

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL A. HERMANS and
CHARLES E. FRIEDBAUER

Appeal No. 1998-2217
Application No. 08/644,555

ON BRIEF

Before HANLON, WARREN, and DELMENDO, Administrative Patent Judges.

HANLON, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the final rejection of claims 1-21, all of the claims pending in the application. The claims on appeal are directed to a method for making a bulky tissue sheet. Claim 1, the sole independent claim, is illustrative and reads as follows:

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Claim 1. A method for making a bulky tissue sheet comprising: (a) depositing an aqueous suspension of papermaking fibers onto a forming fabric to form a wet tissue web, said papermaking fibers comprising at least about 10 dry weight percent modified wet-resilient fibers selected from the group consisting of chemically cross-linked cellulose fibers, heat-cured cellulosic fibers, mercerized fibers and sulfonated pulp fibers; (b) partially dewatering the wet web to a consistency of about 15 percent or greater; (c) compressing the partially dewatered web in a high intensity extended nip press to further dewater the web to a consistency of about 35 percent or greater; and (d) final drying the web, wherein the Bulk of the dewatered web prior to final drying is greater than $(-0.02C + 3.11)$, wherein "C" is the consistency of the web leaving the high intensity extended nip press, expressed as percent dryness, and Bulk is expressed as cubic centimeters per gram.

The references relied upon by the examiner are:

Weldon	4,551,199	Nov. 05, 1985
Klowak	4,849,054	Jul. 18, 1989
Steiner et al.	5,393,384	Feb. 28, 1995
Bluhm et al.	5,556,511	Sep. 17, 1996
Schauman	GB 1,212,473	Nov. 18, 1970

(Published Great Britain Application)

The following rejections are at issue in this appeal:

(1) Claims 1-15 are rejected under 35 U.S.C. § 103 as being unpatentable over Bluhm.

(2) Claims 1-21 are rejected under 35 U.S.C. § 103 as being unpatentable over Steiner in view of Bluhm and GB '473, Klowak or Weldon.

Discussion

The claimed invention relates to a method for using the "wet-pressing" method to produce high bulk tissue. According to appellants, there are two distinct drawbacks in using the "wet-pressing" method to produce tissue products (Specification, pp. 1-2).

First, pressing the tissue web while wet densifies the web significantly. As the web is dried, the dried sheet retains this high density (low bulk) until it is creped. Creping is necessary to attempt to undo what the wet-pressing has done to the sheet.

. . . .
A second drawback, shared by conventional wet-pressing and through-air-drying processes is the high energy costs necessary to dry the web from a consistency of about 35 percent to a final dryness of about 95 percent. This second drawback has recently been addressed in the manufacture of high density paper products by the advent of the high intensity extended nip press. This device employs an extended nip length and heat to more efficiently dewater the wet web up to exit consistencies of about 60 percent. Such devices have been successfully used for making paperboard, but have not been used to make low density paper products such as tissues because the high pressures and longer dwell times in the extended nip press serve to further densify the sheet beyond that experienced by conventional tissue wet-pressing methods. This increase in density is detrimental to the quality of the resulting tissue products because creping cannot completely overcome the added increase in sheet density.

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Appellants are said to have discovered that
(Specification, p. 2):

[T]he reduction in bulk associated with wet-pressing can be substantially reduced by incorporating into the web certain fibers which have been found to greatly diminish web densification when subjected to the high pressures necessary for dewatering with high intensity extended nip presses. As a consequence, high intensity extended nip presses can be used to dewater tissue webs without the heretofore adverse consequence of imparting a high degree of densification to the web.

The "certain fibers" referred to above are "modified wet-resilient" fibers. Examples include chemically cross-linked cellulosic fibers, heat-cured cellulosic fibers, mercerized fibers and sulfonated pulp fibers. See Specification, p. 3.

The method of claim 1 uses papermaking fibers comprising "at least about 10 dry weight percent modified wet-resilient fibers selected from the group consisting of chemically cross-linked cellulose fibers, heat-cured cellulosic fibers, mercerized fibers and sulfonated pulp fibers." The method comprises the steps of (1) depositing an aqueous suspension of papermaking fibers onto a forming fabric to form a wet tissue web, (2) partially dewatering the wet web to a consistency of about 15 percent or greater, (3) compressing the partially

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dewatered web in a high intensity extended nip press to further dewater the web to a consistency of about 35 percent or greater, and (4) finally drying the web. Prior to final drying, the "bulk" of the dewatered web is greater than $(-0.02C + 3.11)$, wherein "C" is the consistency of the web leaving the high intensity extended nip press, expressed as percent dryness, and "bulk" is expressed as cubic centimeters per gram.

The first rejection under 35 U.S.C. § 103 is based solely on Bluhm. The invention disclosed in Bluhm relates to a process for drying paper webs using a nip press. The process is said to achieve a high drying capacity while also achieving a high volume or high density paper quality (col. 1, lines 61-64). The examiner explains (Answer, p. 3):

The steam flashes off the web exiting the nip of the extended nip press thereby increasing the volume and softness of the paper web. The water is removed to the extent of at least 60% dry weight, i.e., 60% consistency. Specific embodiment mentioned in column 2 dries the paper web to a dry weight or consistency greater than 80%. The claimed bulk would have been an obvious optimization of the pressure and temperature conditions in the press zone and hence the steam pressure which acts to expand the web, see for example claim 1 of Bluhm et al.

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The examiner recognizes that the process disclosed in Bluhm does not use appellants' claimed "modified wet-resilient fibers," but nonetheless concludes (Answer, p. 3):

The use of the modified wet resilient fibers as claimed would have been obvious in Bluhm et al since these fibers are well known in the art to improve the bulk and/softness of the absorbent tissue product as evidenced by admitted state of the prior art on pages 3, 7 and 8 of the instant specification.

To the extent that appellants recognize that "modified wet-resilient fibers" are known in the art, absent appellants' disclosure of their own invention, there would have been no reason to expect that using "modified wet-resilient fibers" in a "wet-pressing" method such as disclosed in Bluhm would result in the claimed bulk. See In re Dow Chem., 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988) (under 35 U.S.C. § 103, both the suggestion and the expectation of success must be founded in the prior art). Indeed, the discussion at pages 7 and 8 of the specification relates to the use of "modified wet-resilient fibers" in appellants' claimed process. It is in this context that appellants disclose that these fibers improve the bulk of webs partially

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dewatered in a high intensity extended nip press. See Specification, p. 9.

Therefore, in view of the record before us, the rejection based on Bluhm appears to be nothing more than a hindsight reconstruction of the claimed invention. See In re Gorman, 933 F.2d 982, 986-87, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991) (in a determination of obviousness under 35 U.S.C. § 103, it is impermissible to engage in a hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from the references to fill the gaps). For this reason, the rejection is reversed. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992) (the examiner bears the initial burden of presenting a prima facie case of unpatentability).

The second rejection under 35 U.S.C. § 103 is based on Steiner in view of Bluhm and GB '473, Klowak or Weldon. Steiner is said to disclose a method for producing tissue paper using an extended nip press to dewater the tissue web. See Answer, p. 4. However, as pointed out by appellants, the Steiner process does not use "modified wet-resilient fibers." See Brief, p. 3. GB '473, Klowak and Weldon fail to cure the

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deficiencies of Steiner and Bluhm. See Answer, p. 4 ("it is well known to employ velocity differential web transfer to achieve further increases in the bulk as well as the extensibility of web prior to final drying as evidenced by GB 1,212,473, Klowak or Weldon."). Therefore, this rejection is also reversed.

Conclusion

The rejection of claims 1-15 under 35 U.S.C. § 103 as being unpatentable over Bluhm is reversed. The rejection of claims 1-21 under 35 U.S.C. § 103 as being unpatentable over Steiner in view of Bluhm and GB '473, Klowak or Weldon is reversed.

REVERSED

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ADRIENE LEPIANE HANLON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
CHARLES F. WARREN)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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APJ DELMENDO

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DECISION: REVERSED
Send Reference(s): Yes No
or Translation (s)
Panel Change: Yes No
Index Sheet-2901 Rejection(s):

Prepared: March 28, 2002

Draft Final

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OB/HD GAU

PALM / ACTS 2 / BOOK
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