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D E C I S I O N
of 29 January 2002

Case Number: T 0661/00 - 3.2.3

Application Number: 96910575.8

International Publication Number: WO 96/33843

IPC: B24D 11/02, B24B 27/033

Language of the proceedings: EN

Title of invention:
Hot metal grinding

Applicant:
Norton Company

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 84, 56
EPC R. 67

Keyword:
"Claims - clarity (yes)"
"Inventive step - (yes) after amendment"
"Reimbursement of the appeal fee - refused"

Decisions cited:
-

Catchword:

-

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Case Number: T 0661/00 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 29 January 2002

Applicant: (Appellant)
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Decision under appeal: **Decision of the Examining Division 2.3.02.097 of the European Patent Office dated 17 February 2000, posted on 17 February 2000, refusing European patent application No. 96 910 575.8 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: C. T. Wilson
Members: F. Brösamle
J. P. Seitz

Summary of Facts and Submissions

I. In the oral proceedings of 17 January 2000 the examining division refused European patent application No. 96 910 575.8; the written decision was issued on 17 February 2000.

The examining division came to the result that claim 1 lacked clarity since claim 1 did not define the nature of the backing material and since "the required mechanical properties merely describe results to be achieved rather than technical features of the invention" and that the claims did not meet the requirements of Article 56 EPC in the light of

(D1): US-A-5 316 812 and

(D2): WO-A-90/02631.

II. Against the above decision of the examining division the applicant - appellant in the following - lodged an appeal on 3 April 2000 paying the fee on the same day and filing the statement of grounds of appeal on 12 June 2000.

III. Following the board's Communication pursuant to Article 11(2) RPBA in which the board expressed its provisional opinion with respect to procedural and substantive matters, oral proceedings before the board were held on 29 January 2002 in which the appellant submitted new claims 1 to 6.

IV. Claim 1 reads as follows:

"1. A coated abrasive belt adapted for use in

conditioning a metal surface at a "hot" temperature of 500 - 1500°C which comprises a fabric backing material, in which the backing material is selected from the group consisting of woven fabrics with a weave selected from plain, twill and sateen, stitch-bonded fabrics and weft-inserted fabrics, **and** an abrasive containing layer comprising abrasive grain and maker and size coats deposited on said backing material, **characterized in that** the said backing material has a tensile strength in the machine direction of at least 750 lb/inch and a cyclic elongation of less than 3% at 100lb/inch load at a temperature of 150°C."

V. In the oral proceedings before the board the appellant essentially argued as follows:

- restricting claim 1 to a "hot" temperature "of 500 - 1500°C" makes (D1) irrelevant since this document is based on a **thermoplastic** binder not being capable of withstanding temperatures within the claimed range; (D1) therefore can no longer be considered as the nearest prior art document since it has to be seen as a prior art dealing with **cold** grinding;

- apart from the technical field of application the tensile strength according to (D1) is 17,9 kg/cm and is by far too low with respect to the value of claim 1 (being 135 kg/cm); in addition (D1) is not restricted to the parameters of tensile strength and cyclic elongation of claim 1, see its columns 22/23 where tests are discussed which are not linked to the parameters of claim 1;

- (D2) as the nearest prior art is clearly based on

hot grinding without, however, addressing the problem of how a premature failing of the abrasive belt can be avoided;

- what can be derived in this respect from (D2) is that the belt is sufficiently cooled "to prevent it from melting or being destroyed in some other way" see page 6, lines 1/2, and that the tensile strength of the belt is preferably higher than that of cotton, see page 5, lines 30 to 32, not indicating what has to be done to further improve the belt;

- the general teaching of (D2) has therefore to be seen in the application as some kind of backing fabric without, however, recognising the reasons for premature failure of the belt and the importance of the two parameters claimed, namely to only consider the tensile strength and the cyclic elongation of the belt;

- under these circumstances even a combination of (D1) and (D2) could not lead a skilled person to the subject-matter of claim 1 since (D2) *inter alia* does not further develop the importance of the tensile strength - parameter;

- finally claim 1 is not based on a result to be achieved which would be the case if claim 1 claimed a belt "suitable for hot grinding..."; rather, claim 1 defines two parameters which are clearly of a technical nature, namely defining the two crucial parameters of any belt to be applied in a hot grinding process; these two parameters have a technical effect since they exclude the

possibility of an excessive belt - elongation being the reason for premature failing when hot grinding;

- with respect to the proceedings in the first instance it is maintained that these were carried out in an unfair manner which would justify the board ordering the refund of the appeal fee.

VI. The appellant requests to set aside the decision under appeal and to grant a patent on the basis of his request filed during the oral proceedings and to reimburse the appeal fee.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

In claim 1 the field of application is now made clear, namely by restricting it to "hot" grinding with temperatures "of 500 - 1500°C", see WO-A-96/33843 (corresponding to the originally filed documents), page 1, lines 5 and 7 as well as lines 18 to 21, dealing with EP-A-435 897 corresponding to (D2) of the proceedings, in which **hot** grinding according to its claim 3 and page 5, lines 13 to 15, is defined with temperatures as claimed.

Consequently claim 1 meets the requirements of Article 123(2) EPC (original disclosure) and Article 84 EPC (clarity) since any ambiguity with respect to the

meaning of "elevated" or "hot" temperatures is excluded by the claim-wording.

3. *Novelty*

The issue of novelty needs no detailed argument since neither (D1) nor (D2) discloses all features of claim 1, (D1) being based on **cold** grinding and (D2) not teaching the parameters set out in the characterising clause of claim 1, Article 54 EPC.

4. *Inventive step*

4.1 Claim 1 is restricted to **hot** grinding so that (D1) can no longer be considered as the nearest prior art document since its backing "thermoplastic binder" - see its claim 1, feature (a) - clearly excludes its application under **hot** grinding conditions.

4.2 (D2) over which document claim 1 is delimited is based on hot grinding in the claimed temperature range. This piece of prior art is characterized by belt - materials such as polyester or cotton, without, however, teaching a tensile strength in the order of claim 1 **and** without considering the importance of the parameter "cyclic elongation".

4.3 As indicated in the contested published application, see WO-A-96/33843, page 1, lines 22 to 24, it was found that the existing belts - though usable for hot grinding - fail prematurely as a result of backing failure at the temperatures encountered.

The objectively remaining technical problem to be solved by the invention has therefore to be seen in

attempting to enhance the longevity of the belt under hot grinding conditions.

4.4 The solution of the objectively remaining technical problem is laid down in claim 1, namely by prescribing two parameters of the belt in that the backing material has:

(a) a tensile strength in the machine direction of at least 750 lb/inch and

(b) a cyclic elongation of less than 3% at 100lb/inch load at a temperature of 150°C.

4.5 With the subject-matter of claim 1 a belt with a relatively low elongation is achieved which belt is not likely **to slip** on the rolls on which it is carried since its elongation under tension is limited and since its pressure across the width is even, see WO-A-96/33843 , page 1, lines 28 to 32.

4.6 Recognising that undue elongation is the main reason for failure using known belts in hot grinding it is observed that this recognition is a first step not rendered obvious by the prior art to be considered in this case:

- (D1) teaches a tensile strength of the belt in the order of 17,9 kg/cm ie far below the claimed open range (at least 750 lb/inch or 135 kg/cm);

- (D1) directs attention particularly to two test methods - see columns 22/23 dealing *inter alia* with an edge shelling test, slide action test I, slide action test II, slide action test III and an

angle iron test - not, however, a test for the cyclic elongation of the belt so that the importance of just two belt-parameters for the solution of the above problem is not derivable from (D1).

4.7 (D1) makes one step towards the invention, however, in combination with **cold** grinding in that the tensile strength of the belt is considered *per se*.

4.8 (D2)as a document dealing with **hot** grinding deals with the longevity of the belt only by relating it to its **cooling**, see page 6, lines 1/2, without, however, recognising that premature failure under severe grinding conditions is linked specifically to two parameters, namely the belt's tensile strength and cyclic elongation.

4.9 Not knowing the claimed invention the teaching of (D2) can be summarized for a skilled man

(a) to use a fabric as backing and

(b) to make it stronger than cotton e.g by applying polyester without prescribing the parameters tensile strength and cyclic elongation thereof

so that a skilled person is not led to consider these two parameters as the fundamental features to solve the above technical problem.

4.10 The above considerations make it superfluous to deal in more detail with the combination of (D1) and (D2) since in neither of them are the two claimed parameters of claim 1 envisaged and since (D1) deals with cold

grinding and (D2) is silent about the crucial belt's parameters.

4.11 The board is convinced that claim 1 is not based "on a result to be achieved", but rather contains technical features, namely the belt's tensile strength and cyclic elongation, which have been chosen out of two dozens parameters possible to define a grinding belt. It is believable that these two parameters have a clear technical effect, see in this respect above remark 4.5, **and** solve the objectively remaining, technical problem since these two parameters of claim 1 exclude an undue elongation of the belt in hot grinding and safeguard its long-time application under these severe grinding conditions.

4.12 Summarizing, claim 1 defines patentable subject-matter and is allowable, Articles 54, 56 and 84 EPC.

Claims 2 to 6 are likewise allowable since they are dependent from allowable claim 1 and relate to embodiments thereof (claims 2 to 5)and to its application in a process for conditioning a metal surface at a temperature in excess of 800°C (claim 6).

4.13 By deleting the words in brackets "which for the purpose... above about 1000°C", on page 2, lines 2/3 of WO-A-96/33843, the description is no longer inconsistent with the claims and can form the basis for grant of the patent.

5. *Reimbursement of the appeal fee*

5.1 The appellant, see letter of 29 August 2001, page 2, second paragraph, came to the conclusion that the

treatment of this case in the first instance was "quite unfair" for the reasons *inter alia* detailed in the statement of grounds of appeal, see page 7 "Conclusion".

5.2 According to Rule 67 EPC reimbursement of the appeal fee(s) shall be ordered where the board of appeal deems an appeal **to be allowable** (stress added).

As can be seen from the order of the decision the appeal is not allowed by the board on the basis of claims underlying the decision under appeal, but rather on a **different basis**, namely on the basis of claims 1 to 6 submitted in the oral proceedings of 29 January 2002.

5.3 Under these circumstances the reimbursement of the appeal fee is not to be ordered. Moreover, in the present case a substantial procedural violation cannot be seen since it is the (final) **decision** of the first instance which counts with respect to the issue of whether a substantial procedural violation has to be seen or not. It is immaterial whether intermediate communications *per se* are "sufficiently grounded" or not.

In the decison under appeal the first instance has set out its grounds for refusal of the application. Even if such grounds could not be shared in all details by the board this would not be a substantial **procedural** violation.

5.4 Summarizing, the circumstances of the present case do not justify the reimbursment of the appeal fee, Rule 67 EPC.

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 grant the patent with the following documents:

   - Claims 1 to 6 filed during the oral proceedings;

   - Description pages 1 to 7 filed during the oral proceedings.

3. The request for reimbursement of the appeal fee is refused.

The Registrar: The Chairman:

A. Counillon C. T. Wilson