

The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRUCE HALE and BO LARSSON

Appeal No. 2007-2234
Application No. 09/950,477¹
Technology Center 1700

Decided: July 6, 2007

Before: TEDDY S. GRON, CAROL A. SPIEGEL and MARK NAGUMO,
Administrative Patent Judges.

SPIEGEL, *Administrative Patent Judge.*

DECISION ON APPEAL

I. Introduction

Bruce Hale and Bo Larsson (hereinafter "Appellants") seek our review under 35 U.S.C. § 134 of the Examiner's final rejection of claims 1-30, all of the claims pending in this Application. We have jurisdiction under 35

¹ The Application on appeal was filed 10 September 2001 and is said to be a continuation-in-part of Application 09/659,485, filed 11 September 2000. The real party-in-interest is said to be Akzo Nobel NV.

U.S.C. § 6(b). We affirm. However, since our reasons for concluding that the claims are unpatentable differ substantially from those advanced by the Examiner, we denominate our affirmance as a NEW GROUND OF REJECTION. 37 CFR § 41.50(b).

A. The invention

Appellants' invention is directed to methods for enhancing the anti-skid properties of cellulosic materials, e.g., paper boxes, bags and liners, by coating the material with an aqueous, substantially latex-free composition comprising an aluminate modified silica sol, as well as the resulting product and the coating composition. Claim 11 is illustrative of the subject matter on appeal.

11. Cellulosic material at least partially coated with an aqueous substantially latex-free antiskid composition comprising at least an aluminate modified silica sol.

Claim 1 recites a method comprising coating a cellulosic material with the composition, and claim 21 recites the aqueous composition.

B. The rejections

The Examiner rejected claims 1-30 under 35 U.S.C. § 103(a).

The following prior art² was relied upon by the Examiner:

Wilkinson	US 4,057,201	Nov. 8, 1977
Miranda (Miranda '438)	US 5,716,438	Feb. 10, 1998
Miranda	WO 99/39838	Aug. 12, 1999

R. Iler, THE CHEMISTRY OF SILICA, John Wiley & Sons, Inc. (1979), pp. 406-409.

² The reader should know that the coinventors and coauthors are not indicated in this opinion.

Wilkinson, Miranda '438, Miranda and Iler qualify as prior art under 35 U.S.C. § 102(b).

The rejections under review in this appeal are: Claims 1-9, 11-19, 21-28 and 30 stand rejected under 35 U.S.C. § 103(a) as obvious over Miranda in light of Iler. Claims 10, 20 and 29 stand rejected under 35 U.S.C. § 103(a) as obvious over Miranda in light of Iler, as applied to claims 1, 11 and 21, and further in view of Miranda '438.³

Appellants have grouped claims 1-10, 11-20 and 21-30 together (Appeal Br. 7, ¶ 3). However, Appellants have not argued any the separate patentability of any of claims 1-30 (Appeal Br. 7-13). Therefore, we decide this appeal on the basis of claim 11. 37 CFR § 41.37(c)(1)(v).

II. Obviousness

A claimed invention is not patentable if the subject matter of the claimed invention would have been obvious to a person having ordinary skill in the art. 35 U.S.C. § 103(a); *KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385 (2007); *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966).

Facts relevant to a determination of obviousness include (1) the scope and content of the prior art, (2) any differences between the claimed invention and the prior art, (3) the level of ordinary skill in the art and (4) relevant objective evidence of obviousness or non-obviousness. *KSR*, 127 S.Ct. at 1734, 82 USPQ2d at 1389; *Graham*, 383 U.S. at 17-18.

³ The Examiner clearly relies on Miranda's incorporated-by-reference disclosure of Iler as part of his fact-finding and conclusion of obviousness (Answer, 9 (last eight lines)). Appellants addressed Iler in their Reply Br., 8-9.

A. Appellants' Specification

- [1] Applying silica sol compositions to paper product surfaces as anti-skid compositions to reduce sliding is known (Specification, 1:16-17).
- [2] Appellants' invention relates to a method of coating a cellulosic material with a specific anti-skid composition, i.e., substantially latex-free anti-skid composition comprising an aluminate modified silica sol and an organic additive (*id.*, 2:1-8).
- [3] Cellulosic material is defined as "any virgin or recycled paper or paperboard material such as linerboard, corrugated board, or liquid board" (*id.*, 2:14-17).
- [4] A "substantially latex-free composition" is a composition containing "only trace amounts of latex, which may be present . . . up to about 1000 ppm, but in most cases up to about 100 ppm" (*id.*, 2:18-21).
- [5] The aluminate modified silica sol may be prepared as described by Iler at pages 407-408 (*id.*, 3:13-15).
- [6] An organic additive, such as alcohols, e.g., glycerine or diethylene glycol, is primarily added to the composition to enhance the cleanability of the paper machinery (*id.*, 3:22-34).

B. Miranda

- [7] Miranda describes a method of enhancing the anti-skid properties of a paper product by coating the paper product with an aqueous composition comprising (a) a colloidal silica, (b) a latex and (c) an alcohol, as well as both the products produced thereby and the aqueous composition (Miranda 4:1 to 5:28; 14:4-8).
- [8] Useful silica colloids include the aluminate-modified silicas described by Iler, which Miranda incorporates by reference (*id.*, 9:16-20).

- [9] LUDOX AM®, manufactured by Du Pont, is an example of an aluminate-modified silica colloid useful in the Miranda composition (*id.*, 9:21-23).
- [10] The latex can be any synthetic or natural latex (*id.*, 10:2-3).
- [11] The alcohol can be a glycol or polyhydric alcohol, e.g., glycerine or diethylene glycol (*id.*, 11:15 to 12:19).
- [12] The colloidal silica, latex and alcohol can be added in any order to water (*id.*, 13:18-19).
- [13] In one embodiment, the amount of latex in the aqueous composition is from 1 to 50%, i.e., 10,000 to 500,000 ppm (*id.*, 11:9-11).
- [14] In another embodiment, one part of the aqueous composition is diluted with from 1 to 20 parts water (*id.*, 13:25-26).
- [15] An aqueous composition containing 1% latex diluted with 20 parts water has a latex concentration of 500 ppm.
- [16] Latexes are said to enhance the anti-skid or friction properties of paper (Miranda, 9:30 to 10:1).
- [17] Latexes and compositions comprising latex and silica are known to improve the printability of paper (*id.*, 2:26-29; 3:4-7).
- [18] Miranda's anti-skid composition is said to enhance the printability properties of paper (*id.*, 15:21 to 16:5).
- [19] According to Miranda, the alcohol (i.e., organic additive) in its anti-skid composition is said to improve stability and to enhance cleanability of the machinery used to apply the composition (*id.*, 16:13-21).

- [20] Example 1 of Miranda is said to compare the ability of three formulations to impart anti-skid or friction properties to paper (*id.*, 17:4-7).
- [21] According to Example 1, the latex JONCRYL 74® was used as a 48.5% dispersion in water. The silica was used as a sol (41% by weight silica in water). The amount of silica used in the formulations is expressed as % by weight dry silica. Formulation (1) is composed of 38 % by weight silica, 14 % by weight glycerine, and 48 % by weight water. Formulation (2) is composed of 37.6% by weight silica, 8 % by weight diethylene glycol, 0.07 % by weight biocide, and 54.3 % by weight water. Formulation (3) is composed of 30.75 % by weight silica, 14.58 % by weight diethylene glycol, 10 % by weigh [sic] JONCRYL 74®, 0.07% by weight biocide, and 44.6 % by weight water.
- The formulations were diluted with water in order to facilitate the application of the formulations. . . . [*Id.*, 17:7-18.]
- [22] The three formulations of Example 1 were said to show slide angle losses through the winder (i.e., "skidding") of 3.3, 1.4 and 0.4 degrees, respectively (*id.*, 18:22-26; Table 1).
- [23] Example 2 is said to show the printability indices of the three formulations of Example 1 as averaging 35, 41 and 40, respectively, with formulation 2 showing the highest average printability index (*id.*, Table 2).
- [24] Example 3 is said to compare the propensity of three formulations to form deposits on tips of spray bars used in mill applications after one hour of spraying (*id.*, 19:26-30 and 20:4).

[25] According to Example 3,

[f]ormulation A is composed of 41 % by weight of dry silica and 59 % by weight water. Formulation B is composed of 30.75% by weight dry silica, 25 % by weight JONCRYL 74[®], and 44.25% by weight water. Formulation C is composed of 30.75 % by weight dry silica, 14.58 % by weight diethylene glycol, 10 % by weight JONCRYL 74[®], 0.07 % by weight biocide, and 44.6 % by weight water. [*Id.*, 19:32 to 20:2.]

[26] The tips spraying formulations A and B required scrubbing and more scrubbing, respectively, to remove white deposits, while the tip spraying formulation C was readily rinsed off with water without signs of any plugging (*id.*, 20:4-11).

[27] Example 4 is said to show the appearance of the deposit produced by (1)-(3) three silica/diethylene glycol/JONCRYL 74[®] aqueous solutions, (4) a silica/diethylene glycol aqueous solution and (5) a silica solution after three days at room temperature (*id.*, 20:19-25).

Solutions (1)-(5) were said to have left a white skin, a translucent paste, a white film, a clear solid and a white solid, respectively (*id.*, Table 3)

C. Iler

[28] Iler describes modifying sols of silica particles with aluminate ions (Iler, pp. 407-408).

[29] Aluminate-modified silica particles are stable in the neutral pH range where unmodified silica sol gels rapidly (*id.*, 408, ¶2).

[30] "The increased stability over a wider pH range broadens the scope of practical uses" (*id.*).

D. Wilkinson

[31] Wilkinson describes LUDOX AM® as a "slip resistant composition" available from Du Pont useful in coating materials to enhance their surface coefficient of friction (col. 2, ll. 49-51; col. 3, ll. 17-20).

D. The Examiner's position

The Examiner found that formulation (2) of Example 1 of Miranda had all the constituents as the "preferred embodiment" of formulation (3) except for the latex and Example 1 showed formulation (3) comprising latex "had a greater slide angle to the paperboard at the winder than the non-preferred latex-free embodiment" of formulation (2) (Examiner's Answer, mailed 14 December 2006, "Answer," 3). On the other hand, the Examiner found that formulation (2) showed a higher printability index than formulation (3) in Example 2 (*id.*, 4). The Examiner determined that latex-free formulation A "had less of a propensity to form deposits and a higher cleanability than the preferred embodiment" of latex-containing formulation B in Example 3 (*id.*). The Examiner further determined that latex-containing solutions (1) to (3) of Example 4 "produced more favorable appearances and consistencies after removal of water than the non-preferred latex-free" solution (4) (*id.*, 3-4). The Examiner concluded that it would have been obvious to one of ordinary skill in the art to "make the compositions of Miranda latex-free, because some applications require a composition with the highest printability and the highest cleanability" (*id.*, 4).

The Examiner further concluded that it would have been obvious to one of ordinary skill in the art to use aluminate-modified silica sol in the latex-free compositions of Miranda "because aluminate modified silica sol

has increased stability over a wider pH range which broadens the scope of practical uses" as taught by the incorporated Iler (*id.*, 9).

E. Appellants' position

In essence, Appellants argue that Miranda, when considered in its entirety, teaches away from use of latex-free compositions and that the Examiner has misinterpreted Examples 1-4 in Miranda (Corrected Appeal Brief, filed 21 September 2006, "Appeal Br.," 8-12; Reply Brief, filed 13 February 2007, "Reply Br.," 5-8). Appellants also point out that the latex-free examples in Miranda contain an "unnamed silica sol" (Appeal Br., 11; Reply Br., 8). Finally, Appellants rely on a previously submitted Declaration by Bo Larsson ("Larsson Declaration," executed 15 October 2004) as evidence of unexpected results using the claimed invention (Appeal Br., 9-10; Reply Br., 10).

F. Analysis

First, we agree that the Examiner has mischaracterized the disclosure in Miranda. For example, the latex-free formulations in Examples 1-4 are not "non-preferred embodiments" of Miranda's anti-skid composition precisely because they do not contain any latex (Miranda 4:1 to 5:28; 14:4-8). Thus, formulations (1) and (2) of Example 1 represent compositions of the prior art vis-à-vis formulation (3) which represents a composition according to Miranda. Formulation (3) of Example 1, which contained latex, showed higher antiskid properties than the other two formulations because it had less of a slide angle loss through the winder. The Examiner's interpretation of Example 3 in Miranda failed to acknowledge that formulation C, which contained an alcohol additive,

diethylene glycol, showed the best cleanability, consistent with Miranda's disclosure that alcohol is added to enhance cleanability (Miranda 16:13-21).

However, what both the Appellants and the Examiner appear to have overlooked is that the claimed invention does *not* require a *latex-free* composition, but rather a *substantially* latex-free composition (see claims 1, 11 and 21). As defined in Appellants' Specification, a *substantially* latex free composition may contain trace amounts of latex, which may be up to about 1000 ppm (Specification, 2:18-21). Miranda not only describes an embodiment wherein the amount of latex in its composition is from 1 to 50%, but also that its compositions may be diluted, e.g., with from 1 to 20 parts of water (Miranda, 11:8-11 and 13:25-26). An aqueous composition containing 1% latex diluted with 20 parts of water results in a latex concentration of 500 ppm. We also note that the formulations in Example 1 of Miranda were all diluted for use. Thus, Miranda fairly describes a *substantially latex-free* antiskid composition as that term is used in Appellants' claims. Moreover, Miranda expressly directs the attention of a skilled artisan to aluminate-modified silicas as described by Iler, which Miranda incorporates by reference into its disclosures (Miranda, 9:16-20). As explained by Iler, the increased stability provided by modifying silica particles with aluminate broadens the scope of its practical uses (Iler, 408).

Miranda's descriptions of particular embodiments that do not anticipate claim 11 or other claims do not detract from its suggestion of embodiments that meet those claims. *See, e.g., In re Burckel*, 592 F.2d 1175, 1179, 201 USPQ 67, 70 (CCPA 1979) (a prior art disclosure is not limited to its preferred embodiments or specific working examples); *In re Mills*, 470 F.2d 649, 651, 176 USPQ 196, 198 (CCPA 1972) (all the

disclosure in a reference must be evaluated, including non-preferred embodiments, and a reference is not limited to the disclosure of specific working examples). Thus, one of ordinary skill in the art reading Miranda, particularly in light of the incorporated Iler disclosure, would have been made aware of an aqueous substantially latex-free antiskid composition comprising aluminate-modified silica sol and an alcohol (i.e., an organic additive) as required by claim 21. That person would have treated paper materials therewith to provide improved anti-skid properties (as required by claim 1) because aluminate-modified silica particles were expected to provide increased stability and a broader range of applications, because the alcohol is expected to provide improved stability and enhanced cleanability of the machinery used to apply the composition, and because a trace of latex would be expected to reducing sliding (latex) while facilitating the application of the composition to the machinery (diluted solution). Therefore, we conclude that the disclosure of Miranda, taken in light of the incorporated disclosure of Iler, would have made the claimed invention at least *prima facie* obvious to a person having ordinary skill in the art. Cf. *In re Dillon*, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (although the motivation to combine differs from that of the applicant, the motivation in the prior art to combine the references does not have to be identical to that of the applicant to establish obviousness).

We are not persuaded otherwise by the Larsson Declaration. Neither Example compares solutions having the same concentration and types of constituents, but for untreated silica particles versus aluminate modified silica particles. Mr. Larsson has failed to explain the basis for his opinion (Larsson Declaration, 3, ¶ 3). For example, Mr. Larsson has failed to

explain how the test data is regarded in the relevant art, e.g., what degree of reproducibility or standard deviation is typically found, how was the data was evaluated, what defines a "significant" difference in results, etc.

Moreover, in rebuttal to the Larsson Declaration, the Examiner pointed out that aluminate-modified silica colloids, e.g., LUDOX AM[®], are known slip resistant compositions, as disclosed by Wilkinson (Answer, 10). Thus, based on Wilkinson, it appears that one of ordinary skill in the art would have reasonably expected aluminate-modified silica particles to show improved skid-resistance vis-à-vis unmodified silica particles. Appellants neither challenged nor commented on the Wilkinson disclosure in their Reply Brief and have therefore waived all argument in the immediate appeal.

Based on the foregoing, we sustain the Examiner's rejection (i) of claims 1-9, 11-19, 21-28 and 30 under § 103(a) as obvious over Miranda in light of Iler and (ii) of claims 10, 20 and 29 under § 103(a) as obvious over Miranda in light of Iler, as applied to claims 1, 11 and 21, and further in view of Miranda '438.

III. Conclusion

In summary, the decision of the Examiner (i) to reject claims 1-9, 11-19, 21-28 and 30 under 35 U.S.C. § 103(a) as obvious over Miranda in light of Iler and (ii) to reject claims 10, 20 and 29 under 35 U.S.C. § 103(a) as obvious over Miranda in light of Iler, as applied to claims 1, 11 and 21, and further in view of Miranda '438 is affirmed. However, since our reasons for concluding that the claims are unpatentable differ substantially from those advanced by the Examiner, we denominate our affirmance as a NEW GROUND OF REJECTION. 37 CFR § 41.50(b).

Section 41.50(b) also provides that *WITHIN TWO MONTHS FROM THE DATE OF THE DECISION*, Appellants must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

Should the appellant elect to prosecute further before the examiner pursuant to 37 CFR § 41.50(b)(1), in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellant elects prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Board of Patent Appeals and Interferences for final action on the affirmed rejection, including any timely request for rehearing thereof.

AFFIRMED; 37 CFR § 41.50(b)

Appeal 2007-2234
Application 09/950,477

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