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D E C I S I O N
of 22 April 1998

Case Number: T 0245/95 - 3.2.2

Application Number: 91117202.1

Publication Number: 0483561

IPC: B23Q 11/10

Language of the proceedings: EN

Title of invention:
Machining method and apparatus

Applicant:
Eaton Corporation

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 54

Keyword:
"Novelty - (yes) after amendment"

Decisions cited:
-

Catchword:
-



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Case Number: T 0245/95 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 22 April 1998

Appellant: Eaton Corporation
(Applicant) Eaton Center
Cleveland
Ohio 44114 (US)

Representative: Rüger, Rudolf, Dr.-Ing.
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 14 October 1994
refusing European patent application
No. 91 117 202.1 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: H. J. Seidenschwarz
Members: D. Valle
J. C. M. De Preter

Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal received on 13 December 1994 against the decision of the Examining Division of 14 October 1994 on the refusal of the application No. 91 117 202.1.

The statement setting out the grounds of appeal was received on 15 February 1995. The fee for appeal was paid on 13 December 1994.

The examining division held that the subject-matter of the independent apparatus claim 11 of the application as filed was not novel within the meaning of Article 54 EPC having regard to document US-A-4 829 859 (D1).

- II. The appellant requests that the decision under appeal be set aside and a patent be granted on the basis of pages 1 to 5 and 7 to 10 of the description as originally filed, of page 6 of the description as filed on 9 October 1993, of claims 1 to 14 filed on 27 March 1998 with letter of 26 March 1998 including new independent claims 11 and 12.

- III. The independent claims 11 and 12 read as follows:

"Apparatus for reducing frictional heat while machining a workpiece (2) with a machining tool (50, 100), said apparatus comprising:

coolant delivery means (13, 26; 40; 46, 49) for conveying a coolant (32, 42) onto the workpiece (2) whose lubricity progressively increases with decreasing temperature;

pressurized fluid delivery means (40; 49) for contacting the coolant (32, 42) with a pressurized fluid (30, 44) that, upon expansion while undergoing a pressure reduction, absorbs heat and cools the coolant

(32, 42) sufficiently to increase the coolant's lubricity to a paste-like consistency operative to enhance the coolant's (32, 42) ability to reduce the frictional heat generated during the machining process, and shrouding means (36) operative to shroud the region where the coolant (32, 42) is cooled by the expanding fluid (39, 44)."

"Apparatus for reducing frictional heat while machining a workpiece (2) with a machining tool (50, 100), said apparatus comprising:

coolant delivery means (13, 26; 40; 46, 49) for conveying a coolant (32, 42) onto the workpiece (2) whose lubricity progressively increases with decreasing temperature;

pressurized fluid delivery means (40, 49) for contacting the coolant (32, 42) with a pressurized fluid (30, 44) that, upon expansion while undergoing a pressure reduction, absorbs heat and cools the coolant (32, 42) sufficiently to increase the coolant's (32, 42) lubricity to a paste-like consistency operative to enhance the coolant's (32, 42) ability to reduce the frictional heat generated during the machining process, and

wherein said machining tool (50, 100) further includes an annular groove (12, 45) extending thereabout that is in fluid communication with a channel (13, 26) and in registration therewith is an inducer shoe (46, 49) secured against movement relative the machining tool (50, 100) and having an arcuate surface (5) adapted to conform to the groove (12, 45) having a window (7) therein operative to convey the selected one of the coolant (32, 42), pressurized fluid (30, 44), and mixtures thereof, into the annular groove (12, 45)."

Reasons for the Decision

1. The appeal is admissible

2. *Amendments*

The amendments to the claims are supported by the disclosure of the application as filed. New claim 11 is composed of the original claims 11 and 12, whereas new claim 12 is a combination of the original claims 11 and 13 with the addition of the word "paste-like" as disclosed at page 5, lines 22 to 24 of the description as originally filed. The subject-matter of new independent claim 12 covers a further embodiment of the invention according to the figures 3 to 5 as described at page 8, line 3 to page 10, line 7 of the application as filed.

The requirements of Article 123(2) EPC are thus satisfied.

3. *Novelty*

3.1 As set out by the examining division in its decision, document D1 discloses an apparatus for reducing frictional heat while machining a workpiece with a machining tool, said apparatus comprising:

- coolant delivery means (28, 30, 36, 38, 40, 44) for conveying a coolant (water) onto the workpiece, and
- pressurized fluid delivery means (52, 54) for conveying pressurised CO₂.

The subject-matter of the independent claims 11 and 12 differs from disclosure of document D1 in that

- the coolant is cooled to a paste-like consistency;
- shrouding means are provided operative to shroud the region where the coolant is cooled by the expanding fluid, and
- the machining tool further includes an annular groove extending thereabout that is in fluid communication with a channel and in registration therewith is an inducer shoe secured against movement relative the machining tool and having an arcuate surface adapted to conform to the groove having a window therein operative to convey the selected one of the coolant, pressurised fluid, and mixtures thereof, into the annular groove.

3.2 The other documents cited in the European search report:

US-A-4 929 130 (D2)
US-A-4 951 426 (D3)
DE-A-3 804 781 (D4)
DE-A-3 007 709 (D5)
DE-A-2 900 409 (D6)
US-A-3 547 350 (D7)

disclose

- a grinding apparatus including a machining center, coolant delivery means and a guard assembly which surrounds a grinding wheel (document D2);

- a grinding machine comprising a grinding fluid feeder apparatus and a cover plate in order to prevent possible leakage of the grinding wheel fluid and pulling-in of air (document D3);
- a grinding wheel having coolant delivery grooves and a cover plate for preventing the coolant to be centrifugal from the grinding wheel (document D4);
- a device on a spray apparatus for delivery cooling means to a machining tool which apparatus is provided with a supersonic nozzle (document D5);
- a device for cooling grinding wheels comprising a coolant element in solid stage of aggregation, e.g. ice, which comes directly in contact with the grinding wheel and, therefore, is transformed in another state of aggregation (document D6), and
- a spraying device for supplying a cooling and lubricating agent to a drill whenever the drill is placed in operation (document D7).

None of these documents, however, discloses the further features of the independent claims 11 and 12 by which the subject-matter of these claims differs from the apparatus according to document D1.

3.3 From the above it follows, that the subject-matter of the independent claims 11 and 12 is new within the meaning of Article 54 EPC.

4. The examining procedure having been restricted to the issue related to the novelty of the subject-matter of claim 11 as originally filed, the Board considers it appropriate to make use of the power conferred by Article 111(1) EPC to remit the case to the first instance for further prosecution.

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 for further prosecution.

The Registrar:



S. Fabiani

The Chairman:



H. Seidenschwarz