

Veröffentlichung im Amtsblatt	Ja/Nein
Publication in the Official Journal	Yes/No
Publication au Journal Officiel	Oui/Non

Aktenzeichen / Case Number / N° du recours : T 117/88 - 3.2.2

Anmeldenummer / Filing No / N° de la demande : 82 101 390.1

Veröffentlichungs-Nr. / Publication No / N° de la publication : 0 059 421

Bezeichnung der Erfindung: Nip control method and apparatus

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : D21F 7/06, D21G 1/00, D21F 3/06

ENTSCHEIDUNG / DECISION

vom / of / du 9 October 1990

Anmelder / Applicant / Demandeur : Consolidated-Bathurst Inc.

Patentinhaber / Proprietor of the patent /

Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPO / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step (no)"

Leitsatz / Headnote / Sommaire



Case Number : T 117/88 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 9 October 1990

Appellant : Consolidated-Bathurst Inc.
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Decision under appeal : Decision of Examining Division 124
of the European Patent Office dated
1 August 1987, dispatched on
7 October 1987, refusing European
patent application No. 82 101 390.1
pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : G. Szabo
Members : C. Andries
M. Aúz Castro

Summary of Facts and Submissions

- I. European patent application No. 82 101 390.1 filed on 24 February 1982 (publication No. 0 059 421) was refused by a decision of the Examining Division 124 on 1 August 1987, dispatched to the Appellant on 7 October 1987.
- II. The reason given for the refusal was that the subject-matter of both independent Claims 1 and 6 did not involve an inventive step (Article 56 EPC) in view of the prior art disclosed in
- D1: US-A-2 761 941, and in view of the common general knowledge of a man skilled in the art.
- III. On 3 December 1987, the Appellant lodged an appeal against this decision, paying the appeal fee on the same date. A Statement of Grounds was filed on 16 February 1988.
- IV. In response to communications of the Board pursuant to Article 110(2) EPC, in which the attention of the Appellant was also drawn to documents:
- D2: FR-A-1 343 136;
D3: FR-A-2 343 081; and
D4: DE-A-2 204 816,

the Appellant filed with letter dated 26 February 1990 new independent Claims 1 and 6, as well as amended new pages for the description, and with letter dated 16 November 1989, new dependent Claims 2 to 5 and 7 and 8, as well as new pages.

Independent Claim 6 reads as follows:

"A method for controlling the entire transverse profile of at least one desired physical property of a web (7) of paper material which is subjected to a roll pressing operation, and wherein said property is controlled by said operation, the method comprising the steps of: passing said web material through a nip (1) formed by two co-operating pressing elements (3,5), where at least one of said elements (3,5) is a rotating roll (5) having a plurality of transverse segments and where at least a portion of said roll (5) corresponding to the width of the web (7) to be worked is made of a material which will allow the local diameter of any transverse segment of said roll (5) to change in dimension and thereby change the nip pressure associated with said segment when heating energy is directed at said segment; providing a serial arrangement of means (A to Q) for directing said energy to a sufficient number of said segments such that the sum of the lengths of the segments equals said portion of said roll (5); producing and directing said energy to a sufficient number of said transverse segments of said roll (5) so that the nip pressure between said roll segment and the other said co-operating element will change in response to changes in said energy thereby effecting changes in said roll pressing operation; taking a sufficient number of measurements of said physical property; generating electrical signals proportional to said property measurements; taking said signals and using them to control said changes in said energy so that physical transverse profile of said property will be controlled by said changes in said roll pressing operation, c h a r a c t e r i z e d by using magnetic field energy as said heating energy, and applying said magnetic field energy to said roll (5) by using two rows (A,C,E,G,I,K,M,O,Q;B,D,F,H,J,L,N,P) of magnetic field generating means (13,13'), with staggering the magnetic field generating means (13) in one row (A,C,E,G,I,K,M,O,Q)

to the magnetic field generating means (13') in the other row (B,D,F,H,J,L,N,P)."

- V. In the communication of the Board pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal, annexed to the summons to oral proceedings, the Board indicated that although emphasis had been put by the Appellant on the simultaneous control of two different properties, the features needed for such a control, although present in independent apparatus Claim 1, did not appear in the independent method Claim 6.
- VI. During the oral proceedings held on 9 October 1990, the Appellant stated, among other arguments, that the subject-matter of Claim 6, particularly the features present in the characterising portion of the claim, solved with respect to document D2 the problem of obtaining a method which is simple to use, efficient and easy to control.
- VII. The Appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the following documents:

Claims: 1 and 6 filed with letter dated

26 February 1990;

2 to 5, 7 and 8 filed with letter dated

16 November 1989;

Description: pages 1, 1a, 5b, 6a, 6b, 7 to 12, 15, 16 and

18 filed with letter dated

26 February 1990;

pages 2, 3, 3a, 4, 5, 5a, 6 and 6c filed

with letter dated 16 November 1989;

pages 13, 14 and 17 as originally filed;

and

Drawings: sheets 1/2 and 2/2 as originally filed.

Reasons for the Decision

1. The appeal is admissible.
2. Since the Board has come to the conclusion that the subject-matter of Claim 6 pursuant to the Appellant's request is not patentable (cf. point 4 hereinafter) and consequently a European patent cannot be granted, it is not necessary to examine whether there are any formal objections (e.g. Article 123(2) EPC) to the present claims.
3. The Board considers the independent method Claim 6 as having a broader scope than what the apparatus Claim 1 represents. This is because the latter is additionally restricted to a simultaneous control of two different properties, this being implicit in the wording of that claim. The Board commences the examination of the appeal with Claim 6.

4. Claim 6

4.1 Novelty

After examination of the available documents, the Board is satisfied that none of them discloses a method having all the features as defined in Claim 6. The subject-matter as set forth in Claim 6 therefore is to be considered novel within the meaning of Article 54 EPC.

4.2 Closest prior art

In the opinion of the Board the method according to document D2 reveals the closest prior art. It discloses all the features present in the pre-characterising portion of Claim 6. Indeed, document D2 already reveals the

control of a desired physical property (thickness) of the web material by using a plurality of heating elements (fluid or electric) located along the entire roll length and located in chambers provided within the hollow roll to control thereby the diameter of corresponding roll segments. The thickness (sensor 42) or the temperature (sensor 41) of the resulting web material is measured and transformed into an electrical signal, which is used to control the corresponding heating element.

4.3 Problem and solution

According to the Appellant, the control of the desired physical property according to this method is slow, not precise, and too complicated. Indeed, it is very apparent that the control of each roller portion located between two neighbouring chambers cannot be made perfect.

The technical problem to be solved therefore consists in providing a method for treating web material which is simple to use, efficient and easy to control.

The Board accepts that this problem is solved by the features present in Claim 6, particularly (1) by the use of magnetic field energy for heating purposes and (2) by the specific arrangement of the different separate magnetic field generating means, as defined in the characterising portion of the claim.

4.4 Inventive step

- 4.4.1 It is already indicated in document D2 that the number of heating elements can be taken freely in accordance with the necessity (page 4, left-hand column, last four lines), and that different types of heating elements can be used (page 4, right-hand column, 4th paragraph). The skilled

person is, therefore, free to replace these features by other types of heating means in a method according to document D2.

- 4.4.2 In the same technical field, it is already well known to use other forms of heating a roller or portions of that roller, to increase thereby its diameter locally. For instance, one other known form of heating is the use of magnetic field energy as it is shown in documents D1 (induction coils 25,26,66 and 67) and D4 (page 1, first paragraph; page 3, lines 31 to 35), to obtain an equalised temperature along the roller or to increase the temperature at portions of the roller as may be required (D1: column 1, lines 41 to 43; D4: page 1, last line to page 2, first line; page 4, lines 13 to 16 and page 5, last two lines). Document D4 furthermore reveals that by using magnetic field energy a simple and space-saving device can be obtained (page 1, last four lines). This is because of the highly concentrated heat generating capability of such devices.

- 4.4.3 A person skilled in the art, searching for a less complicated and somewhat faster method therefore finds already in the same technical field (e.g. documents D1 and D4), heating means which permit the same result to be obtained more efficiently (local control of the roller diameter), and which imply a simpler construction.

According to the Board, a person skilled in the art is able to see that the magnetic field energy heating on the one hand and the heating according to document D2 on the other, represent basically equivalent measures for the given purpose, with improved efficiency. Interchange of both these equivalents produces neither surprising effects nor technical difficulties and is, therefore, also in view

of known advantages, obvious to a person skilled in the art (cf. "analogous substitution", T 192/82, OJ EPO, 1984 415).

4.4.4 As regards a special arrangement for the heating elements, if a very precise control over the whole length of the roller is required, avoiding among others that the resulting web should suffer from the existence of a gap between two aligned neighbouring heat generating means (no continuous heating possibility), then it is obvious for a skilled design engineer to try to cover that gap by these heat generating means themselves, for example by locating them in such a way that no gap (in heating) exists any more, e.g. by overlapping each other. Using for that purpose two rows with staggered and overlapping heat generating means in the meaning of the present Claim 6 is therefore self evident and obvious for a skilled design engineer, so that no contribution to an inventive step can be seen in such specific arrangement of the different separate heat generating means.

4.4.5 The Board cannot follow the argument of the Appellant that due to the fact that the available documents neither disclose nor suggest such a specific arrangement, the claimed arrangement has to be inventive. Indeed, common general knowledge of a person skilled in the art, as well as special arrangements of known features in a manner which is obvious for the given purpose need not always be proven by published documents.

Also the argument that the specific arrangement of the heat generating means is only possible due to the specific type of heating (i.e. magnetic field generating means) cannot be followed by the Board since, according to the Board, a skilled design engineer is able to bring most of the known heating elements into the claimed specific

arrangement if required, since there is plenty of space around the surface of the rolls.

All the arguments brought forward by the Appellant relating to the heating of the overall surface of one of the rolls to control a heat sensitive property, as it is defined in the characterising portion of Claim 1, cannot be taken into account to assess the inventive step of the subject-matter of Claim 6, since the features involved by this second heating do not form part of the content of Claim 6.

The arguments that considerable commercial success has been obtained cannot by themselves overcome the reasons why, in the present case, there exists clearly a lack of inventiveness. Furthermore, it is not clear at all whether the method used in the sold systems is really the method according to present Claim 6 or rather the different method implied in the present apparatus Claim 1.

- 4.4.6 The subject-matter of Claim 6 therefore does not involve an inventive step within the meaning of Article 56 EPC.
5. Since Claim 6, which discloses the most general subject-matter, is unallowable (cf. Article 52(1) EPC), the sole request by the Appellant on file has to be rejected.

Therefore, the Board sees no need to examine the other claims (e.g. Claim 1) (cf. Decision T 162/88 of 9 July 1990, unpublished, point 5 and point 6 first paragraph).

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



S. Fabiani



G. Szabo

