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Aktenzeichen / Case Number / N^o du recours :

T 239/85

Anmeldenummer / Filing No / N^o de la demande :

79 300 490.4

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

0 005 316

Bezeichnung der Erfindung:

Title of invention:

Titre de l'invention :

Optical apparatus and process for recording
information and record formed by this apparatus

Klassifikation / Classification / Classement :

G11B 7/00

ENTSCHEIDUNG / DECISION

vom / of / du

4 November 1987

Anmelder / Applicant / Demandeur :

Discovision Associates

Patentinhaber / Proprietor of the patent /

Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

Optical recording method/Discovision

EPÜ / EPC / CBE

Article 56

Kennwort / Keyword / Mot clé :

Inventive step (denied)

Leitsatz / Headnote / Sommaire

I. There is no support in the EPC for the general allegation that, in considering what was the state of the art and what was obvious at the priority date of a patent application, it is not permissible to select passages from different prior art documents in the light of the teachings of the said patent application.

II. When considering whether there is inventive step the examining instance is bound to form itself an opinion on the question of what the person skilled in the art would be taught by the prior art documents and whether he would, under the circumstances of the case, be expected to combine certain documents either as a whole or in part.

.../...

III. In deciding this question it has to be assumed that a person reading a document pertaining to the art in which he is skilled is capable of distinguishing between a general concept contained in that document and a particular way described in the document to put this concept into effect.

IV. Equally, where a prior art document discloses several features in combination that person must be assumed to be capable of distinguishing between those features which are relevant to the problem he wants to solve, and those features which are not relevant in this respect.

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Boards of Appeal

Chambres de recours

Case Number : T 239/85



DECISION
of the Technical Board of Appeal 3.5.1
of 4 November 1987

Appellant : Discovision Associates
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Decision under appeal : Decision of Examining Division 067
of the European Patent Office
dated 3 May 1985 refusing European
patent application No. 79 300 490.4
pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : P.K.J. Van den Berg
Members : J.A.H. Van Voorthuizen
F. Benussi

Summary of Facts and Submissions

- I. European patent application 79 300 490.4, filed on 27.03.79 (Publication No. 0 005 316), claiming priority of 27.03.78 (US), was refused by a decision of the Examining Division 067 of the EPO dated 03.05.85. That decision was based on Claims 1-8 filed on 11.08.84.
- II. The reason given for the refusal was that the claims lacked inventive step having regard to FR-A-2 218 612 and JP-A-539 101.
- III. The Appellant lodged an appeal against this decision on 29.06.85. The appeal fee was paid on 28.06.85. The Statement of Grounds was submitted on 05.09.85.
- IV. In the Statement of Grounds and in the course of oral proceedings held on 04.11.87 the Appellant essentially argued as follows:

JP-539 101 (D6) teaches no more than that one can correct the distortion caused by variations in the sensitive layer by varying the level of the write beam. The only way that has been suggested for detecting the distortion and providing a signal representative of the distortion is by using a separate read beam for monitoring the recording as it is made.

If one reads FR-A-2 218 612 (D1) one finds once again that for monitoring the recording one needs a read beam to provide an output which can be used for driving a TV monitor or can be used for direct comparison with the original input signal. D1 does not teach the idea of controlling the recording process while it is going on in accordance with the monitored reading, but merely shows a

way in which one can decide whether to discard a disc that is being recorded. There is a disclosure of an automatic control of the intensity of the write beam in accordance with some predetermined average level, although there is no suggestion what that average level should be.

In considering what was the state of the art and what was obvious at the priority date of the present application, one must read both documents as a whole and it is not permissible just to select passages from each of them in the light of what one has learned from the inventor of the invention in question.

The Examining Division's suggestion that D6 discusses the concept of a threshold level of the medium and teaches the necessity of adjusting the average intensity of the write beam to equal that threshold is strongly denied. In the Appellant's opinion D6 merely teaches that second harmonic distortion would be introduced if the intensity of the light beam entering the modulator is too high or too low.

Thus, from a consideration of both documents taken by the man skilled in the art and not knowing the present invention, there is no suggestion of the critical step made by the applicants and stated in the characterising part of the Claims 1 and 6, that the average intensity of the modulated write beam is compared with a reference level which corresponds to the threshold level of the disc surface to produce an error signal which is summed with the information signal to provide automatic control of the average intensity of the write beam. That step results in an effective way of avoiding or reducing second harmonic distortion before the recording is written, with the resulting advantage that one does not have to monitor the recording using a read-after-write process. This technical advantage is not only new but must be considered to be

surprising in that no one had suggested that it was possible before.

Summarising, according to the invention first the threshold level of the material to be recorded upon is determined and the reference value of a stabilising circuit is correspondingly adjusted. The invention fulfils a need in that it provides a new solution to a long felt problem, wherein a new use is made of the known stabilising circuit.

- V. The Appellant requested the grant of a European patent on the basis of Claims 1-8 filed on 19.10.84, the independent Claims 1 and 6 thereof reading as follows:

1. A method of writing a signal information track on a disc (10) having a surface capable of responding to a certain intensity of laser or other radiation (the threshold level) by being converted from having one radiation reflecting characteristic (38) to having a second characteristic (37) in which a beam of radiation (29') is directed at a local point along the track and is modulated in intensity responsive to the information signal as the beam moves along the track to produce first indicia while the beam intensity is above the threshold level and second indicia while it is below that level characterised in that the average intensity of the modulated beam (29") is compared with a reference level (238) corresponding to the threshold level, an error signal is generated indicating any difference therebetween, and the error signal is summed with the information signal to automatically control the modulation of the radiation such that the average intensity of the modulated beam is the threshold level.

6. Apparatus for writing a signal information track, including: a disc (10) having a surface capable of

responding to a certain intensity of laser or other radiation (the threshold level) by being converted from having one radiation reflecting characteristic (38) to having a second characteristic (37); a source (30) of a beam of radiation and means (29') defining an optical path from the source to the surface of the disc, which path includes a beam intensity modulator (68, 70) responsive to an information signal; and means for rotating the disc in relation to the beam while the intensity of the beam is modulated in accordance with the signal information whereby the track has one radiation reflecting characteristic while the beam intensity is above the threshold level and the second characteristic while it is below that level, characterised by feedback means (225, 228) for sensing the average intensity of the modulated beam (29") and for comparing the sensed level to a reference level (238) corresponding to the threshold level and for generating an error signal indicative of any difference therebetween, and by means (244, 246) for summing the error signal with the information signal for controlling the modulator such that the average intensity of the modulated beam is the threshold level.

Reasons for the Decision

1. The appeal complies with Articles 106-108 and Rule 64 EPC and is, therefore, admissible.
2. A recording method as recited in the preamble of Claim 1 is known from FR-A-2 218 612. A method of this kind is disclosed in which the intensity of the modulated beam is compared with a reference level corresponding to the desired average intensity of the beam, an error signal is generated indicating any difference, and the error signal

is summed with the information signal to automatically control the modulation of the radiation such that the average intensity of the beam is held substantially constant.

3. When applying the recording method disclosed by FR-A-2 218 612 the person skilled in the art will have to make an appropriate choice, inter alia of the recording material, its thickness, the laser divergence and the spot power (cf. page 2, lines 24-28). Moreover, he is aware from the same document that the initially set operating point of the Pockels cell may drift and that a stabilisation by means of an automatic feed back circuit (44) is desirable, to maintain the cell within a useful, reasonably linear, operating range (page 9, lines 26-28).

It is generally known that such a linear range extends normally on either side of a polarisation rotation of 45°. At the same time, the average intensity of the beam is kept at a substantially constant level (page 6, lines 1-3).

4. The said document also discloses a read-after-write arrangement for monitoring the recording. The quality of the monitored signal indicates whether the values of the peak cutting power, average cutting power and focus are correct. When an insufficient quality is found, the apparatus may be manually realigned or the disc may be rejected (cf. page 4, lines 1-14). Also, imperfections in the disc's surface may be detected in this manner (page 8, lines 5-7). It is clear therefore that the read-after-write arrangement and the stabilising circuit each serve their own purposes and that they can be applied independently of each other on the basis of the user's needs with respect to the factors which he wishes to monitor and/or control during the recording process. The Board considers this

opinion to be confirmed by the fact that in the application as filed embodiments of the invention including a stabilising circuit are described both with and without a read-after-write arrangement (compare the original Figure 1 and Figure 11). No inventive step is involved, however, in defining these needs and choosing the monitor and/or control arrangement accordingly.

5. The Board observes in this context that the read-after-write arrangement provides the possibility of continuously monitoring and correcting the recording process in dependence of variations in the recording material. If no such variations are to be expected due to improvements in these materials, of which the person skilled in the art would be well aware, then such correction is not required and the read-after-write arrangement could be dispensed with, at least for this purpose. Accordingly, the claimed method does not provide such a correction.
6. The problem with which the present application is concerned is that of producing a faithful (i.e. distortionless) recording of signals, irrespective of the threshold level of the recording material, as can be inferred from page 1, line 23 - page 2, line 1 of the description.
7. A recording method of the kind specified in the preamble of Claim 1 is also known from JP-A-539 101. The document deals mainly with photosensitive recording materials but it is stated that also materials can be used where physical variations such as deformation, evaporation, perforation, represent the recorded information. Referring to Figure 1, it is stated that the best recording results are obtained when the maxima and minima of the intensity of the light beam are symmetrical with respect to the photosensitive level of the material to be recorded upon, which means that

the average beam intensity should be equal to the sensitive level of the recording material. The expression sensitive level corresponds to the expression threshold level used in the present application. Under the condition stated above, a duty cycle of 50% results which causes substantially no second harmonic component.

8. The JP document then describes a read-after-write arrangement for detecting variations in the sensitive level of the recording material and varying the write laser output so as to maintain the condition referred to.
9. It will be clear, however, to the person skilled in the art, that where no substantial variations in the threshold level are expected it is not necessary to use a feedback circuit for detecting such variations, but that it would suffice to set up the writing arrangement so that initially the average beam intensity is equal to the sensitive level.
10. The person skilled in the art being aware of the prior art, which includes JP-A-539 101, would obviously try to design the method according to FR-A-2 218 612 so that the desirable condition known from the JP document would be fulfilled. As this requires, as said before, that the average intensity of the modulated beam be equal to the threshold value of the recording material to be used, he would therefore be led to choose as the reference level in the stabilising circuit known from the FR document the threshold intensity of the material.
11. The Board notes in this respect that it is clearly explained in the description of the present application that indeed the average beam intensity level is made equal to the threshold level (page 13, lines 21-34; page 33, lines 3-5) and that by setting the potentiometer 236 in the

stabilising circuit 48 at the said level, a duty cycle of 50% is obtained (page 17, lines 27-36; page 33, lines 13-21). The circuit 48 as such is identical to the circuit 44 used in the recording method according to FR-A-2 218 612.

12. The Appellant has argued that in the examination for inventive step, prior art documents must be read as a whole and that it is not permissible to select passages from each of them in the light of the teachings of the application under examination. The Board cannot find any support for this general statement in the EPC, in particular its Articles 54 and 56. When considering whether there is inventive step the examining instance is bound to form itself an opinion on the question of what the person skilled in the art would be taught by the prior art documents and whether he would, under the circumstances of the case, be expected to combine certain documents either as a whole or in part. In the view of the Board it has to be assumed that a person reading a document pertaining to the art in which he is skilled is capable of distinguishing between a general concept contained in the document and a particular way described to put this concept into effect. Equally, where a prior art document discloses several technical features in combination he must be assumed to be capable of distinguishing between those features which are relevant to the problem he wishes to solve and those features which are not relevant in this respect.
13. In the present case, the Board, for the reasons already set out in paragraphs 2-9 above, is of the opinion that the person skilled in the art would be expected to combine parts of documents FR-A-2 218 612 and JP-A-539 101 so as to arrive at the claimed invention.

14. Although the Board has some doubts whether this choice alone would suffice to obtain the desired result of a 50% duty cycle and if not a corresponding choice would have to be made for the intensity of the unmodulated beam, this question can be left undecided as the Appellant made it clear at the oral proceedings that he did not wish to limit the claims as filed on 11.08.84 in any way.
15. On the basis of the foregoing considerations the Board concludes that the subject-matter of method Claim 1 does not involve an inventive step so that this claim is unallowable. The same applies to the apparatus Claim 6.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

S. Fabiani

P.K.J. Van den Berg