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| Veröffentlichung im Amtsblatt | Ja/Nein |
| Publication in the Official Journal | Yes/No |
| Publication au Journal Officiel | Oui/Non |

Aktenzeichen / Case Number / N^o du recours : T 130/85

Anmeldenummer / Filing No / N^o de la demande : 81 305 196.8

Veröffentlichungs-Nr. / Publication No / N^o de la publication : 55 017

Bezeichnung der Erfindung: Magnetic bubble memory cassette

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : G 11 C 19/08

ENTSCHEIDUNG / DECISION

vom / of / du 10 April 1986

Anmelder / Applicant / Demandeur : Fujitsu Ltd.

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Art. 56

"Inventive step"

Leitsatz / Headnote / Sommaire

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Case Number: T 130 / 85

DECISION
of the Technical Board of Appeal 3.5.1
of 10 April 1986

Appellant: Fujitsu Limited
1015, Kamikodanaka
Nakahara-ku
Kawasaki-shi
Kanagawa 211, Japan

Representative: Fane, Christopher Robin King
HASELTINE LAKE & CO.
Hazlitt House
28 Southampton Buildings
Chancery Lane
London WC2A 1AT

Decision under appeal: Decision of Examining Division 067 of the European Patent
Office dated 06.12.84 refusing European patent
application No 81 305 196.8 pursuant to Article 97(1)
EPC

Composition of the Board:

Chairman:
Member: G. Korsakoff
W. Oettinger
Member: F. Benussi

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"Inventive step"

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Summary of facts and submissions

I European patent application No. 81 305 196.8 filed on 30.10.81 claiming a priority of 30.10.80 (JP) and published under number 55 017, was refused by a decision of the Examining Division 067 dated 06.12.84.

II The reason given for the refusal was that the subject-matter of Claim 1 filed with a letter dated 07.09.84 and of the dependent Claims 2-16 filed with a letter dated 10.04.84 lacked inventive step having regard to prior art documents IBM Technical Disclosure Bulletin, December 1978, pages 2714 and 2715 (Larnerd), and US-A-3 786 445 and the general knowledge of the person skilled in the art.

Reference was also made to a communication dated 18.10.83 in which the further documents Elektronik 1979, No. 11, pages 45 to 52 (Mavity), and US-A-4 156 934 had been cited.

III On 12.02.85 the Applicant lodged an appeal against this decision and paid the appeal fee.

IV In a statement of grounds filed on 16.04.85 the Appellant presented, as a prior art document coming still nearer to the invention, an article published by the Institute of Electronics and Communication of Japan, EC 79-49, 21.12.79, pages 67 to 72, headed "Application of Magnetic Bubble Memory (Bubble Cassette)" (Maegawa).

He submitted that even having regard to this, the only prior document to disclose a magnetic bubble memory cassette in its proper sense, the subject-matter of the set of claims filed with the Statement of Grounds consisting of the independent Claim 1, and dependent Claims 2-15, is an unobvious combination with a co-operative beneficial effect.

V In a communication dated 13.12.85, Claim 2 of that set of claims was objected to by the Rapporteur as inadmissible under Article 123(2) EPC.

VI On 29.01.86 the Appellant filed amended Claims 1 and 2 and corrected Claim 3.

VII Claim 1 reads:

"A magnetic bubble memory cassette (1) comprising a memory package (35) accommodated in a housing structure, the memory package being made up of a magnetic shielding case (60) containing a magnetic bubble memory chip (51) and coils (54, 55) surrounding that chip for applying a rotating magnetic field thereto and also containing permanent magnet means (56, 57) arranged to apply a bias magnetic field to the magnetic bubble memory chip; the cassette having mounting and connecting means whereby it can be removably mounted on a memory operating unit (2) provided with driving, write and read circuitry for the memory chip, so as to bring the memory chip into operative connection with the said circuitry; characterised in that the cassette also comprises an IC package (37) comprising a sense amplifier associated with the memory chip, the memory package and the IC package being mounted on a printed circuit board (18) within the housing structure and operatively connected to the said mounting and connecting means; in that the housing structure is composed of first and second opposed case members (31, 32) which together surround the said memory package and IC package; and in that two plate-form magnetic shielding parts (42, 43) are mounted within the said housing structure and against respective opposed surfaces of the said first and second members, so as to be located respectively to opposite sides of and spaced from the said memory package and so as to extend substantially parallel to the said magnetic bubble memory chip therebetween."

Claims 2-15 on file all directly or indirectly refer back to this claim and introduce additional features of the claimed cassette.

VIII Of the other application documents as published, pages 1-6 of the description have been replaced by pages 1 and 2 filed on 29.01.86, pages 2a and 3 filed on 16.04.85, and pages 3a and 4-6 filed on 11.04.84.

IX From the last two paragraphs on page 2 it can be understood that the problem to be solved by the invention is:

how to improve the design of the bubble memory cassette in such a way as to allow its safe removal from the memory operating unit and free transfer in day-to-day use without undue danger of data loss by external noise magnetic fields.

Objects of particular embodiments of the invention can be understood from the first paragraph on page 2a.

X The Appellant requested reversal of the appealed decision and grant of a patent on the application.

XI He also requested the refund of the appeal fee.

As to this request the Rapporteur, in the communication dated 13.12.85, drew the Appellant's attention to Rule 67 EPC.

In his reply filed on 29.01.86 the Appellant stated that he had no observations to make in this respect.

Reasons for the decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.
2. The amendments filed are admissible under Article 123(2) EPC.

Claim 1 is based on the features of original Claims 2 and 8, further specified as disclosed in the original description (e.g. page 5, lines 4-7).

Claim 2 is based on original page 5, lines 33-37. The remaining claims have, apart from their renumbering, not been amended.

3. A magnetic bubble memory cassette which is understood to mean a readily removable and freely transportable memory unit which can serve as a portable data recorder for entering data in a computer, has to be regarded as known from the cited Maegawa article.

In the other prior documents with bubble memory packages designed for plugging in this feature is only intended to facilitate their mounting in the memory operating unit during assembly of the memory system and does not allow their use as freely portable data records like for instance, tape cassettes.

4. The claimed bubble memory cassette is new as it differs from the cassette known from the above cited Maegawa article by the following features:
 - (a) The IC package containing the sense amplifier is contained within the housing structure of the cassette, whereas in the system known from the Maegawa article

(figure 5) it is outside it and forms part of the holder unit in the memory operating unit.

- (b) The housing structure comprises upper and lower casing members, whereas the Maegawa article does not show how the interior of the known cassette is accessible.
 - (c) In addition to the shielding case (shown in figure 8 of the Maegawa article) making up the bubble memory package, two magnetic shielding plates are mounted on the interior surfaces of the casing members, spaced from the memory package.
5. No incentive to modify the known system according to the aforementioned feature (a) can be seen in the prior documents cited; this modification alone would nonetheless appear obvious on the basis of the well-known fact that a sensing circuit is the less subject to any disturbances the nearer a preamplifier for the sensed signals is located to the sensor, especially if it is upstream of any connectors.
 6. The application of the abovementioned feature (b) alone would have to be considered as an obvious constructional detail because this feature is well-known from other types of cassettes, e.g. tape cassettes.
 7. Double shielding is known per se from the cited IBM document (Larnerd) with a bubble memory package made up of outer and inner shielding enclosures, the large surfaces of the inner enclosure being fully in contact with the inner surfaces of the outer enclosure, thus forming, at these surfaces, a shielding plate of double thickness.

A direct application of this construction to a bubble memory cassette would have to be considered as obvious, but the idea of spacing the outer enclosure from the inner is not derivable from the Larnerd document.

8. The idea of such spacing is also not obvious from any other cited document nor from the general knowledge of the skilled person.

It is, of course, true that the skilled person knows that the influence of a magnetic field diminishes with an inverse power of the distance, as pointed out in the second communication of the Examiner. This does not however inevitably mean that, given a certain (desirable or tolerable) thickness of the cassette, the shielding efficiency is maximized if two layers of a double shielding wall are separated, and thus spaced from each other as far as is possible within the limited dimensions of the cassette.

Given a certain thickness of the cassette, a simple consideration of stray field leakage would also not inevitably lead to the conclusion that such leakage is minimized by a maximal spacing between the inner and outer shieldings.

9. The above features also cooperate to give an additional effect not achievable by feature (a) or (c) alone or by the combination of either with feature (b); this cooperative effect is a further indication of non-obvious combination.

Only by (a) incorporating the IC containing the sense amplifier within the cassette housing (which is neither suggested by Maegawa nor by Larnerd) and (c) removing the outer of the two shielding enclosures from the bubble memory package and integrating it in the cassette housing members is the additional advantage achieved that the shielding plates also shield the sense amplifier so that (contrary to Larnerd) all week signal carrying parts of the circuit prone to external disturbances are shielded.

10. Thus, the subject-matter of Claim 1 is distinguished from the prior bubble memory cassette by a combination of at least three modifications, which is regarded as not obvious because one of the modifications is not obvious in itself and because the combination produces a beneficial effect over and above the effects of the individual modifications.

Said subject-matter is therefore considered to involve an inventive step.

11. It follows that Claim 1 is allowable subject to the correction of the obviously erroneous reference number 18 into the correct number 36.

12. The dependent claims define further features of particular embodiments of the cassette claimed in Claim 1 and their allowability therefore follows from that of Claim 1.

13. No objection of substance arises in respect of the other application documents, but a clerical error on page 3, line 3 needs to be eliminated.

14. The condition for a refund of the appeal fee according to Rule 67 EPC is not fulfilled.

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 the European patent applied for on the basis of the following documents:

- (a) Claim 1 as filed on 29.01.86 subject, however, to the correction of reference numeral 18, in line 18, into 36), Claims 2 and 3 as filed on 29.01.86, Claims 4 to 15 as filed on 16.04.85;
- (b) Description pages 1 and 2 as filed on 29.01.86, pages 2d and 3 (with a correction of "o" in line 3 to "to" as filed on 16.04.85, pages 3a and 4-6 as filed on 11.04.84, pages 7-9 as published;
- (c) 8 sheets of drawings (figures 1-10) as published;
3. the request for a refund of the appeal fee is dismissed.

The Registrar

The Chairman

B A Norman

G. Korsakoff