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File Number: T 107/88 - 3.3.1
Application No.: 84 108 073.2
Publication No.: 0 131 306
Title of invention: Pulp slurry drainage improver

Classification: D21H 3/38

D E C I S I O N
of 17 August 1992

Applicant: NITTO BOSEKI CO., LTD.

Headword: Pulp slurry drainage/NITTO BOSEKI

EPC Articles 84, 110(3), 121 and 123(2), Rule 69(1)

Keyword: "Application not deemed to be withdrawn due to loss of the Board's communication" -
"Clarity of claims (yes) - after amendment" -
"Functional features"



Case Number : T 107/88 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 17 August 1992

Appellant : NITTO BOSEKI CO., LTD.
1 Aza Higashi
Gonome
Fukushima-shi
Fukushima-ken (JP)

Representative : Hansen, Bernd, Dr.rer.nat.
Hoffmann, Eitle & Partner
Patentanwälte
Arabellastrasse 4
Postfach 81 04 20
W - 8000 München 81 (DE)

Decision under appeal : Decision of Examining Division of the European
Patent Office dated 30 November 1987 refusing
European patent application No. 84 108 073.2
pursuant to Article 97(1) EPC.

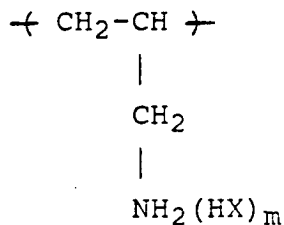
Composition of the Board :

Chairman : K.J.A. Jahn
Members : J.M. Jonk
W. Moser

Summary of Facts and Submissions

I. European patent application No. 84 102 073.2, filed on 10 July 1984 (publication No. 0 131 306), was refused by a decision of the Examining Division dated 30 November 1987. The decision was based on Claims 1 and 2 received on 18 August 1987 and Claims 3 and 4 received on 9 April 1987, reading as follows:

"1. Use of a polymeric material which is selected from the group consisting of poly-monoallylamine resin homopolymers (A) having from 10 to 100,000 recurring units of the following formula:



wherein X is Cl, Br, I, HSO₄, HSO₃, H₂PO₄, H₂PO₃, HCOO, CH₃COO or C₂H₅COO, and m is a number of 0 to 100,000, or a modified resin of the poly-monoallylamine resin, wherein the poly-monoallylamine resin or the modified resin of the poly-monoallylamine resin is selected from the group consisting of:

homopolymers (A) of inorganic acid salts of monoallylamine obtained by polymerizing inorganic acid salts of monoallylamine; homopolymers (A') of monoallylamine obtained by removing inorganic acids from said homopolymers (A), or homopolymers (A'') of organic acid salts of monoallylamine obtained by neutralizing said homopolymers (A') with an organic acid such as formic acid, acetic acid, propionic acid, p-toluenesulfonic acid or the like;

or of copolymers (B) obtained by copolymerizing inorganic acid salts of monoallylamine with a minor quantity of polymerizable monomer containing two or more double bonds in the molecule, such as triallylamine;

or of modified polymers (C) obtained by reacting compounds containing two or more groups reactable with amino groups in the molecule, such as epichlorohydrin, with said polymers (A), (A'), (A'') or (B);

wherein the polymerisation has been carried out in a polar solvent in the presence of a radical initiator containing in its molecule an azo group and a group having a cationic nitrogen atom or atoms as a pulp slurry drainage improver in an amount of from 0.005 to 1.0% per weight, based on the fiber material content of the pulp.

2. The use according to Claim 1, wherein the copolymers (B) are the copolymers of inorganic acid salts of monoallylamine and a minor quantity of inorganic acid salts of triallylamine.

3. The use according to Claim 1, wherein the modified polymers (C) are the reaction products of the polymers (A), (A'), (A'') or (B) with epichlorohydrin.

4. The use according to Claim 1, wherein the amount of the poly-monoallylamine resin is 0.01 to 0.5% by weight, based on the content of pulp fiber material."

II. The stated ground for the refusal was that the subject-matter of Claim 1, which was based on a combination of original Claims 1 and 2, did not comply with Article 123(2) EPC.

It was held by the Examining Division that the deletion of the following characterisation of the polymers (B) and (C):

"soluble in water and identical with said polymers (A) (in the case of polymers (B)) or with said polymers (A), (A'), (A'') or (B) (in the case of polymers (C)) in properties other than those relating to molecular weight",

which was a feature of original Claim 2, automatically broadened the scope of the claim to include polymers having different properties from those of the polymers exemplified in the application.

Moreover, it was considered that the introduction of the features of Claims 2 and 3, into Claim 1 would render this claim allowable.

III. A notice of appeal was submitted against this decision on 8 January 1988 and the appeal fee was paid on the same date.

A Statement of Grounds of Appeal, including two sets of claims by way of a main and auxiliary request, was submitted on 11 February 1988.

IV. The claims according to the main request corresponded to the claims above, except that in Claim 1 the deleted characterisations of the polymers B and C were reintroduced by inserting after "such as triallylamine":

", said copolymers (B) being soluble in water and identical with said polymers (A) in properties other than those relating to molecular weight"

and after "polymers (A), (A'), (A'') or (B)":

", said modified polymers (C) being soluble in water and identical with said polymers (A), (A'), (A'') and (B) in

properties other than those relating to molecular weight,". Claim 1 in accordance with the main request also differed from the one underlying the decision by the inclusion of the expression "inorganic salts of" polymerisable monomer with two or more double bonds.

The Claim 1 according to the auxiliary request represented a combination of Claims 1, 2 and 3 of the main request. Claim 2 was identical to Claim 4 of the main request.

- V. The Appellant argued that, although the rejection of the patent application was based on Article 123(2) EPC, the true basis for the rejection should have been Article 84 EPC, because, in the Examining Division's opinion, Claim 1 was not clear with respect to the characterisation of polymers (B) and (C). However, the deletion of these features in order to meet this objection automatically would have led to an objection under Article 123(2).

He pointed out that the copolymers (B) and the modified polymers (C) were cross-linked polymers having the same properties as the starting polymers, except that their molecular weights were changed by cross-linking with a small amount of an inorganic salt of a polymerisable compound containing two or more double bonds or a small amount of a compound containing two or more groups reactable with amino groups respectively. Although the cross-linked polymers (B) were defined as copolymers, principally they had the structures and the recurring units of the homopolymers (A).

A restriction of Claim 1 to the use of particular cross-linking agents according to the auxiliary request would invite a competitor to circumvent the claimed patent protection, because it would be clear to the skilled person that the use of other cross-linking agents, such as

those indicated in Applicant's letter of 9 April 1987, would also be feasible within the scope of the present invention. By giving an example of the cross-linking agents which could be used in the preparation of the copolymers (B) and the modified polymers (C), the skilled person would be provided with additional information about compounds being useful for the intended purposes.

VI. In a communication of the Board dated 20 November 1990 the Appellant was informed that Claims 1 to 4 of the main request appeared acceptable in the sense of Articles 84 and 123(2) EPC subject to the suggested amendments. The Appellant was invited to file a reply within a period of two months and his attention was drawn to the provision that failure to reply in due time would result in the application being deemed to be withdrawn according to Article 110(3) EPC.

VII. On 23 August 1991 the Registrar of the Board of Appeal gave notice of loss of rights pursuant to Rule 69(1) EPC since a reply to the Board's communication of 20 November 1990 had not been received in due time.

VIII. In a response to this communication filed on 27 August 1991, the Appellant requested further processing of the patent application according to Article 121 EPC. The fee for this request was paid on the same day.

The Appellant contended that the communication of the Board of 20 November 1990 had never been received, therefore it had not been possible to file a reply to it. The Appellant requested a copy of the communication and refund of the fee paid under Article 121 EPC.

IX. In a reply to a request from the EPO to investigate the alleged loss of the letter, the Post Office admitted that

the letter containing the Board's communication of 20 November 1990 had been lost.

- X. In a further communication dated 23 March 1992, the Board informed the Appellant that the present patent application was not deemed to be withdrawn pursuant to Article 110(3) EPC and that the examination of the appeal would be resumed. Moreover, he was informed that the fee paid under Article 121 EPC would be refunded (effected on 23 March 1992).

- XI. In a reply received on 29 October 1991 to a communication of the Board dated 3 September 1991 containing a copy of the Board's lost communication of 20 November 1990, the Appellant agreed entirely with the amendments proposed by the Board.

- XII. The Appellant requested that the decision of the Examining Division be set aside and a patent granted on the basis of Claims 1 to 4 in accordance with the main request including the amendments as indicated in the set of claims attached to the communication of the Board dated 20 November 1990.

These amendments essentially comprised the replacement of the terms "copolymers (B)" and "modified polymers (C)" in Claims 1, 2 and 3 by "cross-linked polymers (B)" and "cross-linked polymers (C)" respectively, the replacement of the term "minor" in Claims 1 and 2 by "small", and the deletion of the expression "or the like" in Claim 1.

Reasons for the Decision

- 1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.

2. In reply to the communication of loss of rights dated 23 August 1991 informing the Appellant that the present application was deemed to have been withdrawn pursuant to Article 110(3) EPC, the Appellant requested further processing of the application according to Article 121 EPC and declared that he had never received the Board's communication of 20 November 1990.

In the Board's judgment, the truth of this declaration was borne out by the Post Office admitting the loss of this communication in its letter of 16 December 1991.

Moreover, a failure to reply within a time limit set by the European Patent Office presupposes that the addressee is in a position to know that such a time limit has been set. Since, in the present case, this requirement was not met, Articles 110(3) and 121 EPC do not apply.

3. The main issues to be dealt with is whether the present Claims 1 to 4 of the main request meet the requirements of Articles 84 and 123(2) EPC.

- 3.1 The subject-matter of Claim 1 is based on Claims 1, 2, 5 and 6 of the patent application as originally filed. The characterisation of the polymers (B) and (C) as cross-linked polymers is supported by Referential Examples 2 and 3, and the passage on page 2, line 22 to page 3, line 14.

The two referential examples describe the preparation of slightly bridged polymers of type (B) and (C) respectively. It is true, that Referential Example 2 defines the reaction as a copolymerisation but it is clear to the skilled person that the reaction, is in fact a

cross-linking reaction, because the product is indicated as being a slightly bridged polymer and the values of elementary analysis, IR spectrum and NMR spectrum are substantially the same as to those of the starting polymer (cf. page 8, lines 2 to 5).

The indication in the passage on page 2 that the polymers (B) and (C) have the same properties as the corresponding starting polymers, with the exception of their molecular weights, excludes a fundamental change in the polymer chains and, therefore, also confirms that they are cross-linked polymers.

Thus, the present claims do not give rise to objections under Article 123(2) EPC.

3.2 There are also no objections to the present claims under Article 84 EPC.

3.2.1 The objection of lack of clarity raised by the Examining Division, which ultimately led to the refusal of the application under Article 123(2), concerned the characterisation of the polymers (B) and (C) as being soluble in water and identical with their starting polymers in properties other than their molecular weight.

3.2.2 Initially the Board observes that the skilled person, in the light of the whole disclosure of the present application, would interpret the terms "identical with ... in the properties other than those relating to molecular weight" in the sense that pulp drainage properties, physical properties such as solubility in water, and the structural properties as defined by elementary analysis, IR absorption spectrum and NMR spectrum of the cross-linked polymers (B) and (C) are the same or substantially the same as those of the corresponding starting polymers

(cf. particularly Claim 1, the last three lines; page 3, line 26 to page 4, line 7; Examples 1 and 2; and Referential Example 2, page 8, lines 2 to 5.

- 3.2.3 In the Board's view, the characterisations of the polymers (B) and (C) indicated above have to be considered as functional technical features, namely, that the cross-linking of the corresponding starting polymers is carried out in such a way that the cross-linked products achieve the properties given in Claim 1.

It is the established jurisprudence of this Board that it is permissible to define technical features in a claim in functional terms if, from an objective viewpoint, such features cannot otherwise be defined more precisely without unduly restricting the scope of the invention, and if these features provide instructions which are sufficiently clear to the skilled person to reduce them to practice without undue burden, if necessary with a reasonable number of experiments (cf. Decision T 68/85, OJ EPO 1987, 228, particularly points 8.4.2 and 8.4.3 and T 139/85 of 23 December 1986 reported in EPOR 1987, 229).

In the present case, the Board is satisfied that the requirements laid down in these decisions are met. It is clear to the skilled reader of the application that cross-linked polymers having the same or essentially the same properties as the starting polymers can be obtained by using selected cross-linking agents in appropriate amounts. The selection of the cross-linking agents and determining the amounts needed to achieve the desired properties would be well within the competence of the skilled person, particularly in the light of the guidance provided by Referential Examples 2 and 3. Moreover, the skilled person would appreciate that the results of the cross-linking could easily be verified by the tests

indicated in the original application on page 4, lines 8 to 25 and Examples 1 and 2.

- 3.2.4 Also the expression "small quantity" in Claims 1 and 2, reintroduced by the Board in order to replace the expression "minor quantity" proposed by the Examining Division, is considered to be allowable under Article 84, because the meaning of this expression, in the Board's judgment, is sufficiently clear in the context of the present application as a whole. As indicated in the preceding paragraph, the skilled person would appreciate that the amount of cross-linking agent must be chosen in such a way that the cross-linked products have the same or substantially the same properties as the starting polymers.

In this connection it is observed by the Board, that the relative expression "minor quantity", which was proposed by the Examining Division, does not meet the requirements of Article 123(2), because it might be construed as not only having the meaning of a small quantity, but also as a quantity which is smaller in relation to the amounts of starting polymers, i.e. a smaller but nevertheless relatively large quantity.

4. The Examining Division had no objections regarding novelty and inventive step. The Board has no reason to doubt this finding. Therefore, it is concluded by the Board that the present Claims 1 to 4 are allowable.

Order

For these reasons, it is decided that:

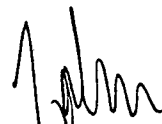
1. The decision of the Examining Division is set aside.
2. The case is remitted to the Examining Division with the order to grant the patent on the basis of Claims 1 to 4 of the main request including the amendments indicated in the set of claims attached to the Board's communication of 20 November 1990; with appropriate amendments to the description.

The Registrar:

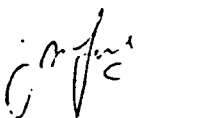


E. Görgmaier

The Chairman:



K.J.A. Jahn



W. Moser

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