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Aktenzeichen / Case Number / N^o du recours : T 447/89 - 3.5.2

Anmeldenummer / Filing No / N^o de la demande : 82 902 023.9

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Bezeichnung der Erfindung: Sector servo seek control

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : G11B 21/08

ENTSCHEIDUNG / DECISION

vom / of / du 29 June 1990

Anmelder / Applicant / Demandeur : International Business Machines Corporation

Patentinhaber / Proprietor of the patent /

Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Art. 84

Schlagwort / Keyword / Mot clé :

"Independent claim containing all essential features after amendment"

"Remitted to the first instance for further prosecution"

Leitsatz / Headnote / Sommaire

Europäisches
Patentamt
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European Patent
Office
Boards of Appeal

Office européen
des brevets
Chambres de recours



Case Number : T 447/89 - 3.5.2

D E C I S I O N
of the Technical Board of Appeal 3.5.2
of 29 June 1990

Appellant : International Business Machines Corporation
Armonk
New York, N.Y. 10504
(USA)

Representative : Herzog, Joachim
IBM Deutschland GmbH
Patentabteilung
Schönaicher Strasse 220
D-7030 Böblingen
(DE)

Decision under appeal : Decision of Examining Division 067
of the European Patent Office
dated 17 March 1989 refusing European
patent application No. 82 902 023.9
pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : E. Persson

Members : W. Riewald

A. Hagenbucher

Summary of Facts and Submissions

- I. European patent application No. 82 902.023.9 was filed as an international application (No. PCT/US82/00657) on 17 May 1982 and published on 24 November 1983 (International publication No. WO83/04133), and refused by a decision of the Examining Division 067 dated 17 March 1989.

The decision was based on Claims 1 to 10 filed with letter of 22 December 1988, with Claims 1 and 8 being independent claims.

- II. The reason given for the refusal was that the independent Claim 8 was not clear since it did not define clearly the object of the invention, i.e. indicate all essential features thereof (Art. 84 with Rule 29(1)(3) EPC).

In its decision, the Examining Division indicated that the Applicant had drafted the apparatus Claim 1 as suggested by the first Examiner; however, the method Claim 8 had not been formulated "in a corresponding way" as agreed upon in a foregoing personal consultation (on 24 November 1988).

- III. On 5 May 1989, the Applicant filed a Notice of Appeal against that decision and paid the appeal fee on the same day. A Statement of Grounds of Appeal was filed on 4 July 1989.

The Appellant held that the Examining Division's decision was incorrect, because a restriction of Claim 8 - as in Claim 1 - was not necessary and the Applicant was entitled to combine further, not expressly disclosed, but obvious, embodiments in one overall term. A revised Claim 8 was, however, filed by way of an auxiliary request.

Refund of the appeal fee was also requested.

- IV. In a communication dated 19 March 1990 and accompanying summons for oral proceedings, the Rapporteur expressed the provisional opinion that the Examining Division's decision was correct, that also the Claim 8 according to the auxiliary request did not yet meet the Examining Division's objections and that there were further questions in respect of the technical disclosure which had to be discussed at the oral proceedings.
- V. In preparation for the oral proceedings, the Appellant filed with letter of 22 May 1990, by way of further auxiliary requests, a further amended Claim 8 and presented explanations to the questions raised in the Rapporteur's communication.
- VI. Oral proceedings were held on 29 June 1990.

It was stated by the Board that the last filed Claim 8 met the Examining Division's objections, but that further amendments to both independent Claims 1 and 8 appeared to be necessary in order to fully meet the requirements of clarity and support by the description (Article 84 EPC).

It was, furthermore, indicated that the US patent application cited on page 1 of the description could not be regarded either as prior art or as a contribution to the disclosure of the invention. Attention was however drawn to the fact that there was a European patent application, publication No. 0 068 124 claiming priority of the US application and forming prior art under the terms of Art. 54(3) EPC.

The Appellant finally requested that the decision under appeal be set aside and that a patent be granted on the basis of the following points:

Claims 1 and 8 as filed during the oral proceedings and Claims 2 to 7 and 9 and 10 as filed by letter of 22 December 1988.

VII. The independent Claims 1 and 8 read as follows (with a literal adaptation of the last line of Claim 8 to the corresponding wording of Claim 1:

"1. Position control means in a data storage device wherein information is retained on tracks with servo sector portions containing servo data that define track types which are arranged in recurring sequences of track types and that are accessed by a transducer assembly driven by an electromagnetic actuator, said position control means being provided for moving said transducer assembly from one track location to another track location, and comprising:

means for sensing (10,11) and recording the actual track position (26) of said transducer assembly relative to said sequence of track types (I,II,III,IV) at a first sample time (T1) within a first servo sector portion and at a corresponding first sample time (T1) within a subsequent second servo sector portion;

means for projecting (28,30,32,15) at a sample time (T4) subsequent to said first sample time (T1) the position of said transducer assembly at a third subsequent servo sector portion by adding the distance (X) said transducer assembly travelled between said first and second servo sector portions to the actual track position at said second servo sector portion;

means for generating a missing sector signal if an actual track position cannot be sensed at a servo sector, and

means responsive to said missing sector signal for substituting the value of said projected track position for the value of the actual position at that servo sector.

8. In a storage device where data is retained on parallel tracks in sectors including servo sector portions and data sector portions with said tracks having recurring sequences of track types that define a plural track, capture area and generate a position error signal when a servo sector portion is accessed by a transducer,

a method of track location to track location seek control comprising sensing and recording the actual track position of said transducer relative to said sequence of track types (I,II,III,IV) at a first sample time within a first servo sector portion and at a corresponding first sample time within a subsequent second servo sector portion;

projecting at a sample time subsequent to said first sample time the position of said transducer at a third subsequent servo sector portion by adding the distance said transducer travelled between said first and second servo sector portions to the actual track position at said second servo sector portion;

generating a missing sector signal if an actual track position can not be sensed at a servo sector, and

substituting the value of said projected track position for the value of the actual position at that servo sector in response to said missing sector signal."

Reasons for the Decision

1. The appeal is admissible.

2. The independent Claim 1 differs from the original independent Claim 6 by features which are derivable from the description and which must be considered as essential for reasons of clarity of the claimed subject-matter and its support by the description. These features will be dealt with separately in the following.
 - 2.1 The meaning of the specification "wherein information is retained on tracks in sectors containing servo data" can more readily be understood from Figure 5 of the present application, according to which data sector portions alternate with servo sector portions (see also the original independent Claim 9). Only the latter portions contain the servo data. This is specified more clearly by replacing the above cited passage by "wherein information is retained on tracks with servo sector portions containing servo data".

 - 2.2 Again according to Figure 5, the servo data (within the servo sector portions) define track types (I to IV) which are arranged in recurring sequences of track types (see also the original Claim 9). This clarified definition replaces the somewhat scarce and therefore ambiguous definition in the original Claim 6 "servo data that define sequences of track types".

 - 2.3 It is already clear from the foregoing that the actual track position of the transducer assembly can only be sensed (by access to the servo data) and recorded within the servo sector portions. The method of sensing the actual track position is explained in connection with

Figure 5. It follows from this explanation that a single position is determined during each servo sector portion (confirmed by Appellant's letter of 22 May 1990, page 2, lines 12 to 20). Thus, the sensing and recording of the actual track positions at different (first and second) sample times can only be carried out at different servo sector portions. This was not yet clear from the original Claim 6. In particular, the terms "first", "second" and "third" sample times, used in the claim were not consistent with the numbering of a series of times T0 to T8 used in the description, page 3, line 15 onwards, this series of timing signals being generated once during each sector. It can be understood from the description, page 4, lines 7 to 9 that the actual track position is produced at the sample time (T1) within each servo sector portion and outputted on bus 26 (Figure 1). The track position at a foregoing servo sector portion ("most recent track") is present at the output of the register 29 and used to compute the distance the transducer assembly travelled between the two servo sector portions. These two servo sector portions are now specified in the claim as "first" and "second" servo sector portions (see page 4, lines 19 to 22). The said computed distance is added by the adder 32 to the actual track position (on bus 26) at said second servo sector portion (see page 4, lines 22 to 28) for projecting the position of the transducer assembly at the next subsequent servo sector portion which is now specified in the claim as "third" subsequent servo sector portion.

- 2.4 "Means for generating a missing sector signal if an actual track position cannot be sensed at a servo sector" are provided according to page 3, lines 21 to 23 and page 4, lines 3 to 5. On page 3, lines 15 to 18 it is implicitly disclosed that means are provided which are responsive to the missing sector signal for substituting the value of

the projected track position for the value of the actual track position.

3. All the features incorporated in Claim 1 have therefore a basis in the documents as originally filed, and there is no objection under Article 123(2) EPC.
4. The independent method Claim 8 comprises the functional features for substituting the projected value for the actual value in the event of a sector signal being missed by using essentially the same wording as in the independent apparatus Claim 1. Claim 8, therefore, does not give rise to an objection under Article 123(2) EPC.
5. The Board is, furthermore, satisfied that the specification of the computation of the projected track location by sensing and recording of the actual track position at two consecutive servo sector portions is now sufficiently clear and supported by the description.

Thus, the Examining Division's objection which led to the refusal of the application has been met.

6. It appears that the Examining Division already considered the subject-matter of the independent claims, provided that they were clarified, to be patentable in view of the other requirements of the EPC, in particular in respect of the requirement of novelty and inventive step. However, an unequivocal opinion in this respect is not yet derivable from the proceedings in the first instance and its decision does not at all deal with other requirements than the sole requirement of clarity of Claim 8.

For this reason, the Board deems it appropriate to make use of the power conferred upon it by Article 111(1) EPC

to remit the case to the first instance for further prosecution.

In the course of the further prosecution, it will also be necessary to examine the dependent claims and to adapt the description to the amended claims.

The US patent application cited on page 1 of the description has not been published before the filing date of the present application and is therefore not to be considered as "background art". This citation may, however, be replaced by a reference to EP-A-0 068 124, whose priority is based on the said US application and which is to be considered as prior art under Article 54(3) 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 for further prosecution on the basis of Claims 1 and 8 as filed during the oral proceedings and Claims 2 to 7 and 9 and 16 as filed by letter of 22 December 1988.

The Registrar:

The Chairman:

M. Kiehl

E. Persson