

Veröffentlichung im Amtsblatt	<input checked="" type="checkbox"/> Ja/ <input type="checkbox"/> Nein
Publication in the Official Journal	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No
Publication au Journal Officiel	<input checked="" type="checkbox"/> Oui/ <input type="checkbox"/> Non

Aktenzeichen / Case Number / N<sup>o</sup> du recours : T 420/89 - 3.4.1

Anmeldenummer / Filing No / N<sup>o</sup> de la demande : 84 307 871.8

Veröffentlichungs-Nr. / Publication No / N<sup>o</sup> de la publication : 0 145 317

Bezeichnung der Erfindung: Parallel grounding scheme

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : H05K 9/00

### ENTSCHEIDUNG / DECISION

vom / of / du 8 February 1990

Anmelder / Applicant / Demandeur : Tandem Computers Incorporated (US)

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPU / EPC / CBE Articles 84 and 56 EPC

Schlagwort / Keyword / Mot clé : "Clarity (yes, after amendments)"  
"Inventive step (yes)"

Leitsatz / Headnote / Sommaire

Europäisches  
Patentamt

Beschwerdekammern

European Patent  
Office

Boards of Appeal

Office européen  
des brevets

Chambres de recours



Case Number : T 420/89

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.1  
of 8 February 1990

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**Appellant :** Tandem Computers Incorporated  
19333 Vallco Parkway  
Cupertino, California 95014 (US)

**Representative :** Ayers, Martyn Lewis Stanley  
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**Decision under appeal :** Decision of Examining Division 045 of  
the European Patent Office dated  
17 February 1989 refusing patent  
application No. 84 307 871.8 pursuant  
to Article 97(1) EPC

**Composition of the Board :**

**Chairman :** K. Lederer

**Members :** E. Turrini

L. Mancini

## Summary of Facts and Submissions

- I. European patent application No. 84 307 871.8 (publication number 0 145 317) was refused by decision of the Examining Division.
- II. The reason given for the refusal was that the subject-matter of the at that time valid independent Claims 1 and 10 was not clear in view of Article 84 EPC.

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- III. The Appellant lodged an appeal against the decision.
- IV. In the Statement of Grounds he filed three sets of new claims, Set 1 as main request and Sets 2 and 3 as auxiliary requests.

In a communication the Board expressed its provisional view that Sets 1 and 2 were not acceptable in view of Article 84 EPC (lack of clarity) and that Set 3 could form the basis of an acceptable set of claims.

The Appellant in a further letter filed a new set of claims corresponding substantially to Set 3 before-mentioned and an adapted description, and agreed further modifications discussed in a telephone conversation on 30 January 1990 and sent to him on the same date by telefax.

- V. Current independent Claims 1 and 6 read as follows:

**Claim 1:**

"A grounding system including a plurality of card cages (22), each for housing an electronic module (34) and a power supply (32); line power means (10) for providing line power (14) and line ground (16); power distribution

means (20) for distributing said line power and said line ground to the power supply of each card cage; and a cabinet (12) having a frame (18) comprising;

means (14,20,26,28) electrically connecting said line power means to the power supply via power distribution means (20) for providing line power to said power supply;

means (16,20,30,46) electrically connecting said line power means to the power supply via power distribution means (20) for providing a first power supply grounding path between the line ground and power supply and for conducting current; and

means (16,44,18,22,46) electrically connecting the line ground to the power supply through said card cage and said cabinet frame to provide a second card cage grounding path, whereby two system grounding paths (16,20,30,46 and 16,44,18,22,46) for said electronic module (34) in said card cage are provided."

**Claim 6:**

"A method of grounding a power supply to be used in an electronic system comprising a cabinet (12) having a frame (18); a plurality of card cages (22), each card cage receiving an electronic module (34) and having a power supply means (32) integrated therein, line power means (10) for supplying line power (14) and line ground (16) to the power supply, and power distribution means (20) for distributing said line power and said line ground to the power supply of each card cage; said method comprising:

electrically connecting the line ground (16) to the power supply (32), via said power distribution means (20) for providing a first ground path (16,20,30,46) so as to ground the power supply; and

electrically connecting the line ground (16) to the power supply (32) through the card cage (22) and said cabinet frame (18) in parallel with said first ground path so as to ground the power supply via a second ground path (16,44,18,22,46) and decrease the amount of radiated noise."

VI. Claims 2 to 5 are dependent on Claim 1.

VII. The Appellant argued in substance that the claims submitted are in terms corresponding to those apparently envisaged by the Examining Division and "ought, therefore, to be acceptable".

In particular, Claims 1 and 6 clearly indicate the presence of two parallel grounding paths, a first path referred to as power supply grounding path and connecting the line power means to the power supply via the power distribution means, and a second path referred to as card cage grounding path and connecting the line power means to the power supply via the cabinet frame and the card cage.

The two parallel paths reduce the current amount in a single path and consequently the noise generated.

As far as novelty and inventive step are concerned, the Appellant emphasised that the Examining Division did not raise any objection on that subject-matter.

#### Reasons for the Decision

1. The appeal is admissible.

2. The Board is satisfied that the present application documents do not contain subject-matter extending beyond the content of the application documents as originally filed (Article 123(2) EPC). In particular, the subject-matter of independent Claims 1 and 6 can be directly deduced from the original description and drawing.

3. Clarity of independent Claims 1 and 6.

Claim 1 refers to a grounding system including a line power means, a power distribution means, a cabinet having a frame and a plurality of card cages, each for housing an electronic module and a power supply. The grounding system is composed of two grounding paths which are clearly distinguished one from the other. Indeed, a first path is defined as being a power supply grounding path connecting the line ground (16) of the line power means (10) to the power supply (32) of each card cage via a power distribution means (20) and a second path is defined as being a card cage grounding path connecting the line ground (16) of the line power means (10) to the power supply (32) of each card cage via the cabinet frame (18) and each card cage (22).

The objection of lack of clarity of Claim 1 raised by the Examining Division in its decision does not apply to the present Claim 1 insofar as the latter claim includes also the features concerning the power distribution means (20) through which passes the first grounding path.

The same reasoning can be applied, *mutatis mutandis*, to method Claim 6.

Thus, the Board is of the opinion that Claims 1 and 6 do not offend Article 84 EPC.

#### 4. Novelty

- 4.1 Prior art document DE-B-2 164 968 (D1) refers to an electronic tube deflecting unit with a deflecting coil (21) and two shielding cages (1 and 2). The latter are grounded, but the grounding system (Fig. 2) merely connects in different points to earth the coils forming the shielding cages.

Contrary to the content of document D1, the subject-matter of ~~Claim 1 and Claim 6 of the application in suit~~ refers to a grounding system and corresponding method wherein a line power means and a power supply are connected together via two different grounding paths in order to decrease the amount of radiated noise.

- 4.2 Prior art document DE-C-850 488 (D2) refers to a grounding system (Fig. 3) which does not comprise two grounding paths connected in parallel as proposed in Claims 1 and 6 of the application in suit.
- 4.3 The subject-matter of Claims 1 and 6 is therefore novel under Article 54 EPC.

#### 5. Inventive step

- 5.1 Neither document D1 nor document D2, the only two documents mentioned in the Search Report, suggest reducing the noise caused by grounding currents by means of two grounding paths connecting in parallel a line power means with a power supply of an electronic system.

In this respect it is also remarked that the Examining Division never raised an objection of lack of novelty or inventive step and in its first communication dated

25 June 1987 expressed the opinion that "the subject-matter of the present application appears to be patentable with respect to the cited prior art".

- 5.2 Thus, the subject-matter of Claims 1 and 6 is considered to involve an inventive step within the meaning of Article 56 EPC and said claims are, therefore, allowable under Article 52(1) EPC.
- 5.3 Claims 2 to 5, by virtue of their dependence on allowable Claim 1, are also considered allowable under Article 52(1) EPC.
6. The introductory part of the description (valid pages 2a and 2b) needed adaptation to the wording of Claims 1 and 6.

#### 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 on the basis of the following documents:

- 2.1 **Description:** page 1 of the original application;  
pages 2a and 2b filed on 6 December 1989  
with the following amendments:

page 2a: the word "means" at the beginning of line 18 is replaced by "cages" and the expression "electronic circuit card means" in line 18 is replaced by "an electronic

module";

line 21, after "said line ground" the expression "to the power supply of each card cage" is inserted;

line 33, the expression "circuit card means" is replaced by "module";

page 2b: line 3, "a housing and" is cancelled;

line 4, the expression "electrically coupled to the frame" is cancelled;

line 5, the expression "circuit card" is replaced by "module";

lines 6 to 9, the expression "so as to provide...to the power supply" is cancelled;

lines 10 to 12, the expression "connected...coupled to the frame" is cancelled;

line 13, after "said line ground" the expression "to the power supply of each card cage" is inserted;

pages 3 and 4 filed on 29 October 1987.

2.2 Claims:

Claims 1 to 6 filed on 6 December 1989 and amended as indicated in the telefax sent to the Appellant on 30 January 1990.

2.3 Drawings: Figure 1 filed on 16 June 1989.

The Registrar:

The Chairman:

M. Beer

K. Lederer