**BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS**

**BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE**

**CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS**

**Internal distribution code:**
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [ ] To Chairmen
(D) [X] No distribution

# Datasheet for the decision of 12 November 2013

**Case Number:** T 1719/12 - 3.2.05

**Application Number:** 05075727.7

**Publication Number:** 1584743

**IPC:** D21F 1/74

**Language of the proceedings:** EN

**Title of invention:**
Method and device for handling cellulose pulp

**Patent proprietor:**
Ovivo Luxembourg S.à.r.l.

**Opponent:**
Metso Paper Sweden AB

**Headword:**
-

**Relevant legal provisions (EPC 1973):**
EPC Art. 100(b), 111(1)

**Keyword:**
"Sufficiency of disclosure - yes"
"Remittal to the first instance"

**Decisions cited:**
-

**Catchword:**
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

**Case Number:** T 1719/12 - 3.2.05

# D E C I S I O N
**of the technical board of appeal 3.2.05**
**of 12 November 2013**

| | |
|---|---|
| **Appellant:** (Patent proprietor) | Ovivo Luxembourg S.à.r.l.<br>6C rue Gabriel Lippmann<br>L-5365 Munsbach (LU) |
| **Representative:** | Christian Hano<br>v. Füner Ebbinghaus Finck Hano<br>Patentanwälte<br>Mariahilfplatz 3<br>D-81541 München (DE) |
| **Respondent:** (Opponent) | Metso Paper Sweden AB<br>Gustaf Gidlöfs väg 4<br>S-85194 Sundsvall (SE) |
| **Representative:** | Maiwald Patentanwalts GmbH<br>Elisenhof<br>Elisenstrasse 3<br>D-80335 München |
| **Decision under appeal:** | **Decision of the opposition division of the European Patent Office posted 8 June 2012 revoking European patent No. 1584743 pursuant to Article 101(3)(b) EPC.** |

**Composition of the board:**

**Chairman:** M. Poock
**Members:** H. Schram
G. Weiss

## Summary of Facts and Submissions

I. The appellant (patent proprietor) lodged on 17 July 2012 an appeal against the decision of the opposition division, posted on 8 June 2012, by which European patent No. 1 584 743 was revoked. The statement setting out the grounds of appeal was filed on 12 October 2012.

The opposition division held that the invention claimed in claims 1 and 4 as granted was not disclosed in the patent in a manner sufficiently clear und complete for it to be carried out by a person skilled in the art (Articles 100(b) and 83 EPC 1973).

II. Oral proceedings were held before the board of appeal on 12 November 2013.

III. The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted.

The respondent (opponent) requested that the appeal be dismissed, or that the case be remitted to the department of the first instance, if the board were to find that the invention was sufficiently disclosed.

IV. The following document was referred to in the appeal proceedings:

D5 *Principles of Gas-Solid Flows*, Liang-Shih Fan and Chao Zhu, Cambridge University Press 1998, pages 4 to 9, 17.

V. Claims 1 and 4 of the patent as granted read as follows:

"1. A method for the removal of dewatered cellulose pulp from a dewatering press (7) that preferably also contains washing, in which the pulp is applied to at least one outer surface of two counter-rotating dewatering drums (7a, 7b) with an initial consistency of the pulp in the range 4-12% and where the cellulose pulp after the final dewatering nip of the dewatering press is fed out from the nip in the form of a continuous dewatered mat (20) that maintains a consistency of 30% or higher, and in direct connection to the removal of the mat, the mat is fed perpendicularly to a shredder screw (8) whose axis of shredding is arranged essentially parallel to the axes of rotation of the drums (7a, 7b), and the shredder screw has at least at one end a surrounding outer cover with an outlet for shredded finely divided pulp characterised in that

- the mat is finely divided by the shredding of the shredder screw such that the pulp is granulated to a size that is normally distributed around a dimension in the range 5-40 mm,
- the granulated pulp from the outlet of the shredder screw is fed out to fall freely in a stand pipe (22, 40') connected to the outlet end of the outer cover of the shredder screw,
- and that dilution fluid is added under pressure into the stand pipe through a number of fluid jets (62) arranged around the periphery of the stand pipe and above a level ($Liq_{LEV}$) of cellulose pulp established in the stand pipe,
- where the amount of added dilution fluid establishes a consistency of the cellulose pulp in the

range of medium consistency 8-16% and that this added amount, to more than 75-90%, is added through the said fluid jets (62) arranged above a level ($Liq_{LEV}$) established in the stand pipe,

- after which the cellulose pulp at this medium consistency is fed onwards to subsequent treatment steps for cellulose pulp by pumping from the lower end of the stand pipe,
- whereby the dilution in the stand pipe of the pulp from a high consistency of 30% or greater at the upper part of the stand pipe to a medium consistency of 8-16% before pumping at the lower part of the stand pipe takes place exclusively under the influence of hydrodynamic effects from the addition of the dilution fluid through the said fluid jets and where no mechanical agitators are arranged between the output of the dry granulate from the shredder screw and the subsequent pumping."

"4. A device for the removal of dewatered cellulose pulp from a dewatering press (7) in which the pulp is applied to a relevant outer surface of two counter-rotating dewatering drums (7a, 7b) with an initial consistency of the pulp in the range 4-12% and where the cellulose pulp after the final dewatering nip of the dewatering press is fed out from the nip in the form of a continuous dewatered mat (20) that maintains a consistency of 30% or higher, and in direct connection to the removal of the mat, the mat is fed perpendicularly to a shredder screw (8) whose axis of shredding is arranged essentially parallel to the axes of rotation of the drums (7a, 7b), and the shredder screw (8) has at least at one end a surrounding outer

cover with an outlet for shredded finely divided pulp characterised in that

- the mat is finely divided by the shredding of the shredder screw (8) such that the pulp is granulated to a size that is normally distributed around a dimension in the range 5-40 mm,
- the granulated pulp from the outlet of the shredder screw is fed out to fall freely in a stand pipe (22/40') connected to the outlet end of the outer cover (23) of the shredder screw,
- and that dilution fluid ($Liq_{DIL}$) is added under pressure into the stand pipe through a number of nozzles (62) arranged around the periphery of the stand pipe and above a level ($Liq_{LEV}$) of diluted cellulose pulp established in the stand pipe,
- where the amount of added dilution fluid ($Liq_{DIL}$) establishes a consistency of the cellulose pulp in the range of medium consistency 8-16% and that this added amount, to more than 50%, preferably to more than 75-90%, is added through the said nozzles (62) arranged above a level ($Liq_{LEV}$) established in the stand pipe,
- after which the cellulose pulp at this medium consistency is fed onwards to subsequent treatment steps for cellulose pulp by a pump (41) connected to the stand pipe (22/40') at its lower end near to the bottom of the stand pipe,
- and where the dilution in the stand pipe of the pulp from a high consistency of 30% or greater at the upper part of the stand pipe to a medium consistency of 8-16% before pumping at the lower part of the stand pipe takes place exclusively under the influence of hydrodynamic effects from the addition of the dilution fluid through the said nozzles and without the use of mechanical agitators in the stand pipe."

VI. The arguments of the appellant, in writing and during the oral proceedings, can be summarized as follows:

In its decision the opposition division held that the first characterizing feature of the independent claims 1 and 4, viz the mat is finely divided by the shredding of the shredder screw such that the pulp is granulated to a size that is normally distributed around a dimension in the range 5-40 mm, could not be understood by the person skilled in the art. However, the skilled person had no problem in understanding what "normally distributed around a dimension in the range 5-40 mm" means. The skilled person was familiar with the Gaussian bell curve, which indicated a normal distribution. The normal distribution was often used as a first approximation to describe real-valued random variables that cluster around a single mean value. The outputs of the shredder were granules having different sizes. There was no other way to describe that output in a comprehensive way than by a distribution function. The dimension corresponded to the single mean value, which had to be in the range of 5 - 40 mm. The invention was based on the insight that by shredding the pulp to small granules of a suitable size and, provided that the dilution fluid was added evenly to the passing flow of granulated pulp, a homogenised dilution of the pulp took place without the need of mechanically agitating the rediluted pulp by mechanical means, see paragraph [0006] of the patent in suit. The standard deviation of the normal distribution of the pulp granules was not relevant for achieving that aim.

The opposition division further held in the decision under appeal that since there was no indication in the patent in suit what was meant by the size of a pulp granule, the patent specification was not an enabling disclosure. This was traversed. Pulp granules were macroscopic particles having an uneven surface. There was no doubt that for the skilled person with the size of a pulp granule its largest dimension was meant. Any other definition would not make sense.

Lastly, the opposition division held that there was no indication in the patent in suit how the claimed result could be obtained and that in order to meet the requirements of Article 83 EPC, a detailed description of at least one way of carrying out the invention must be given. Here the opposition division was wrong. First of all, in the preamble of the independent claims it was mentioned that the mat was fed perpendicularly to a shredder screw whose axis of shredding was arranged essentially parallel to the axes of rotation of the drums, and that the device had at least at one end a surrounding outer cover with an outlet for shredded finely divided pulp. A number of different devices were commercially available and their operation was understood by the skilled person.

Summarizing, the invention was sufficiently disclosed.

VII. The arguments of the respondent, in writing and during the oral proceedings, can be summarized as follows:

According to claims 1 and 4 as granted "the pulp is granulated to a size that is normally distributed around a dimension in the range 5-40 mm". Nowhere in

the patent this expression has been explained, nor how the size of the granules was defined, how that size was measured and how a granulated pulp meeting the claimed requirement could be obtained. A person skilled in the art reading the specification was thus not placed in a position to carry out the invention. As a consequence, the skilled person would not know whether he was working within or outside of the scope of the claim.

It was no longer contested that the expression "normally distributed around a dimension" referred to a Gaussian distribution, whereby the average value corresponded to the term "dimension". However, a Gaussian or normal probability distribution was not completely described by its average value alone, it was necessary to lay down the magnitude of its standard deviation as well. If the peak of the Gaussian curve coincided with one of the endpoints of the claimed range, at least half of the granules had a size that fell outside the claimed range. If the standard deviation was large as compared to the magnitude of the range, the size of many granules fell also outside the claimed range.

The granule size was an essential feature of the claimed invention for solving the problem of obtaining a rediluted pulp of high consistency without the use of a dilution screw and without intensive mechanical agitation, see page 3, lines 20 and 21, of the patent in suit. This followed from the statement on page 3, lines 3 to 6, of the patent in suit that "no mechanical agitation at all is required during the dilution, provided that the pulp bed has been shredded to give small granules of a suitable size" (see also page 4,

lines 51 to 53). There existed many different ways in the art to define and measure the diameter of irregular particles, see document D5 (all pages). The averaged diameter did not only depend on the type of particle size distribution but also on the selection of a weighing factor, see document D5, section 1.3. The appellant had argued that the size of a granule was determined by its largest length. However, for rewetting the shredded pulp the projected area of the granules was important, not their largest lengths.

Shredded pulp granules consisted of agglomerates of pulp flocks containing fibers and were very irregular in shape. For that reason it was not possible to determine the size of individual pulp granules by image analysis, because this technique gave information of their cross-section in a particular plane, which depended on the momentaneous orientation of the granule in space. It was also not possible to use sieving, since the fibers were so fragile that they would easily break during sieving. Still other methods were also available for measuring particle sizes, such as microscopy techniques (electron, scanning, transmission), electric sensing zone methods detecting the volume of liquid displaced by a particle, dynamic light scattering, screening/fractionation, etc., some of which provided the mean particle size whereas others provided the largest size. The patent was silent about which method was used to measure the granule size.

It was clear that for obtaining the claimed granule size distribution a shredder was needed that was specifically designed for that purpose. This followed from the fact that the claimed granule size

distribution was put in the characterizing part of the independent claims. The patent was silent about what kind of shredder was used. A known shredder could not be adapted with respect to the speed, shape or location of the knives had submitted.

The additional objections raised under Article 83 EPC 1973 against claim 4 as granted were no longer pursued; they should be understood as comments.

## Reasons for the Decision

1. The appeal is admissible.

2. *Ground for opposition of insufficiency of disclosure, Article 100(b) in combination with Article 83 EPC 1973*

2.1 The preambles of claims 1 and 4 describe the first stage of the claimed method and the corresponding equipment of a device for the removal of dewatered cellulose pulp ("mat") from a dewatering press, which mat is subsequently fed to a shredder screw having an outlet for shredded finely divided pulp.

The first characterizing feature of claims 1 and 4 specify the term "finely" as follows: "[the mat is finely divided by the shredding ...] such that the pulp is granulated to a size that is normally distributed around a dimension in the range 5-40 mm" (henceforth referred to as the size-feature).

In the judgment of the board, the person skilled in the art will interpret the expression "[size that is]

normally distributed around a dimension", in the light of the claim 1 or 4 read as a whole, as meaning that the size (not: weight) distribution function of the granules obtained by shredding the dewatered mat can be approximated by a normal distribution, a well-known distribution function having a particular bell-shaped form which is symmetric about its mean value (called "dimension" in the claims). Since shredding by means of a shredder screw is a random operation, the person skilled in the art will expect that finely shredding the mat into granules results roughly in a normal distribution of the granule sizes.

The standard deviation of a distribution function is a measure of how spread out numbers are. For obtaining rediluted cellulose pulp as claimed, ie without the need to arrange mechanical agitators between the output of the dry granulate from the shredder screw and the subsequent pumping, it is obviously not important to what extent the size distribution function is spread out, since the claim does not specify the standard deviation.

The respondent argued that the size-feature required that the sizes of all granules had to be in the range of 5 to 40 mm. This cannot be accepted. Said feature specifies "a dimension in the range 5-40 mm". In other words, the dimension, ie the mean size, must lie in said range, not the size distribution function itself.

2.2 It has not been disputed that the method and device described in the preambles of claims 1 and 4 are disclosed in a manner sufficiently clear und complete for it to be carried out by a person skilled in the art.

The next step to be carried out is shredding the mat such that granules having a mean size in the range of 5 to 40 mm are obtained.

Granules having a size in the range of, say, 1 to 80 mm, are macroscopic objects, which can be examined by the unaided eye. This already rules out for the person skilled the art many microscopic measuring techniques mentioned by the respondent, such as the electron microscope. The subject of document D5 are particles in gas-solid systems which are normally much smaller and harder than the granules obtained by shredding the dewatered mat of cellulose pulp. Moreover, the latter are typically irregular in shape. In view of the mentioned properties of granules, ie having a macroscopic, irregular size and being soft, sieving them in order to determine their sieve diameter seems impractical.

In the judgment of the board, the person skilled in the art will therefore construe the term "size" in claims 1 and 4 as the largest length of said granules, ie the diameter of the smallest sphere that contains the granule, since that is a simple and unambiguous definition. The size of a macroscopic granule can in principle be accurately determined by measuring its largest length.

2.3 Similar considerations apply to the question of how to obtain a pulp by finely dividing the dewatered mat of cellulose pulp by shredding, such that the granules have a mean size in the range of 5 to 40 mm (cf the size-feature).

A comparison of figure 2 of the patent in suit showing a conventional shredder screw 8 and figure 3 showing a similar shredder screw 8, suggests that a conventional shredder may be used in the invention as well, possibly with minor modifications.

The respondent has submitted that a device for shredding a continuous mat of cellulose pulp cannot be adapted, in particular neither the speed nor the position of the knives could be adapted. It is established case law that the burden of proof for an allegation rests with the party that makes that allegation. In the judgment of the board, however, the respondent has not demonstrated that conventional shredders cannot be operated or adapted by the person skilled in the art to produce granules have a mean size in the claimed range.

The board has no doubt that the person skilled in the art, starting from a conventional shredder used for shredding a continuous mat of cellulose pulp, can test without undue burden, whether the claimed size can be obtained by means of that conventional shredder, and if this is not the case, make the necessary adjustments in order to achieve granules having a mean size in the claimed range.

2.4 Summarizing, the invention claimed in claims 1 and 4 as granted is disclosed in a manner sufficiently clear und complete for it to be carried out by a person skilled in the art.

3. The opposition division has not yet expressed itself on the ground for opposition under Article 100(a) EPC 1973

(lack of novelty, Article 54 EPC 1973 and lack of inventive step, Article 56 EPC 1973). It is thus considered appropriate to remit the case to the department of first instance for further prosecution, Article 111(1) EPC 1973.

## Order

**For these reasons it is decided that:**

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance for further prosecution.

The Registrar: The Chairman:

D. Meyfarth M. Poock