Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte KAJ HENRICSON,
TOROLF LAXEN,
and
JUHANI PELTONEN

_____

Appeal No. 1999-0678
Application No. 08/462,691

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HEARD: AUGUST 15, 2001

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Before KIMLIN, PAK, and JEFFREY T. SMITH, *Administrative Patent Judges.*

PAK, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 18 through 35, which are

18. A method of bleaching cellulose pulp having a consistency between 5-25% in a stage wherein ozone is the only bleaching agent in the stage, comprising the steps of:

(a) introducing the pulp with a consistency between 5-25% into a fluidizing mixer;

(b) introducing a mixture of ozone, serving as the only bleaching agent in the stage, and oxygen gas into the fluidizing mixer;

(c) intensely mixing the pulp and the gas in the fluidizing mixer for approximately one second so as to form a foam, the ozone, as the only bleaching agent in the stage, reacting with the pulp while in foam configuration to effect bleaching; and

(d) removing residual gas from the pulp after the reaction in step (c).

REFERENCES

In support of his rejections, the examiner relies on the following prior art references[1]:

Meredith	4,902,381	Feb. 20, 1990 (filed Dec. 9, 1988)
Backlund et al (Backlund) (Published Canadian Patent Application)	1063409	Oct. 2, 1979[2]

Sundman et al. (Sundman) 1065105 Oct. 30, 1979
(Published Canadian Patent Application)

Kimura et al. (Kimura) 54-30902 Mar. 7, 1979
(Published Japanese Kokai Patent Application)

Coste et al. (Coste) FR 2 620 744 A1 Mar. 24, 1989
(Published French Patent Application)

Soteland et al. (Soteland), "The Effect of Ozone on Mechanical Pulps," *Norsk Skogindustri*, pp. 165-169 (June 1974).

Singh, "Ozone replaces chlorine in the first bleaching stage," 65 *TAPPI*, No. 2, pp. 45-48 (Feb. 1982).

Reeve et al. (Reeve), "Studies with a High-Intensity Medium Consistency Laboratory Pulp Mixer," *TAPPI Seminar Notes*, pp. 19-23 (1985).

Appellants' admission at page 11 of the specification (hereinafter referred to as "admitted prior art").

Appellants rely on the following references:

Mjoberg et al. (Mjoberg), "Ozone for Pulp Bleaching," *Jaakko Poyry AB* (Sep. 1992).

Grace et al. (Grace), "Alkaline Pulping," *Pulp and Paper Manufacture*, Vol. 5, pp. 425-460 (3rd Ed., 1989).

Dahllöf, "Medium Consistency Ozone Bleaching," *Kvaerner,* pp. 1-7 (Karlstd, Sweden, March 6-10, 1994).[3]

REJECTIONS

The appealed claims stand rejected as follows:

paragraph, as lacking written descriptive support for the subject matter presently claimed;

2) Claims 18, 19, and 35 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of either Meredith or Sundman, Soteland, Reeve with or without Singh, Kimura, and Coste;[4]

3) Claims 20 through 22, 24 through 27, 29, 30, 32, and 34 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Sundman, Soteland, and Reeve;

4) Claims 20 through 22, 24 through 27, 29, 30, 32, and 34 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Meredith, Soteland, and Reeve, with or without Singh, Kimura, and Coste;

5) Claim 28 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of either Meredith or Sundman, Soteland, and Reeve with or without Singh, Kimura, or Coste;

6) Claim 28 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of either Meredith or Sundman, Soteland and

7) Claims 23, 31, and 33 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Sundman, Soteland, and Reeve with or without Backlund; and

8) Claims 23, 31, and 33 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of either Meredith, Soteland, Sundman and Reeve with or without Singh, Kimura, or Coste and with or without Backlund.

OPINION

We have carefully reviewed the claims, specification, and prior art, including all of the evidence and arguments advanced by both the examiner and appellants in support of their respective positions. This review leads us to conclude that the examiner's rejections are not well founded. Accordingly, we will reverse the foregoing rejections. Our reasons follow.

WRITTEN DESCRIPTION REJECTION

The examiner has rejected claims 18 through 35 under 35 U.S.C. § 112, first paragraph, as being based upon a disclosure which fails to satisfy the written description requirement of

As the court stated in *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983):

> The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. The content of the drawings may also be considered in determining compliance with the written description requirement. [Citations omitted.]

Although the application as originally filed does not describe the phrase in question in ***ipsis verbus***, we agree with appellants that it reasonably conveys to the artisan that the inventors had possession of such subject matter for the reasons set forth at pages 5 through 8 of the Brief. Thus, we reverse the examiner's § 112 rejection of claims 18 through 35.

OBVIOUSNESS REJECTION

Claims 18 through 35 are rejected under 35 U.S.C. § 103 as unpatentable over various combinations of Meredith, Sundman, Soteland, Reeve, Kimura, Coste, and Backlund.

The presently claimed subject matter is related to the

that the presently claimed subject matter is limited to using ozone as the only bleaching agent in bleaching cellulose pulp in an aqueous suspension at a medium consistency of 5-25%. See claim 18. In other words, the claims on appeal expressly preclude any bleaching action by any and all agents (including oxygen) except for ozone. The Lindholm declaration, which was not considered in the previous Appeal, states (page 2, paragraph 2) that:

> In 1989-1991 (and even today) one of ordinary skill in the art of ozone bleaching would know that ozone bleaching takes place at acidic conditions, typically a pH of about 2-3.5. At the acidic conditions that ozone bleaching typically takes place, oxygen is <u>not</u> a bleaching agent. It is merely a carrier gas for ozone. Particularly at perhaps the most common pH for ozone bleaching, about three, oxygen does not act as a bleaching agent but rather only as a carrier gas for ozone.

Thus, the record before us is substantially different from the record that was before the previous merits panel.

Having interpreted the claims on appeal in the above manner, we have carefully reviewed all of the evidence proffered by both the examiner and appellants. This review leads us to conclude

Sundman states (page 1) that:

> The present invention relates to a method of bleaching cellulosic containing material with an oxidizing gas, particularly oxygen gas, in an ***alkaline*** environment . . . . [Emphasis ours.]

To "eliminate the drawbacks of the prior art processes," Sundman teaches adding a foaming agent to the pulp suspension and then utilizing the oxygen gas to effectuate foaming. See page 3.

According to Sundman (pages 3 and 4):

> Thus, in accordance with the present teachings, an improvement is provided in a method of bleaching cellulosic material with an oxidizing gas in an alkaline environment in which a pulp suspension which has a maximum consistency of 15% is treated with an alkali solution and the oxidizing gas for effecting removal of lignin from the cellulosic material such treatment being effected at elevated temperature and pressure, wherein the improvement comprises transforming the pulp suspension into a stable foam in the presence of a foaming agent.

Although Sundman states that oxygen ***may be*** substituted with, *inter alia*, ozone, it does not teach or suggest a reaction condition in which ozone can act as the only bleaching agent in its bleaching process. Nor does Sundman teach or suggest that its desired stable foam can be maintained at a condition other

> in the art in 1989 or 1990 -- that ozone could be used as the sole bleaching gas for pulp having a consistency of 5-25%. The general disclosure of bleaching chemical on page 5, lines 4 through 6, of the Canadian patent would not tell me in 1989 or 1990 any way in which I could bleach pulp having a consistency of 5-25% with ozone alone. The method that is described in the paragraph before Example 1 on page 5 of the Canadian patent, and in Example 1, does not use ozone at all, and in fact the Example suggests the use of an alkali charge, which would result in a pH outside the range that ozone bleaching would be effective.

Meredith does not remedy Sundman as it teaches away from using ozone as the only bleaching agent for bleaching the pulp at medium consistency. See Figures 2 and 3, Table 1, column 2, lines 14-17 and column 3, lines 56-58. Moreover, the Lowe declaration unequivocally states (page 1, paragraphs 2 and 3) that:

> . . . IN JUNE OF 1988, AT THE REQUEST OF MICHAEL D. MEREDITH, ECONOTECH CONDUCTED THE TESTS REPORTED IN TABLES I-III OF MEREDITH U.S. PATENT 4,902,381, A COPY OF THE PAGES OF THAT PATENT HAVING THE TESTS ATTACHED HERETO AS EXHIBIT A. IN ALL OF THESE TESTS, THE CONSISTENCY OF THE PULP WAS ONE PERCENT (1%) SOLIDS, INCLUDING FOR THE "OZONE ONLY" TESTS.
>
> . . . AT THE TIME THE TESTS WERE CONDUCTED IN JUNE 1988, WE HAD NO CAPABILITY OF CONDUCTING THE TESTS FOR "OZONE ONLY" AT 5%-20% PULP CONSISTENCY BECAUSE WE KNEW OF NO WAY TO PROVIDE ADEQUATE MASS TRANSFER BETWEEN THE PULP

This view is further galvanized by the expert opinions in the Lindholm declaration and the Mjoberg reference as explained by appellants in their Brief.

The remaining references do not indicate whether the stable foam required by Sundman can be formed in a mixer at a condition in which ozone acts as the only bleaching agent. Both Reeve and Sundman, for example, are directed to a condition at which oxygen acts as the primary bleaching agent.

The Greenwood declaration states (page 3, paragraph 5) that:

> The situations with oxygen and chlorine are starkly different from the situation with medium consistency ozonation. Kamyr, Inc. has an actual pilot plant for medium consistency ozonation operating in Canada, with which I am very familiar. In the pilot plant, and in medium consistency ozonation in general, it is difficult to maintain the foam created by mixing because of the large amounts of gas and because of the acidic pH under which the ozone bleaching reaction occurs. Also there are no presently known acid foaming agents which are resistant to ozone attack that can be used to stabilize the foam . . . .

This sentiment is echoed by the Reeve declaration by stating (pages 8 and 9, paragraph 18) that:

> The Canadian patent relates to oxygen bleaching at high pH. Ozone and oxygen are very different bleaching

> different condition that one could not with confidence extrapolate from the Canadian patent about what would occur if one agitated pulp with ozone . . . .

The examiner, however, has not provided any evidence contrary to the expert opinions in the Reeve and Greenwood declarations. In fact, the examiner states that Singh, Kimura, and Coste "teach adding the ozone as the ***primary*** bleaching agent [emphasis ours]." See Answer, page 8. It appears to be the examiner's position that Singh, Kimura, and Coste do not teach ozone as the only bleaching agent in their ozonation bleaching processes.

In view of the foregoing, we cannot agree with the examiner that the evidence as a whole provides a suggestion sufficient to arrive at the claimed subject matter within the meaning of 35 U.S.C. § 103. Hence, we reverse the examiner's decision rejecting all of the appealed claims under 35 U.S.C. § 103.

REMAND ORDER

As a final point, we observe that claims 18 through 23, 25 through 30 and 32 through 41 of copending Application 08/463,558 appear to teach and/or suggest claims 18 through 35 of the

it appears that one of ordinary skill in the art would have readily recognized it as a result effective variable, i.e., a factor affecting the level of bleaching.

Further, we observe that U.S. Patent issued to Phillip et al. on February 8, 1983 refers to a *TAPPI* article, Canadian Patent 966,604 and U.S. Patent 4,080,869. See column 5, lines 29-38. These patents and article are said to show ozone bleaching stages for a pulp consistency of 1-40%, which are carried out at a pH of 2-7.

Upon return of this application, the examiner is to determine:

1) Whether the judicially created doctrine of obviousness-type double patenting rejection (provisional) based on claims 18 through 23, 25 through 30 and 32 through 41 of the above-mentioned copending Application is applicable to claims 18 through 35 of the present application; and

2) Whether the patentability of the presently claimed subject matter is affected by the teachings of the *TAPPI* article,

CONCLUSION

The decision of the examiner rejecting all of the appealed claims under 35 U.S.C. §§ 112 and 103 is reversed and the application is remanded to the examiner for appropriate action consistent with the above instruction.

REVERSED and REMANDED

EDWARD C. KIMLIN Administrative Patent Judge	)	
CHUNG K. PAK Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JEFFREY T. SMITH Administrative Patent Judge	)	

CKP:hh

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