

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

Paper No. 34

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex Parte ANDERS BERGQVIST,
HAKAN DAHLLOF and MARCELO LEITE

Appeal No. 1997-4290
Application 08/218,647

ON BRIEF

Before, WARREN, KRATZ and JEFFREY T. SMITH, Administrative Patent Judges.

JEFFREY T. SMITH, Administrative Patent Judge.

Decision on appeal under 35 U.S.C. § 134

Applicants appeal the decision of the Primary Examiner finally rejecting claim 18 to 21, 23 to 32, 34 and 35 all of the claims pending in the application.^{1 2}

We have jurisdiction under 35 U.S.C. § 134.

¹ Appellants have amended the claims on appeal in the after final communications filed February 11, 1996, paper no. 12, October 18, 1996, paper no. 18, November 11, 1996, paper no. 19 and February 5, 1997, paper no. 21.5. The Examiner has entered all of these amendments.

² We have considered Appellants' position as presented in the Amended Appeal Brief, filed February 5, 1997, and the Reply Brief filed September 18, 1997.

BACKGROUND

The invention is directed to a chlorine free bleaching process for paper pulp or dissolving wood pulp. According to Appellants the claimed invention results in substantial environmental benefits. (Brief, p. 2). Claim 18 which is representative of the invention is reproduced below:

18. A method of bleaching chemical paper pulp or dissolving wood pulp, which has been cooked and delignified without employing chlorine- containing chemicals, comprising a bleaching sequence for bleaching chemical pulp which comprises at least 4 stages,

a first stage comprising a chelation treatment stage;

a second stage comprising a first peroxide treatment stage, wherein said first peroxide treatment stage is a delignifying peroxide treatment stage, in which the amount of peroxide is between 2 and 8 kilo/bone dry metric tons,

a third stage comprising an acidic delignifying treatment stage, following said second stage and including a wash, and

a fourth stage comprising a second peroxide treatment stage, following said third stage and including a wash, wherein said second peroxide treatment stage is a bleaching peroxide treatment, in which the amount of peroxide exceeds 3 kilo/bone dry metric tons and exceeds the amount of peroxide employed in said first peroxide stage.

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As evidence of obviousness, the Examiner relies on the following references:

Lindberg	5,401, 362	Mar. 28, 1995
Andersson et al. (Andersson '590) European Patent Application	EP 512590	Nov. 11, 1992
Andersson et al. (Andersson '695) European Patent Application	EP 511695	Nov. 04, 1992
Lachenal ³ French Patent Application	FR 2593527	Jul. 31, 1987

Basta et al., "Lignox and Complimentary Combinations", Non-Chlorine Bleaching Proceedings, Hilton Head, S.C., March 2 to 5, 1992.

THE REJECTIONS

The Examiner rejected entered the following ground of rejections:

Claims 18, 19, 23 to 27, 31, 32, 34 and 35 is rejected under 35 U.S.C.

§ 103(a) over the combination of Andersson '590 and Lachenal.⁴ (Answer, page 3).

Claim 20 is rejected under 35 U.S.C. § 103(a) over the combination of Andersson '590, Lachenal and Basta. (Answer, page 4).

³ When discussing this document we will use the inventor's name Lachenal. This notation is different from both the Appellants and the Examiner which identify the document as FR' 527 and FR 2593527, respectively.

⁴ Our discussion of the Lachenal reference will refer to the English language translation a copy will be attached to this decision.

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Claim 21 is rejected under 35 U.S.C. § 103(a) over the combination of Andersson '590, Lachenal and Andersson '695. (Answer, page 4).

Claims 28 to 30 are rejected under 35 U.S.C. § 103(a) over the combination of Andersson '590, Lachenal and Lindberg. (Answer, page 4).

Rather than reiterate the respective positions advanced by the Examiner and Appellants, we refer to the Examiner's Answer and to Appellants' Brief and Reply Brief for a complete exposition thereof.

OPINION

We have carefully reviewed the claims, specification and applied prior art, including all of the arguments advanced by both the Examiner and Appellants in support of their respective positions. This review leads us to conclude that the Examiner's § 103 rejections are not well founded. Our reasons for this determination follow.

All of the Examiner's § 103 rejections rely on, either totally or in-part, Andersson '590 and Lachenal. Therefore, we will limit our discussion to Andersson '590 and Lachenal and claim 18 which is the sole independent claim.

Andersson '590 is directed to a process for delignification and bleaching of a chemically digested lignocellulose containing pulp. The process includes a chelation stage employing a complexing agent such as EDTA. (p. 3, ll. 18 to 21).

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The chelation stage is followed by bleaching with a peroxide containing compound, followed by bleaching with ozone and followed by bleaching with peroxide containing compound. (p. 2, l. 58 to p. 3, l. 7, and p. 3, ll. 52 to 54). Andersson '590 discloses the viscosity and brightness of the pulp is improved if the ozone bleaching is preceded by bleaching with a peroxide containing compound. (p. 3, ll. 7 to 9). Andersson '590 discloses washing can occur before and after the respective stages. Andersson '590 discloses the spent liquor and washing water can be recycled. (p. 3, ll. 22 to 27). Andersson '590 discloses the hydrogen peroxide can be used in amounts ranging from 2 to 50 kg/ton of dry pulp, preferably from 3 to 35 kg/ton of dry pulp. (p. 3, ll. 46 to 54). Example 3 describes a process which includes chelation treatment stage, a first peroxide treatment stage, an ozone treatment stage and a second peroxide treatment stage. Example 3 differs from the invention of claim 18 in that the first peroxide treatment stage contains more peroxide than the second peroxide treatment stage.

Lachenal is directed to a process of bleaching mechanical wood pulp. Mechanical wood pulp is described as "high yield wood pulps, generally exceeding

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90% wood pulp weight in relation to the weight of the initial wood.” (p. 2, ll. 4 to 6). Lachenal discloses the wood pulp can be subject to a chemical treatment which employs hydrogen peroxide in two stages wherein 10% or less of the peroxide is used during the first stage. (p. 5 and the examples). Lachenal discloses bleaching mechanical wood pulp consists of using chemical means to discolor chromophor groups. (p. 2, ll. 7 to 11). Hydrogen peroxide is disclosed to be suitable for bleaching processes which are either an alkaline environment or acid environment. (p. 5) Lachenal discloses it was known that peroxide can be recycled and can account for up to 20 % of the peroxide used in the bleaching process. (p. 3, ll. 9 to 26).

The Examiner asserts that it would have been obvious to use a smaller amount of hydrogen peroxide in the first stage and a larger amount of hydrogen peroxide in the second peroxide stage because Lachenal teaches using 10% or less of the total amount of peroxide in the first of two peroxide stages improves bleaching while reducing the composition of hydrogen peroxide. (Answer, p. 3.) We do not agree. The Examiner has attempted to combine the teachings of Andersson ‘590, which is directed to chemical pulp, with the teachings of Lachenal, which is directed to mechanical pulp. In the bleaching of chemical pulp, the lignin, pitch, carbohydrate degradation products, chromophores and uv-absorbing materials

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are removed. However, in the bleaching of mechanical pulp the lignin is retained.⁵ Thus, the mechanism for bleaching chemical pulp is directly opposite the mechanism for bleaching mechanical pulp. Consequently, we determine that one of ordinary skill in the art would not have been motivated to combine the teachings of Andersson '590 and Lachenal as suggested by the Examiner.

In holding an invention obvious in view of a combination of references, there must be some suggestion, motivation, or teaching in the prior art that would have led a person of ordinary skill in the art to select the references and combine them in the way that would produce the claimed invention. *See, e.g., Heidelberg Druckmaschinen AG v. Hantscho Commercial Prods., Inc.*, 21 F.3d 1068, 1072, 30 USPQ2d 1377, 1379 (Fed. Cir. 1994) (When the patent invention is made by combining known components to achieve a new system, the prior art must provide a suggestion, or motivation to make such a combination.); *Northern Telecom v. Datapoint Corp.*, 908 F.2d 931, 934, 15 USPQ2d 1321, 1323 (Fed. Cir. 1990) (It is insufficient that the prior art disclosed the components of the patented device, either separately or used in other combinations; there must be some teaching, suggestion, or incentive to make the combination made by the inventor.); *Uniroyal, Inc. v.*

⁵ Kirk-Othmer, Encyclopedia of Chemical Technology, vol. 19 (3rd ed. 1979) 413.

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Rudkin-Wiley Corp., 837 F.2d 1044, 1044, 1051, 5 USPQ 1434, 1438 (Fed. Cir. 1988). In the present case, the Examiner has not provided sufficient motivation for combining Andersson ‘590 and Lachenal to make the claimed invention.

The rejection of claims 18, 19, 23 to 27, 31, 32, 34 and 35 under 35 U.S.C. § 103(a) over the combination of Andersson ‘590 and Lachenal is reversed. The rejection of claim 20 under 35 U.S.C. § 103(a) over the combination of Andersson ‘590, Lachenal and Basta is reversed. The rejection of claim 21 under 35 U.S.C. § 103(a) over the combination of Andersson ‘590, Lachenal and Andersson ‘695 is reversed. The rejection of claims 28 to 30 under 35 U.S.C. § 103(a) over the combination of Andersson ‘590, Lachenal and Lindberg is reversed.

OTHER ISSUES

We leave these issues to be further explored by the Examiner prior to disposition of the application. Claims 20, 21 and 29 appear to violate the second paragraph of 35 U.S.C. § 112 because the effect of the language “following said second stage” and “following said third stage” requires the steps to occur in a

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specific order. However, claims 20, 21 and 29 do not have proper antecedent basis for the third stage of claim 18 to be followed by a chelation treatment/stage as required in claims 20, 21 and 29.

Thus, prior to disposition of the application, the Examiner should determine whether the claimed invention meets the requirements of the first and second paragraphs of 35 U.S.C. § 112.

CONCLUSION

For the foregoing reasons, based on the totality of the record, we determine that the preponderance of evidence does not weigh in favor of obviousness. Accordingly, the Examiner's rejections under 35 U.S.C. § 103 are reversed.

REVERSED

CHARLES F. WARREN)
Administrative Patent Judge)
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) **BOARD OF PATENT**
) **APPEALS AND**
) **INTERFERENCES**
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JTS/gjh

Kratz, Administrative Patent Judge, concurring

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I concur with the majority's disposition of the examiner's stated § 103 rejections of the appealed claims before us. I share the views of the majority that, on this record, the examiner has not established that one of ordinary skill in the art would have been led to modify the relative amounts of peroxide used in the first and second peroxide treatment stages of Andersson '590 with respect to the bleaching of a chemical pulp based on the disclosure of Lachenal concerning the bleaching of a mechanical pulp. Moreover, I would add that the examiner has not clearly established why one of ordinary skill in the art would have been led to modify the relative amounts of peroxide used in the first and second peroxide treatment stages of Andersson '590 so as to arrive at the claimed invention based on the test results reported in Table III for Example 3 of Andersson '590. In this regard, it is noted that those results were obtained using between 15-30 kg/ton of peroxide in the first peroxide treatment stage and 5kg/ton of peroxide in the second peroxide treatment stage. The examiner's tradeoff in brightness versus viscosity theory falls short in establishing why one of ordinary skill in the art would have been led to use a much lower amount of peroxide (2-8 kilo/ton) in the first peroxide treatment stage while also employing an amount of peroxide in the second peroxide treatment stage that is higher than the amount used in the first peroxide treatment stage as herein claimed. *See In re Sebek*, 465 F.2d 904, 907,

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175 USPQ 93, 95 (CCPA 1972). Nor has the examiner made manifest how the other applied references would make up for the deficiency in the teachings of Andersson '590.

Additionally, I write separately since I do not desire to take part in the majority's views with regard to claims 20, 21 and 29 as apparently lacking antecedent support and consequently being in apparent violation of the provisions of 35 U.S.C. § 112, second paragraph. The relevant inquiry under 35 U.S.C. § 112, second paragraph, is whether the claim language, as it would have been interpreted by one of ordinary skill in the art in light of appellants' specification and the prior art, sets out and circumscribes a particular area with a reasonable degree of precision and particularity. *See In re Moore*, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). From my perspective, I find claims 20, 21 and 29 to be reasonably definite under the requisite standard and in accord with the disclosure of appellants' specification. See, e.g., page 14, lines 1-29 of appellants' specification.

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In conclusion, I agree with my colleagues that the subject matter sought to be patented in the appealed claims has not been shown to be unpatentable under 35 U.S.C. § 103 over the teachings of the references as applied by the examiner.

Peter F. Kratz
Administrative Patent Judge

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