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D E C I S I O N
of 15 January 1999

Case Number: T 0156/97 - 3.2.5

Application Number: 93830171.0

Publication Number: 0575296

IPC: B24B 7/04

Language of the proceedings: EN

Title of invention:

Grinding machine with grinding wheels at variable distance

Applicant:

Officine Meccaniche Viotto S.r.l.

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0156/97 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 15 January 1999

Appellant: Officine Meccaniche Viotto S.r.l.
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Canzo (Como) (IT)

Representative: Adorno, Silvano
c/o Societa' Italiana Brevetti S.p.A
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20123 Milano (IT)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 16 September 1996
refusing European patent application
No. 93 830 171.0 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: A. Burkhart
Members: C. G. F. Biggio
J. H. P. Willems

Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal against the decision of the examining division refusing the application No. 93 830 171.0.

The examining division held that the application did not meet the requirements of Article 56 EPC, having regard to the following prior art documents:

D1: DE-A-1 752 268 and

D4: "Werkstatt und Betrieb", 121 (1988), 2, p. 127-131.

- II. The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of the following documents:

Claims: 1 to 7, filed on 17 July 1988, with the amendment that, according to the request of 16 November 1998, in claim 6 the expression "axis (e)" be replaced by the expression "axis (C)";

Description: pages 1, 2 and 4 to 10, as originally filed,
pages 3, 3a, filed on 17 July 1998;

Drawings: Figures 1 to 5, as originally filed.

III. Claim 1 reads as follows:

"1. A grinding machine comprising a control unit for controlling the displacement of one or more grinding wheels (1, 2) along a feed axis (A) and of a mechanism (3, 5) for holding and feeding workpieces (P), the mechanism (3, 5) being movable in a plane perpendicular to the grinding wheel feed axis (A), wherein the grinding wheels (1, 2) are driven into rotation about the feed axis (A) by respective motors (M1, M2), characterised in that at least one of the grinding wheels (1, 2) is adapted to be displaced along the feed axis (A) to positions which are interpolated, according to a preset law, with the subsequent grinding positions of the workplace (P) held on the mechanism (3, 5) during its path over the grinding surface of the grinding wheel."

IV. The appellant argued essentially as follows:

In the grinding machine according to document D1 the vertical position of the grinding wheel was manually adjustable, by means of a hand wheel, which registered once and for all the vertical position of a grinding wheel. D1 did not disclose or suggest an interpolation of the vertical position of the grinding wheel with the positions of the workpiece during its path over the grinding surface of the grinding wheel.

In the cylindrical grinding machine according to D4 only the grinding disc feed axis X and the workpiece axis Z are interpolated, and there was no disclosure or suggestion in D4 that the grinding wheel was adapted to be displaced along the feed axis to positions interpolated, according to a preset law, with the subsequent grinding positions of the workpiece during its path over the grinding surface of the grinding wheel.

Reasons for the Decision

1. *Original disclosure (Article 123(2) EPC)*

During the appeal proceedings the appellant filed an amended claim 1, which is based on the following locations of the originally filed application documents:

Claim 1; page 5, lines 5 to 7; page 6, line 28 to page 7, line 26; Figures 4 and 5.

Amended claims 2 to 7 are based on originally filed claims 2 to 7 and the originally filed description, page 4, lines 8 to 15; page 5, line 26 to 30; page 6, lines 22 to 27; page 7, lines 2 to 5; page 8, lines 25 to 29; page 9, lines 13 to 18.

The description has been adapted to the amended claims and a discussion of a prior art document has been added.

The amendments to the description and the claims, therefore, do not contravene Article 123(2) EPC.

2. *Novelty*

Document 1, which represents the closest prior art, discloses a grinding machine comprising all the features of the preamble of claim 1. In this prior art grinding machine the vertical position of the grinding wheel is manually adjustable to a desired position which remains fixed during the grinding operation (see D1, page 4, lines 11 to 13).

The grinding machine of claim 1 differs from the grinding machine according to document D1 in that at least one of the grinding wheels is adapted to be displaced along the feed axis to positions which are interpolated, according to a preset law, with the subsequent grinding positions of the workpiece held on the mechanism during its path over the grinding surface of the grinding wheel.

Therefore, the grinding machine according to claim 1 is novel.

3. *Inventive step*

3.1 Problem underlying the invention

The problem underlying the invention is to provide a grinding machine which is capable of handling high precision workpieces of any size, with short working cycles and mainly with minimum deformation of the geometrical characteristics of the wheels, which may be dressed at significantly long intervals (see page 3, line 28 to page 3a, line 3 of the description).

3.2 Solution

This problem is solved according to the present invention in that the grinding machine known from document D1 is modified in the sense that at least one of the grinding wheels is adapted to be displaced along the feed axis to positions which are interpolated, according to a preset law, with the subsequent grinding positions of the workpiece held on the mechanism during its path over the grinding surface of the grinding wheel.

These new features allow to enter in the numerical control unit of the grinding machine any kind of law for the grinding wheel feed, in accordance with the needs of the grinding operation to be performed. Due to this flexibility in the operation of the grinding machine according to the invention it is, for instance, possible to remove more stock from the workpiece with the outer rim of the wheels than with the inner rim where the wear is higher and the wheel is more easily damaged (see page 8, lines 5 to 13 of the description).

3.3 There can be found no hint for the said solution in document D4.

The passage in D4, page 127, right column, first paragraph which was referred to by the examining division, is concerned with a grinding machine for grinding cylindrical workpiece surfaces and states "The rectilinear and angular interpolation of the workpiece axis Z of the grinding disc feed axis X as well as the CNC-controlled swivelling of the grinding disc axis B belong to the features of the grinders with controlled path".

Neither this statement nor the whole disclosure of D4 suggests the essential feature of the invention, namely to interpolate, according to a preset law, the positions of the grinding wheel along the feed axis with the subsequent grinding positions of the workpiece during its path over the grinding surface of the grinding wheel.

3.4 Also the other prior art documents cited in the Search Report do not disclose or suggest the said essential feature of the present invention.

3.5 Therefore, the grinding machine according to claim 1 involves an inventive step in the sense of Article 56 EPC.

4. Consequently, the subject-matter of claim 1 constitutes a patentable invention in the sense of Article 52(1) EPC.

The same applies to the subject-matter of the dependent claims 2 to 7 which are concerned with further developments of the subject-matter of claim 1.

5. The appellant asked in its telefax filed on 5 January 1999 "whether the possibility of the appeal fees being reimbursed according to Rule 67 EPC can be envisaged in this case".

However, Rule 67 EPC does not apply in the present case, since neither an interlocutory revision took place nor a substantial procedural violation occurred during the examining proceedings.

Therefore, a reimbursement of appeal fees cannot be ordered by the Board.

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 a patent in the following version:

Claims: 1 to 7, filed on 17 July 1988, with the amendment that, according to the request of 16 November 1998, in claim 6 the expression "axis (e)" be replaced by the expression "axis (C)";

Description: pages 1, 2 and 4 to 10, as originally filed,
pages 3, 3a, filed on 17 July 1998;

Drawings: Figures 1 to 5, as originally filed.

The Registrar: The Chairman:

A. Townend

A. Burkhardt