similarly concluded that even though “[a] modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art, unless the claimed ranges produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art.” *In re Huang*,

100 F.3d 135, 139, 40 USPQ2d 1685, 1688-89 (Fed. Cir. 1996) (affirming the rejection of claims requiring thickness ratios above those employed in the prior art).² See *In re Schwarze*, 536 F.2d 1373, 1377, 190 USPQ 294, 296 (CCPA 1976) (affirming an obviousness rejection of a claim to a chemical process in which the first stage was conducted at 0-50°C when the prior art process conducted the first stage at 60-90°C); *In re Hill*, 284 F.2d 955, 958-59; 128 USPQ 197, 199 (CCPA 1960) (affirming an obviousness rejection of a claim to a chemical process conducted at 150-250°C when the prior art disclosed the same reaction at 300°C); *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (“Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art”). Appellants have not directed us to any evidence of unexpected results or shown that the prior art teaches away from the claimed range. See *C.R. Bard, Inc. v. Advanced Cardiovascular Systems*, 911 F.2d 670, 674 n.2, 15 USPQ2d 1540, 1544 n.2 (Fed. Cir. 1990) (attorney arguments are not evidence). See also, *In re*

²“The difference between the Huang grip and the prior art was that the Huang grip increased the thickness of the polyurethane layer relative to the textile layer, and had greater shock-absorbing qualities. There was nothing new or unexpected about this result because the prior art taught "that shock absorption derives in part from the compressible nature of the polyurethane layer. Given that the polyurethane layer absorbs shock, one of ordinary skill would logically infer that increasing the amount of the shock absorbing material (the polyurethane) would lead to an increase in the amount of shock absorption." *Id.*

Mayne, 104 F.3d 1339, 1343-4, 41 USPQ2d 1451, 1455-56 (Fed. Cir. 1997) (“Applicant's conclusory statements” were insufficient to make a showing that “the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would find surprising or unexpected.”).

Accordingly, the rejection of claim 23 is affirmed.

Claim 39

Claim 39 is rejected under 35 U.S.C. 103(a) as unpatentable over Kmiecik-Lawrynowicz in view of Lundy. The Examiner found that Kmiecik-Lawrynowicz discloses the invention as claimed with the exception of a specific disclosure of a combination of carbon black and magnetite (Answer 7). The Examiner relies on Lundy for a teaching that a combination of magnetite and carbon black is effective to give a magnetic toner with sufficient black coloring. *Id.* According to the Examiner:

It would have been obvious to one having ordinary skill in the art [sic, art] at the time the invention was made to add a [sic] combine a carbon black dispersion with the magnetite dispersion when using magnetite as the colorant in Kmiecik-Lawrynowicz because Kmiecik-Lawrynowicz teaches that magnetite colorant dispersion and carbon black colorant dispersion may be used in the toner process in combination while Lundy teaches that when magnetites are used in a color toner carbon black is usefully included to improve the black color of the toner. Thus, the artisan would have found it obvious to produce two dispersion[s] according to Kmiecik-Lawrynowicz, one with carbon black and one with magnetite such as the commercially available M08029, and add these dispersion at the colorant addition stage of Kmiecik-Lawrynowicz 's invention.

Answer 7-8.

Appellants assert that claim 39 requires the mixing of three separate components: a magnetite dispersion, a colorant dispersion, and a latex emulsion. According to Appellants, Kmiecik-Lawrynowicz refers to magnetite and carbon black only as "colorants" and, therefore, the artisan reading this reference would mix the magnetite and carbon black together as one dispersion (the colorant dispersion) whereas claim 39 recites their use as two separate dispersions. Appellants argue that absent a finding of motivation in the prior art, the Examiner's assertion that the use of either a combined dispersion or two separate dispersions is a matter of design choice, is insufficient to establish obviousness. Br. 4.

"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." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). Kmiecik-Lawrynowicz teaches that "usefull [sic] colorants or pigments include carbon black, magnetite, or mixtures thereof" (col. 10, ll. 46-47) and that "*additional useful colorants include pigments in water-based dispersions*" (col. 11, ll. 16-17) (emphasis added). Kmiecik-Lawrynowicz further discloses that "[c]olorants, include pigment, dye, mixtures of pigment and dyes, mixtures of pigments, mixtures of dyes, and the like" (col. 12, ll. 9-11). Thus, relying on Appellants' own reasoning, the artisan reading Kmiecik-Lawrynowicz would be motivated not only to mix the magnetite and carbon black together as one dispersion, but also to mix together two "pigment in water-based dispersions", i.e., a magnetite

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dispersion and a carbon black dispersion. *See* Answer 8. Accordingly, we are in agreement with the Examiner's finding of prima facie obviousness. Appellants have not offered any evidence or arguments which establish an unexpected advantage in, nor have they shown that the prior art teaches away from, using two separate dispersions. *Cf. In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657-58 (Fed. Cir. 1990) (“[W]hen the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.”); *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

The rejection of claim 39 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (2004).

AFFIRMED

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