

Internal distribution code:

- (A) Publication in OJ
(B) To Chairmen and Members
(C) To Chairmen
(D) No distribution

**Datasheet for the decision
of 10 September 2009**

Case Number: T 0247/08 - 3.2.05

Application Number: 01909876.3

Publication Number: 1266088

IPC: D21G 1/00

Language of the proceedings: EN

Title of invention:

Method and device for calendering paper, comprising a heatable roll

Patentee:

Metso Paper, Inc.

Opponent:

Andritz Küsters GmbH

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56

RPBA Art. 13

Relevant legal provisions (EPC 1973):

-

Keyword:

"Novelty - yes"

"Inventive step - yes"

Decisions cited:

-

Catchword:

-



Case Number: T 0247/08 - 3.2.05

DECISION
of the Technical Board of Appeal 3.2.05
of 10 September 2009

Appellant:
(Opponent)

Andritz Küsters GmbH
Eduard-Küsters-Strasse 1
D-47805 Krefeld (DE)

Representative:

Henseler, Daniela
Rethelstrasse 123
D-40237 Düsseldorf (DE)

Respondent:
(Patent Proprietor)

Metso Paper, Inc.
Fabianinkatu 9 A
FI-00130 Helsinki (FI)

Representative:

Andréasson, Ivar
Hynell Patenttjänst AB
Patron Carls väg 2
SE-683 40 Hagfors/Uddeholm (DE)

Decision under appeal:

Interlocutory decision of the Opposition
Division of the European Patent Office posted
29 November 2007 concerning maintenance of
European patent No. 1266088 in amended form.

Composition of the Board:

Chairman: P. Michel
Members: S. Bridge
E. Lachacinski

Summary of Facts and Submissions

- I. The appellant (opponent) lodged an appeal against the interlocutory decision of the Opposition Division maintaining the European patent No. 1 266 088 in amended form in accordance with the main request in view of the grounds of opposition under Article 100(a) EPC (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC).
- II. Oral proceedings were held before the Board of Appeal on 10 September 2009.
- III. The appellant requested that the decision under appeal be set aside and that the European patent No. 1 266 088 be revoked in its entirety.

The respondent (patentee) requested that the patent be maintained in amended form on the basis of claims 1 to 4 filed during the oral proceedings.

- IV. Independent claim 1 of the only request reads as follows:

"1. A method for calendering paper in a calender which comprises at least one calender unit (10; 110) in which a first calendering nip (N_1 ; N_3) is formed between a heatable calender roll (16; 116) and a first roll (12; 112), through which nip a paper web (W) is guided to run in order to calender the paper on at least one side, in which calender unit (10; 110), a second calendering nip (N_2 ; N_4) is formed with the heatable calender roll (16; 116) and a third calender roll, and the paper web (W) is guided to run through

said second calendering nip (N₂ N₄) such that, in both calendering nips (N₁, N₃; N₂, N₄), the same side of the paper web (W) is in contact with the heatable calender roll (16; 116), the first roll (12; 112) being an extended nip roll, so that said first nip is an extended nip, the paper web (W) being calendered in the calender unit (10; 110) first by means of the first calendering nip (N₁; N₃), i.e. the extended nip, and after that by means of the second calendering nip (N₂; N₄), **characterized in that** the second calendering nip (N₂; N₄) is a roll nip formed between the heatable calender roll (16; 116) and the third calender roll (17; 117) that is either a calender roll (17; 117) provided with a soft roll cover (18; 118) such that said second calendering nip (N₂; N₄) is a soft nip or a hard-surface calender roll (17; 117) such that said second calendering nip (N₂; N₄) is a hard nip".

V. The following documents are referred to in the present decision:

- D1: "VALMETs Visionen für das Kalandrieren",
M.Tuomisto, "Wochenblatt für Papierfabrikation",
number 4, 1999, pages 248-253;
- D2: DE-A-4322876;
- D10: "Optidwell - Der Breitnipkalander", M.Tani,
"VALMET informiert Papierhersteller '99",
pages 18-21;
- D11: "Optidwell - The New Bulk Preserving Calendering
Method", P.Turtinen, M.Tani, Valmet Corporation
Calenders, 1998 PITA ANNUAL CONFERENCE, 20 to
21 October 1998, Session 2, Paper 5, pages 55-59;

- D12: "CALENDERING CONCEPTS FOR PRINTING GRADES",
H.Kuosa, "96 VALMET PM DAYS", 13-14 June 1996,
Jyväskylä, pages 105-112
- D17: EP-A-0 919 663;
- D18: "Physikalische Grundlagen des Glättens", Dr. Rolf
van Haag, "Wochenblatt für Papierfabrikation",
N. 18, September 1997;
- D19: "Developments in Paper Making Technology with
Special Emphasis on Fine Paper", Markku Karisson,
Alex Malashenko, pages C273 to C280, 86th Annual
Meeting, PAPTAC, 9 May 1999;
- D20: US-A-5 237 915.

VI. The arguments of the appellant in the written and oral proceedings can be summarised as follows:

It is inherent in the nature of a pilot calender that all possible paper paths will be used so that the disclosure of documents D1, D10 and D11 concerning the "Calibri" pilot calender should not be seen as being limited to the paper path explicitly shown in figure 11 of document D10. Therefore, the subject-matter of claim 1 of the only request lacks novelty.

The problem set out in paragraph [0005] of the patent in suit is that the nip pressure provided by an extended-nip calender is not in itself sufficient to form high gloss.

It is known that multiple nips may be required to achieve a given level of surface quality when using soft nip calenders (document D1, page 248, right hand column, lines 1 to 4).

Document D1 also introduces the skilled person to the benefits of extended nip calenders in terms of improved surface properties and preserving bulk (Sections 3 and 4.5) and further discloses the "Calibri" pilot calender with six rollers for both soft nip and extended nip calendering tests (Section 5).

Thereby, document D1, which should be considered as the closest item of prior art, provides evidence that the skilled person is familiar with the ongoing technological development which in the case of the "Calibri" pilot calender involves the introduction of an extended nip into the existing "Calibri" with multiple soft nips.

The skilled person is thereby motivated to modify known multiple soft nip calenders by means of an extended nip.

Any remaining open questions are directly answered using the common knowledge of the skilled person. In particular, arranging the rollers in a three roller stack is well known in the art of calendering.

Similarly, the importance of the first nip in terms of affecting the bulk of the calendered web is known to the skilled person (also see document D18, figure 6). Therefore, when calendering a web, the skilled person would necessarily choose to use the extended nip before the remaining soft nips.

The subject-matter of claim 1 of the only request is therefore not inventive with respect to document D1.

Document D2 concerns pre-smoothing of the web (column 1, lines 60 to 65) and discloses a two times three roll device (column 3, lines 65 to 68, figure 4). Because document D2 only deals with pre-smoothing of paper, the skilled person sees that several extended nips are not sufficient for achieving paper with a high gloss and would also therefore seek to combine an extended nip and a hard or soft roll nip.

Various roller arrangements are also shown in EP-A-0 926 297 which is cited in paragraph [0003] of the B1 publication of the patent in suit.

Document D10 teaches that machine or soft calenders may be replaced by extended nip calenders while obtaining better bulk preservation and surface qualities (page 18, section "Einführung", second paragraph, page 19, first paragraph and page 20, middle column).

Document D11 contains substantially the same disclosure as document D10, but is presented as a conference paper whereas document D10 is presented as a brochure.

Document D12 indicates that multiple soft nips are needed for high gloss paper grades and that high temperature soft calendering preserves bulk while providing the paper with a good structure (section 3).

Document D17 discloses a three roll stack calender with a heated roll forming two nips of differing hardness to preserve the bulk of the paper (page 3, lines 14 to 22).

Document D19 discloses that shoe calenders provide smoother surfaces with lower loss of bulk (section "SMOOTHNESS", first paragraph).

Document D20 teaches a progression of hardness throughout the calender from softer to harder rolls and thereby provides evidence that the skilled person would seek to make the first nip longer than subsequent nips (column 2, lines 5 to 19 and lines 66 and following).

The subject-matter of claim 1 of the only request is therefore also not inventive with respect to the combination of any one of documents D1 or D10 or D11 with any other one of the above mentioned documents.

Late filed documents D18 to D20 should be admitted into appeal proceedings because of their importance, as set out above.

VII. The arguments of the respondent in the written and oral proceedings can be summarised as follows:

Documents D1, D10 and D11, including the disclosures concerning the "Calibri" pilot calender, do not directly and unambiguously disclose a paper web being first calendered by means of an extended nip and after that by means of a roll nip within the same three roll stack. The subject-matter of claim 1 of the only request is therefore new.

Document D2 is an appropriate choice for the closest prior art.

There is no indication in any of the cited documents, that extended nip calendering produces unsatisfactory surface smoothness or gloss or that a web coming out of an extended nip may be calendered in a roll nip while preserving bulk and improving the surface smoothness and gloss.

The skilled person has no incentive to combine an extended nip with something else. While document D10 suggests replacing soft nips by an extended nip, neither it nor document D2 suggests using these two kinds of nip in combination.

If the skilled person were dissatisfied with the level of gloss obtained in an extended nip, he would simply replace the extended nip by calendering techniques known to provide the desired level of gloss.

The subject-matter of claim 1 of the only request therefore involves an inventive step (Article 56 EPC).

Documents D18 to D20 are late filed, do not add anything relevant which has not already been disclosed in some other document and should therefore not be admitted into the appeal proceedings.

Reasons for the Decision

1. Novelty, Article 54 EPC

The only calendering path of a web disclosed in documents D1, D10 and D11 arises in the context of the "Calibri" pilot calender (figure 18 in document D1,

figure 10 in document D10 and figure 15 in document D11). There the web only passes through the bottom nip of each of the two three roll stacks.

None of the available prior art directly and unambiguously discloses a paper web being first calendered by means of an extended nip and after that by means of a roll nip wherein these two calendering nips are formed between a heatable calender roll and respectively a first and second roll, such that, in both calendering nips, the same side of the paper web is in contact with the heatable calender roll.

The subject-matter of claim 1 of the only request is therefore new (Article 54 EPC).

2. Inventive step, Article 56 EPC

The closest prior art has variously been suggested as being represented by documents D2, D1 or D10 and the "Calibri" pilot calender.

2.1 The "Calibri" pilot calender

On their respective last pages, each of the documents D10, D1 and D11 refer to the pilot calender "Calibri" which may be used for "machine, soft, belt and shoe calender runs" (e.g. document D11, page 59, section "6. OptiDwell pilot calender", last sentence). The "Calibri" pilot plant has two three-roller stacks and is designed for various kinds of high temperature soft calendering tests. The first stack comprises a soft belt and the second stack has a shoe calender nip so that two different kinds of calendering are

available in an extended nip (document D1, page 253, "5. Die Pilotkalander Calamander und Calibri", last paragraph). The nature of the other nips is not described.

It is not clear why a skilled person would draw conclusions merely from knowledge of the existence of such a pilot plant. It would appear to be more logical for the skilled person to wish to perform some test runs to obtain some information as to the effectiveness of particular combinations of nips for a given grade of web. However, no tests or test results have been disclosed.

Similarly, the fact that a pilot plant was rebuilt to include a shoe calender unit (Document D11, section 6) does not provide sufficient evidence that the ongoing technological development generally involves the introduction of at least one extended nip into existing multiple soft nip calenders.

Furthermore, the available descriptions of the "Calibri" pilot plant are not sufficiently detailed to be able to conclude that the paper web will be guided through the nips of at least one of its three roller stacks in the manner set out in claim 1 of the only request.

The limited information concerning the "Calibri" pilot plant provided in documents D10, D1 and D11 also does not contain anything which would induce the skilled person to *modify* known multi nip soft calenders (for example, as described in section 2 of document D10) or the multi nip shoe calender described in document D2 in

such a manner as to arrive at the subject-matter of claim 1 of the only request.

The disclosure of the "Calibri" pilot plant provided in documents D10, D1 and D11 gives the skilled person no incentive to modify known three roll stack, multiple nip calenders in terms of combining an extended nip with a roll nip.

2.2 Document D1 as the closest item of prior art

Document D1 is a paper which sets out VALMET's vision for calendering with sections 2 and 3 respectively discussing a multi nip calender and an extended nip calender, section 4 discussing calendering of different kinds of web and section 5 disclosing two pilot calenders. One of the latter is the "Calibri" pilot calender discussed above (page 253, section 5).

The subject-matter of claim 1 of the main request differs from the disclosure in document D1 in that a paper web is first calendered by means of an extended nip and after that by means of a roll nip, wherein these two calendering nips are formed between a heatable calender roll and respectively a first and second roll, such that, in both calendering nips, the same side of the paper web is in contact with the heatable calender roll.

The technical effect achieved by these features is to preserve the bulk of the paper without compromising other quality characteristics (column 2, lines 8 to 10 and paragraph [0005] of the B1 publication of the patent in suit). The problem to be solved by the patent

in suit is to improve the calendering (paragraph [0006] of the B1 publication), i.e. minimising the loss of bulk while attaining the required surface smoothness and gloss.

Although document D1 discusses extended nip shoe calendering, multiple nip soft calendering and the "Calibri" pilot calender, there is no hint which would induce the skilled person to seek to combine these techniques into a three roll stack with the web first passing through the extended nip. The argumentation advanced by the appellant relies on knowledge of the patent in suit.

If any one calendering technique does not provide a satisfactory result, then the skilled person will simply try another one. There is no indication in document D1 or any of the other documents that an extended nip calender could or should be combined with a roll calendering nip. The mere fact that the "Calibri" calender was modified to include an extended nip in each of its three roll stacks does not amount to a disclosure of combining different kinds of calendering nips.

2.3 Document D2 as the closest item of prior art

As a whole, document D2 concerns a different problem of obtaining an accurately controllable pre-smoothing of the web while avoiding variations across the width of the web or over time (column 1, lines 60 to 65). The corresponding solution involves the calendering shoe being divided into sections placed adjacent to one another in the direction of the web transport and is

not relevant to the present request (characterising part of claim 1 of document D2).

Nevertheless, document D2 discloses a twin three roll stack each of which has two identical shoe calendering nips (column 3, lines 15 to 31, figure 1; column 3, lines 65 to 68, figure 4). This device corresponds to the preamble of claim 1 of the only request.

The subject-matter of claim 1 of the only request differs from the teaching of document D2 in that the second calendering nip is either a hard roll nip or a soft roll nip.

The effect of this feature is to combine the properties of an extended nip calender and a conventional calender in a single three roller stack.

The problem addressed by the patent in suit is therefore that of improving the calendering (paragraph [0006] of the B1 publication).

Starting from the teaching of document D2, the skilled person has no incentive for combining different kinds of calendering nips within the same three roller stack.

If the calendering results obtained by the calender described in document D2 were found to be unsatisfactory, the skilled person would either use a different kind of calender from the outset or pass the web through additional calender nips.

2.4 Document D10 as the closest item of prior art

Document D10 discusses the advantages of an extended nip shoe calender and teaches that machine- or soft-calenders may be replaced by extended nip calenders to preserve volume (page 18, leftmost column, second paragraph). The disclosure of document D11 does not go beyond that of document D10.

However, neither document D10 nor D11 incites the skilled person to combine an extended nip with a roll nip.

2.5 Other documents

Document D17 discloses passing the web through a first nip formed between a relatively harder calendering roll and a heated roll, passing the web through a second nip formed between a relatively softer calendering roll and the heated roll to produce a substantially gloss mottle free calendered paper having significantly increased smoothness (paragraph [0005]).

None of the other documents cited by the appellant go beyond the disclosure of documents D1, D2, D10, D11 and D17.

The appellant further argued that the skilled person is aware of the "importance" of the first calendering nip, which according to document D18, figure 6 is responsible for 80% of the smoothing. However, figure 6 of document D18 only concerns results obtained under laboratory conditions with nip dwell times of several seconds (document D18, paragraph below figure 6). In

consequence, the disclosure of document D18 is not relevant to the conditions prevailing when calendering a web. As document D18 is otherwise not relevant either, it is not admitted into the proceedings (Article 13(1) of the Rules of Procedure of the Boards of Appeal).

Even if the skilled person were aware of the importance of the first nip, it is not clear why he would be motivated to replace the first nip in the calender known from document D17 by an extended nip.

2.6 There is no indication in any of the cited documents, that extended nip calendering produces unsatisfactory surface smoothness or gloss or that a web coming out of an extended nip may be calendered in a roll nip while preserving bulk and improving the surface smoothness and gloss. The skilled person therefore has no incentive to combine an extended nip with something else.

2.7 Document D19 discusses developments in paper making technology with special emphasis on fine paper. In the section "SMOOTHNESS" shoe calendering is presented as an improvement on soft calendering providing smoother paper surfaces with lower loss of bulk.

Document D20 discloses a calender stack in which the level of hardness is progressively increased in the direction of travel of the paper web.

Neither document provides the skilled person with an incentive to try and combine an extended calendering

nip and a roll nip in the same three roll stack in the manner set out in claim 1 of the only request.

Documents D19 and D20 therefore do not add any new information which was not already disclosed in other documents already in the proceedings. In consequence, late filed documents D19 and D20 are not admitted into the proceedings (Article 13(1) of the Rules of Procedure of the Boards of Appeal).

2.8 Therefore, the subject-matter of claim 1 of the only request involves an inventive step for the reasons set out above.

The subject-matter of claims 2 to 4, which are appendant to independent claim 1 similarly involves an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent in amended form in the following version:

Description:

Columns 1, 2 and 4 as filed in the oral proceedings,
column 3 as maintained by the opposition division,

Claims:

Claims 1 to 4 as filed in the oral proceedings,

Drawings:

Sheet 8 of the patent specification.

The Registrar:

The Chairman:

D. Meyfarth

P. Michel