BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

A		B		C	X

File No.: T 0618/92 - 3.5.1

Application No.: 86 111 405.6

Publication No.: 0 213 531

Classification: G05B 19/405

Title of invention: Automatic prgramming system for numerical control program used in cutting machine tool.

D E C I S I O N
of 19 August 1993

Applicant: Toyoda Koki Kabushiki Kaisha

Opponents: Traub AG
Robert Bosch GmbH

Headword:

EPC: Art. 52(2), Art. 56

Keyword: "objection under Art. 52(2) (not pursued) - "inventive step (denied)"

Headnote
Catchwords

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0618/92 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 19 August 1993

Appellant: (Opponent)
Traub AG
Ulmer Straße 49-55
D - 73262 Reichenbach (DE)

Representative:
von Hellfeld, Axel, Dr. Dipl.-Phys.
Wuesthoff & Wuesthoff
Patent-und Rechtsanwälte
Schweigerstrasse 2
D - 81541 München (DE)

Appellant/other party: (Opponent)
Robert Bosch Gmbh
Zentralabteilung Patente
Postfach 30 02 20
D - 70442 Stuttgart (DE)

Respondent: (Proprietor of the patent)
Toyoda Koki Kabushiki Kaisha
1-1, Asahi-machi
Kariya-shi
Aichi-ken (JP)

Representative:
Grams, Kaus DIeter, Dipl.-Ing.
Patentanwaltsbüro,
Tiedke-Bühling-Kinne & Partner,
Bavariaring 4
D - 80336 München

Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office dated 8 May 1992 concerning maintenance of European patent No. 0 213 531 in amended form.**

Composition of the Board:

Chairman: P.K.J. van den Berg
Members: C.G.F. Boggio
G. Davies

BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

A		B		C	X

File No.: T 0618/92 - 3.5.1

Application No.: 86 111 405.6

Publication No.: 0 213 531

Classification: G05B 19/405

Title of invention: Automatic prgramming system for numerical control program used in cutting machine tool.

D E C I S I O N
of 19 August 1993

Applicant: Toyoda Koki Kabushiki Kaisha

Proprietor of the patent: Traub AG
Robert Bosch GmbH

Opponent: -

Headword:

EPC: Art. 52(2), Art. 56

Keyword: "objection under Art. 52(2) (not pursued) - "inventive step (denied)"

Headnote
Catchwords

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0618/92 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 19 August 1993

Appellant: (Opponent)
Traub AG
Ulmer Straße 49-55
D - 73262 Reichenbach (DE)

Representative:
von Hellfeld, Axel, Dr. Dipl.-Phys.
Wuesthoff & Wuesthoff
Patent-und Rechtsanwälte
Schweigerstrasse 2
D - 81541 München (DE)

Appellant/other party: (Opponent)
Robert Bosch Gmbh
Zentralabteilung Patente
Postfach 30 02 20
D - 70442 Stuttgart (DE)

Respondent: (Proprietor of the patent)
Toyoda Koki Kabushiki Kaisha
1-1, Asahi-machi
Kariya-shi
Aichi-ken (JP)

Representative:
Grams, Kaus DIeter, Dipl.-Ing.
Patentanwaltsbüro,
Tiedke-Bühling-Kinne & Partner,
Bavariaring 4
D - 80336 München

Decision under appeal: **Decision of the Opposition Division of the European Patent Office dated 8 May 1992 rejecting the opposition filed against European patent No. 0 213 531 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: P.K.J. van den Berg
Members: C.G.F. Biggio
G. Davies

Summary of Facts and Submissions

I. European patent No. 0 213 531, based on European patent application No. 86 111 405.6 filed on 18 August 1986 and claiming the priority of patent application No. 195 558/85 filed on 4 September 1985 in Japan, was granted on 31 January 1990.

II. Claim 1 as granted reads:

"An automatic programming system for automatically programming a numerical control program used in successively machining a plurality of machining portions of different shapes or dimensions on a single workpiece, based upon machining information input for said machining portions wherein data input means inputs the machining information for storage in data storage means and wherein program preparation means prepares a numerical control program for use in successively machining the plurality of workpiece portions, based on the machining information stored in the data storage means, **characterized** in that accuracy data assigned to at least one machining portion which requires a higher accuracy than others of the machining portions are also input by the data input means to be stored together with the machining information data in the data storage means, and that by reference to the accuracy data stored in the data storage means, machining order determination means determines the machining order of the machining portions whereby the numerical control program prepared by the program preparation means is so programmed that any machining portion needing a higher machining accuracy is finished later than any other machining portion needing a lower machining accuracy" **(reference signs omitted).**

III. Against the grant of the patent, oppositions were filed by

- Traub A.G. **(Opponent 1)** on 24 October 1990, and
- Robert Bosch GmbH **(Opponent 2)** on 27 October 1990.

The ground for opposition was, for both Opponents, that the subject-matter of the patent did not involve an inventive step (Article 100 (a) EPC).

Opponent 2 referred in particular to the prior art document:

D2 = EP-A-0 098 970.

IV. By its decision, dated 8 May 1992, the Opposition Division rejected both oppositions.

It held, in particular **(see paragraph 11 of the decision)**, that the skilled person would not have recognized the problem underlying the invention, which according to the description **(column 1, lines 39 to 60)** was the possible deterioration of the finish of a previously machined workpiece portion caused by the subsequent machining of another portion close to the first one.

V. On 24 June 1992, the Appellant **(Opponent 1)**:

- lodged an appeal against said decision,
- paid the appropriate fee, and
- filed his Grounds of Appeal, together with the following prior art documents:

D5 = DE-A1-3 345 269 (and DE-C2-3 345 269), and

D6 = J. Koloc: "Machining Technology in Computer Aided Programming", pages 133 to 147 of the Proceedings

of the Fourteenth Annual Meeting and Technical Conference of the Numerical Control Society, March 13-17, 1977, Pittsburgh, Pennsylvania.

VI. In a communication pursuant to Article 11 (2) of the Rules of Procedure of the Boards of Appeal, dated 3 June 1993, the Rapporteur expressed the preliminary view that the subject-matter of Claim 1 might be excluded from patentability under Article 52 (2) EPC. Furthermore, even if it were not, said subject-matter seemed to lack an inventive step, pursuant to Article 56 EPC.

Oral Proceedings were appointed on 19 August 1993.

VII. On 5 August 1993 the Respondent **(Patentee)** filed, as an auxiliary request, an amended set of Claims 1 to 4.

Claim 1 according to the auxiliary request reads:

"An automatic programming apparatus for automatically programming a numerical control program which is used by numerical control means for controlling a machine tool in successively machining a plurality of machining portions of different shapes or dimensions on a single workpiece, based upon machining information input for said machining portions, wherein data input means inputs the machining information for storage in data storage means and wherein program preparation means prepares a numerical control program for use by the numerical control means in successively machining the plurality of workpiece portions, based on the machining information stored in the data storage means, **characterized** in that accuracy data assigned to at least one machining portion which requires a higher accuracy than others of the machining portions are also input by the data input means to be stored together with the machining information data in the data storage means, and that by

reference to the accuracy data stored in the data storage means, machining order determination means determines the order in which the machine tool should machine the machining portions for high machining accuracy whereby the numerical control program prepared by the program preparation means is so programmed that any machining portion needing a higher machining accuracy is finished later than any other machining portion needing a lower machining accuracy" **(reference signs omitted)**.

VIII. Oral Proceedings were held on 19 August 1993.

IX. The Appellant argued essentially as follows.

It must be possible to pursue an objection under Article 52 (2) EPC, even if it is introduced only at the appeal stage. This follows from the principle that the EPO should not maintain patents which do not meet the requirements of all the articles of the EPC. Decision G 10/91 of the Enlarged Board of Appeal, to which the Respondent had made reference, must be seen in the light of Article 114 EPC and cannot stand in the way of an examination by the EPO of its own motion.

Even supposing that the claimed subject-matter would be an invention within the meaning of Article 52 (1) EPC, in any case it involved no inventive step. The skilled person, confronted with the problem of finish deterioration of one portion of a workpiece, due to the subsequent machining of another portion, would immediately apply the principle "rough (machining) before fine", mentioned in several documents on file. This principle implies determining the machining order in such a way that the portions requiring higher accuracy are machined last. Furthermore it is not

evident that the mere automatization of such determining and ordering steps might involve an inventive step.

X. The Respondent's arguments may be summarised as follows.

As to a possible exclusion from patentability under Article 52 (2) EPC -an issue which had been introduced only by the Board in the appeal proceedings-, it was pointed out that, according to decision G 10/91 of the Enlarged Board of Appeal, a new ground of opposition may be raised by a Board of Appeal only with the consent of the patent proprietor. In the present case, the Respondent did not give such consent.

As to the question of inventive step, it was submitted that the technical problem could not be reduced to the mere question of whether the skilled person would recognize that machining of a workpiece portion induced stress in the material; in fact any machining step would inevitably produce stress. The problem solved by the invention was rather how to avoid the accuracy deteriorating side-effects of subsequent machining. The skilled person would normally try to solve that problem by optimising the speed of the tools used, or rinsing the workpiece with a fluid; he would therefore not think of changing the order of the machining steps. The claimed solution could not be seen as a mere application of the well-known working principle "rough before fine" since this applies, according to the available prior art, to **single** surface portions. The invention, as claimed, was expressly limited to the machining of a plurality of portions of a workpiece.

XII. The Appellant (**Opponent 1**) requested that the decision under appeal be set aside and the patent be revoked; **Opponent 2** made the same request.

The Respondent requested that the appeal be dismissed and that the patent be maintained as granted (main request) or on the basis of Claims 1 to 4 according to the auxiliary request filed on 5 August 1993. With reference to the objection concerning Article 52 (2) -raised by the Board-, it was requested

- either that the admissibility of this ground of opposition at the stage of the appeal proceedings be refused, in conformity with decision G 10/91 of the Enlarged Board of Appeal, or
- that the admissibility of said ground of opposition be discussed, or
- that the case be remitted to the first instance for further prosecution, should the Board admit this new ground of opposition at the stage of the appeal proceedings.

Reason for the decision

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

2. In its communication, the Board raised the issue of exclusion of the claimed subject-matter under Article 52(2) EPC.

The decision under appeal made no reference to such an objection, nor was it at any time introduced by the Opponents.

Since the patent proprietor did not consent to it being admitted into the proceedings, the Board would normally have to consider whether the objection constitutes a fresh ground of opposition in the meaning of decision

G 10/91 of the Enlarged Board of Appeal; if it does, the objection cannot be pursued.

However, since it turns out in the present case that neither the subject-matter according to the main request nor according to the auxiliary request fulfils the requirement of inventive step **(see points 4 and 5 below)**, and the patent therefore has to be revoked in any case, there is no reason for the Board to further examine the issue of exclusion from patentability.

3. Article 123 (2 and 3) EPC Since the claims, according to the Respondent's main request, have not been amended, no objection arises under Article 123 (2 or 3) EPC.

4. Inventive step It is common ground that automatic programming systems which prepare programs for controlling numerical control (NC) machines are well known. D2, for example, discloses such a system.

What, however, was not known, at the priority date of the patent at issue, is that the machining order is determined by the system, in accordance with accuracy data assigned to the various portions of the workpiece, and in such a way that "any machining portion needing a higher machining accuracy is finished later than any other machining portion needing a lower machining accuracy" (Claim 1, last four lines).

This fact is not disputed by the Appellant.

4.1. In the description of the patent at issue **(column 1, lines 39 to 60)**, the problem to be overcome by the invention is illustrated by means of an example involving the drilling of four holes near a fifth hole requiring higher accuracy.

It is stated that, if the higher-accuracy hole is machined first, its finish accuracy may be deteriorated as a result of being subjected to stress and/or being damaged or scratched by chips when the four other holes are being drilled.

4.2. The Board notes that none of the prior art documents on file discloses exactly this configuration of holes; however, the situation can hardly be unique.

Indeed, neither the Respondent nor the Opposition Division have suggested that such machining sequences and accuracy requirements would in themselves constitute an inventive departure.

4.3. The Opposition Division saw a significant contribution to the inventive step in the recognition of the problem, i.e. in noting that the drilling of the four holes may cause stress in the material which damages the higher-accuracy fifth hole.

The Board cannot share this view.

If a particular part of a workpiece is to have a very high accuracy, some kind of final quality check will normally be made. The check would reveal errors; the cause of the errors would have to be determined by a specialist (and not, for example, by a programmer). The specialist would know that any machining step causes more or less stress in the material; this is, therefore, one factor he would be expected to investigate.
Of course, if the damage were to consist of scratches on the surface due to chips from the subsequent boring (an example also mentioned in the description of the patent at issue), the analysis would be even more straightforward.

The mere recognition of the technical problem cannot, accordingly, be regarded as involving an inventive step.

4.4. As to the solution to this problem, the Respondent has submitted that a skilled person, rather than altering the order of the machining steps, would try to optimise the parameters, such as the speed, of the operation causing damage.

The Board is not convinced by this argument.

A solution to a problem is not necessarily non-obvious merely because other, possibly more obvious, solutions can be imagined. What matters is solely whether or not the invention is obvious, on an objective basis and having regard to the state of the art.

In the present case the skilled person was capable of recognizing the detrimental effect on a higher-accuracy portion, caused by subsequent machining of neighbouring portions. Clearly the damage could only be completely avoided if no neighbouring portions were machined later than the higher-accuracy portion. It follows that these neighbouring portions must be machined first.

In the Board's view, no prior art document is needed to prove the obviousness of this deduction; it is a matter of simple common sense, which also the notional skilled person must be assumed to possess.

It can therefore be left undecided whether or not the claimed solution is actually a mere application of the well-known "rough before fine" principle, as submitted by the Appellant.

It is furthermore noted that changing the parameters of a subsequent drilling step, as suggested by the Respondent, would not always be a simple or effective measure. It is therefore unlikely that the skilled person, had this idea occurred to him, would have been so satisfied with it that he would not even consider other possibilities.

4.5. For these reasons the system claimed by Claim 1, according to the main request, does not involve an inventive step.

5. *The auxiliary request*

Claim 1, according to the Respondent's auxiliary request, differs from Claim 1 according to the main request in that "system" has been changed to "apparatus" and that explicit reference is made to the numerical control means for which the control program prepared is intended.

Manifestly, no objection under Article 123 (2 or 3) EPC arises in respect of either amendment.

Manifestly too, neither amendment can influence the considerations on inventive step outlined above.

Thus, the Respondent's auxiliary request has also to be refused.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

M. Kiehl P.K.J. van den Berg