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**Datasheet for the decision  
of 7 September 2018**

**Case Number:** T 1653/12 - 3.4.01

**Application Number:** 08704136.4

**Publication Number:** 2112522

**IPC:** G01R33/09, H01L27/22,  
H01L43/08, H01L43/12

**Language of the proceedings:** EN

**Title of invention:**

MAGNETIC SENSOR AND ITS MANUFACTURING METHOD

**Applicant:**

Alps Electric Co., Ltd.

**Headword:**

MAGNETIC SENSOR / Alps Electric

**Relevant legal provisions:**

EPC Art. 83, 84  
EPC R. 63(1), 63(2), 103(1)(a)

**Keyword:**

Sufficiency of disclosure - (no)  
Claims - support in the description (no)  
Impossibility of meaningful search (yes)  
Reimbursement of appeal fee - (no)

**Decisions cited:**

T 1242/04



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Case Number: T 1653/12 - 3.4.01

**D E C I S I O N**  
**of Technical Board of Appeal 3.4.01**  
**of 7 September 2018**

**Appellant:** Alps Electric Co., Ltd.  
(Applicant) 1-7 Yukigaya-Otsuka-cho  
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**Representative:** Schmitt-Nilson Schraud Waibel Wohlfrom  
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**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 9 February 2012  
refusing European patent application No.  
08704136.4 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** P. Scriven  
**Members:** T. Zinke  
D. Rogers

## Summary of Facts and Submissions

- I. The Examining Division refused European patent application 08 704 136.4.

In its decision, the Examining Division referred to its communication sent with the summons to oral proceedings (the *summons-communication*) in which the Examining Division held that the application did not meet the requirements of Article 83 EPC. It further held that the claims of an auxiliary request then on file did not meet the requirements of Article 123(2) EPC. The Examining Division also agreed with the Search Division that a meaningful search could not be carried out.

- II. The appellant (applicant) filed an appeal against the decision.

The appellant requested that the Examining Division's decision to refuse the application be set aside and - as a main request - that a patent be granted on the basis of the set of claims filed on entry into the regional phase before the EPO. As an auxiliary request, the appellant requested remittal for the establishment of a European search report and examination according to Arts. 92 and 94 EPC.

The appellant also requested reimbursement of the appeal fee on the grounds that the Search and Examining Division's decisions not to carry out a search amounted to a substantial procedural violation.

The appellant further requested that oral proceedings be held.

III. In a communication sent with the summons to oral proceedings, the Board set out its preliminary view. In particular, the Board considered that the main request was not allowable due to lack of support in the description (Article 84 EPC) and insufficient disclosure (Article 83 EPC).

The Board further informed the appellant about its preliminary view that the first auxiliary request was not allowable, since it considered the decision of the Examining Division with regard to the impossibility of a meaningful search was correct.

The Board also stated that it currently did not deem the appeal to be allowable, hence a reimbursement of the appeal fee should not be ordered.

IV. The appellant indicated that it would not be represented at oral proceedings, withdrew its request for oral proceedings, and requested a decision based on the state of the file.

V. The oral proceedings took place as scheduled, in the absence of the appellant.

VI. Independent claim 1 of the main request reads as follows:

*A magnetic detecting device comprising:*

*a first and a second magnetoresistive element using the magnetoresistive effect that changes the electric resistances thereof depending on an external magnetic field; and*

*a first fixed resistor connected to the first magnetoresistive element in series and a second fixed resistor connected to the second magnetoresistive element in series, the first and the second fixed resistor having an electric resistance independent of the external magnetic field,*

*wherein the first and the second magnetoresistive element are each a GMR element whose resistance changes depending on the relationship between the magnetizations of the pinned magnetic layer and the free magnetic layer, and*

*the first and the second magnetoresistive element have the same layer structure as each other except for the thickness of the nonmagnetic conductive layer disposed between the free magnetic layer and the pinned magnetic layer,*

*wherein the nonmagnetic conductive layer of the first magnetoresistive element has a different thickness from the nonmagnetic conductive layer of the second magnetoresistive element, a first interlayer coupling magnetic field  $H_{in 1}$  applied between the free magnetic layer and the pinned magnetic layer of the first magnetoresistive element is positive, and a second interlayer coupling magnetic field  $H_{in 2}$  applied between the free magnetic layer and the pinned magnetic layer of the second magnetoresistive element is negative, and*

*wherein the first fixed resistor and the second fixed resistor have the same layer structure as each other.*

Independent claim 7 is a correspondingly formulated claim for a method for manufacturing a magnetic detecting device.

## **Reasons for the Decision**

### *Main request*

1. Articles 83 and 84 EPC
- 1.1 The issue in dispute is the interpretation of the feature of pending independent claims 1 and 7 that *"the first and the second fixed resistor having an electric resistance independent of the external magnetic field"*.
- 1.2 In the summons-communication (point 2.1), the Examining Division stated that the application did not *"disclose any embodiment"* of a resistor having an electric resistance independent of the external magnetic field and, hence, that the application did not meet the requirements of Article 83 EPC. In particular, the Examining Division pointed out that the appellant had acknowledged, in its letter date 26 August 2011, that the fixed resistors disclosed in the application (cf. Fig. 7 and 8, and page 31, line 2 to page 36, line 12) had an electric resistance that depended on the external magnetic field.
- 1.3 In the statement setting out the grounds of appeal, the appellant argued that the Examining Division erred in interpreting this feature with excessive strictness. The skilled person would recognize that the wording *"fixed resistor"* should be interpreted as *"any resistor"*

*which does not show a giant magnetoresistive effect and who's [sic] magnetoresistance therefore is at least one order of magnitude smaller than the magnetoresistance caused by the giant magnetoresistive effect"* (cf. statement of grounds, section 4).

- 1.4 In the independent claims, however, the *"fixed resistors"* are specified as having *"an electric resistance independent of the external magnetic field"*. This feature is clear as such. It means that the electric resistance does not depend on the external magnetic field at all. The Board agrees with the Examining Division's opinion (section 2.2.1 summons-communication) that *"the skilled person knows that it is in principle possible to form resistors that fulfil this requirement"*.
- 1.5 The description sets out two embodiments: Figure 7 and the corresponding passages of the description (page 31, line 2 to page 35, line 24) disclose fixed resistors with a particular layer structure, whereas Figure 8 and the corresponding passages of the description (page 35, line 25 to page 36, line 12) disclose fixed resistors made from a single layer of chromium. Neither has an electric resistance independent of the external magnetic field. Chromium exhibits a magnetoresistance, as do all the layers of the layer structure. It is not apparent that the series connection of these layers leads to a cancellation of the magnetoresistance effects.
- 1.6 In the statement setting out the grounds of appeal (page 15, line 1 to page 16, line 1), the appellant argued that a person skilled in the art would understand, from the context of the application, that the term *"fixed resistors having an electric resistance*



*independent of the external magnetic field*" describes elements, which do not exhibit a giant magnetoresistive effect. The Board understands this statement in that the claimed fixed resistors might have a "*small*" dependency of their electric resistance on the external magnetic field, but not a giant magnetoresistive effect.

- 1.7 The Board does not agree. As mentioned above, the wording of the claimed feature is clear as such, claiming explicitly that the fixed resistors have an electrical resistance independent of the external magnetic field and not a "*small*" dependency. No embodiment for such fixed resistors with no dependency of the electrical resistance on the external magnetic field is disclosed in the application. Hence, the skilled person does not know how to make fixed resistors with a layer structure as claimed with no magnetoresistive effect at all.
- 1.8 It is of no relevance whether the person skilled in the art might understand that it would be possible to use resistors with only a "*small*" dependency (no giant magnetoresistive effect) in combination with the claimed magnetoresistive elements in order to achieve a technical effect. That is not the subject-matter that is claimed.
- 1.9 Consequently, the main request does not comply with the requirements of Article 83 EPC.
- 1.10 Due to the contradiction between the claimed feature and the embodiments in the description, the claims also lack support in the description (Article 84 EPC).

*First auxiliary request*

2. *"Additional"* search

- 2.1 According to Rule 63(2) EPC, last sentence, the declaration under Rule 63 EPC that was issued in February 2011 is considered as the European Search Report. There is no legal basis in the EPC for a further search report.

Hence, the Board interprets the first auxiliary request as that the application be remitted to the Examining Division in order that an *"additional"* search be carried out prior to further examination. The Board informed the appellant about this interpretation in the communication sent out with the summons. The appellant did not comment.

- 2.2 In the summons-communication, the Examining Division affirmed the decision of the Search Division not to carry out a search and to issue a declaration under Rule 63 EPC instead. A remittal would be appropriate if the Examining Division's corresponding arguments under section 6.2 of the summons-communication were incorrect.

This is also foreseen in section C-IV 7.2(i) of the Guidelines for Examination in the EPO (November 2017), which states that an additional search might be performed where, after a declaration taking the place of the search report under Rule 63 EPC has been issued, the deficiencies which rendered a meaningful search impossible under Rule 63 EPC have been successfully refuted by the applicant.

- 2.3 Due to the discrepancy between the wording of the claims and the description, the Search Division could not identify, on its own, whether the application was filed in order to claim "*fixed resistors having an electric resistance independent of the external magnetic field*", or the particular resistors depicted in Figs. 7 and 8 and described in the corresponding parts of the specification (page 31, line 2 to page 36, line 12), which do have an electrical resistance dependent on the external magnetic field. Hence, it was justified in sending out the invitation under Rule 63 EPC in order to clarify the subject-matter for the search.
- 2.4 The applicant's response to the invitation stated (paragraph bridging pages 1 and 2, emphasis by the Board): "*Even if the Search Examiner's objections as regards Arts. 83, 84 EPC would be justified (which they are not, as will be shown further below), this would not obstruct him from [sic] searching for a) a magnetic detection device comprising fixed resistors having an electric resistance which is independent of the external magnetic field according to claim 1 **and/or** b) a magnetic device wherein the fixed resistors comprise the order of the layers claimed in claim 4.*".
- 2.5 Due to the "*and/or*" construction, this statement does not provide a basis for the Search Examiner to perform a meaningful search. This particular wording leaves it entirely open which of the two alternatives, i.e. the fixed resistors having an electric resistance independent of the external magnetic field or the resistors with the layers as claimed in claim 4 (and depicted in Figs. 7 and 8) should be searched.

2.6 Hence, it is plausible that a meaningful search could not be made, so that the reasoned declaration under Rule 63 EPC, which is considered as the European search report, was correct.

2.7 Consequently, the position of the Examining Division as expressed in section 6.2 of the summons-communication was also correct.

2.8 The appellant discussed decision T 1242/04 "*Bereitstellung produktspezifischer Daten / MAN*", OJ EPO 2007, 421 in its statement of grounds (section II.2) and cited passages of that decision in order to support its position that a search in the present case should not have been considered impossible.

2.8.1 The Board notes that decision T 1242/04 dealt with former Rule 45 EPC 1973, which has a different wording from current Rule 63 EPC.

With the amendment of Rule 63 EPC, the provision was introduced that the Search Division "*shall invite the applicant to file, within a period of two months, a statement indicating the subject-matter to be searched*" (Rule 63(1) EPC) and that a reasoned declaration under Rule 63 EPC should only be issued "*if the statement under paragraph 1 is not filed in due time, or if it is not sufficient to overcome the deficiency noted under paragraph 1*" (Rule 63(2) EPC).

2.8.2 Since decision T 1242/04 dealt with a case, in which no invitation of the Search Division under Rule 63(1) EPC and no response thereto was present, the reasons of that decision are not directly applicable to the present case.

2.8.3 Further, T 1242/04 dealt with a case in which the reasons given by the Search Division for not carrying out a search were based on the assertion that the claimed invention lacked technical character. In that decision, however, contrary to the Search Division, the Board identified technical subject-matter and, in particular, it referred to original dependent claims 5 and 16, which "evidently" ("*offensichtlich*", cf. *Entscheidungsgründe*, section 8.6) contained technical features.

2.8.4 It should also be noted that the passage in T 1242/04 referred to by the appellant, when completely cited, reads, in the English translation, emphasis added:

*"In the Board's view, Rule 45 EPC relates only to the practicability of a search and not to the potential relevance of its results in subsequent substantive examination. That is clear from the actual wording of the rule, which refers to the impossibility of carrying out a meaningful search in the event of serious violations of the provisions of the Convention, for example a fundamental lack of clarity or the absence of any technical character whatsoever."* (cf. Reasons for the decision, section 8.3).

2.8.5 Hence, according to T 1242/04, fundamental clarity problems might make it impossible to carry out a meaningful search. The discrepancy between the claims and description is such a fundamental clarity problem.

2.8.6 In addition the appellant did not use its opportunity, as provided for by the amended Rule 63 EPC, to provide the Search Division with subject-matter on which a search could be carried out.

2.9 Consequently, the first auxiliary request, remittal for an "additional" search, is not allowable.

3. Reimbursement of appeal fee (Rule 103(1)(a)EPC)

3.1 According to Rule 103(1)(a) EPC, the appeal fee shall be reimbursed in full in the event that the Board of Appeal deems an appeal to be allowable, if such reimbursement is equitable by reason of a substantial procedural violation.

3.2 The Board does not deem the appeal to be allowable, hence the request for reimbursement of the appeal is refused.

## Order

### For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



R. Schumacher

P. Scriven

Decision electronically authenticated