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Anmeldenummer / Filing No / N^o de la demande : 79 302 670.9

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Bezeichnung der Erfindung: System and apparatus for centering a light beam
Title of invention: on an information track
Titre de l'invention :

Klassifikation / Classification / Classement : G 11 B 21/10

ENTSCHEIDUNG / DECISION

vom / of / du 9 January 1989

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

DISCOVISION ASSOCIATES

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step (denied) - obvious
implementation"

Leitsatz / Headnote / Sommaire

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Boards of Appeal

Office européen
des brevets

Chambres de recours



Case Number : T 272/86 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 9 January 1989

Appellant :
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Decision under appeal : Decision of the Opposition Division of the European Patent Office given on 29 April 1986 and notified on 23 June 1986 revoking European patent No. 11990 pursuant to Article 102(1) EPC.

Composition of the Board :

Chairman : P. Ford

Members : W.B. Oettinger

Y. van Henden

Summary of Facts and Submissions

- I. The Appellant is the Proprietor of European patent no. 11990 based on European patent application no. 79 302 670.9 filed on 22 November 1979 claiming a priority of 24 November 1978.
- II. Following an admissible opposition, in which, inter alia, the following prior art references were cited:

- (R1) GB-A-1 483 161
- (R3) US-A-4 063 287
- (R4) Translation of JP-Kokai-49-94304
- (R5) IEEE Journal of Solid State Circuits SC-3 no. 4 (December 1968) pages 373 to 380
- (R7) Abstract of JP-Kokai-53-37 360
- (R8) US-A-3 673 412
- (R10) DE-A-2 614 312

the Opposition Division of the European Patent Office revoked the patent at the end of oral proceedings, held on 29 April 1986, for the reason that the subject-matter of Claim 1 filed on 7 April 1986 lacked an inventive step having regard to R4, R3 and R7, and that the same applied to the independent Claim 6 as published, this claim being even broader in scope.

These claims read as follows:

"1. A tracking system for centering a reading beam on an information track on a disc, for use in a disc player for deriving a modulated light signal from the track, comprising a first transducer (32) for moving the beam radially; a second transducer (36) for deriving a modulated light signal from energy reflected from the

disc; means (60) for generating an oscillatory dither signal for application to the first transducer, means for obtaining an intermediate signal indicative of the effect of dither on said modulated light signal; means for deriving from said intermediate signal and from the dither signal an error signal for application to the first transducer; characterised by a band-pass filter (68) for obtaining the intermediate signal (figure 4d) from the modulated light signal, and an inverter (72) for deriving from the intermediate signal an inverted intermediate signal, and characterised in that the error signal deriving means has the intermediate signal and the inverted intermediate signal continuously available and includes a switch (74) responsive to the instantaneous polarity of a signal derived from the dither signal and arranged to couple to an output alternatively components from the intermediate signal or components from the inverted intermediate signal to derive the error signal.

6. A method for controlling tracking in a disc player having a reading beam for deriving a modulated light signal from an information track on the disc, to centre the beam on the track as closely as possible; said method comprising the steps in which the beam is caused to dither radially by an oscillatory dither signal, an intermediate signal is obtained indicative of the effect of the dither signal on the modulated light signal; and an error signal is derived from the intermediate signal and from the dither signal and is used to control the mean radial beam position; characterised in that the modulated light signal is band-pass filtered to obtain the intermediate signal, an inverted intermediate signal is derived from the intermediate signal, and the error signal is derived from components of the intermediate signal and components from the inverted intermediate signal determined in dependence

on the instantaneous polarity of a signal derived from the dither signal."

- III. In a fully reasoned decision, dated 23 June 1986, the Opposition Division specified that, in its opinion, it was obvious to implement the "synchronous rectifier" of R4 by the "synchronous demodulator" of R7, thus arriving at the subject-matter of Claims 1 and 6.

It drew further, in effect, a similar conclusion for the dependent Claims 2 to 5 and 7 to 10 as published.

- IV. On 18 August 1986, the Patentee filed an appeal against the revocation. The appropriate fee was paid three days before.

On 28 October 1986, the Appellant filed a statement of grounds of appeal.

- V. In that statement of grounds, he argued essentially as follows:

In the absence of a clear teaching in R7 that the transistor pairs of its synchronous demodulator operate as a switch, they can perfectly well be operated as an analogue multiplier. The transistor pairs must be assumed to be unsaturated differential amplifying stages progressively biased up and down or down and up.

So, even if the combination of the teachings of R4 and R7 were assumed to be obvious, in the resulting system there would be no switch as demanded by the claimed invention.

In addition, the claimed invention differs from the prior art also by the responsiveness of the switch to the

instantaneous polarity of a signal derived from the dither signal.

VI. It follows from the Appellant's submissions that he requests to set aside the decision under appeal and maintain the patent as amended, i.e. on the basis of Claim 1 filed on 7 April 1986 and the other patent documents as published.

VII. On 5 February 1987, the Respondent cited in addition:

(R13) US-A-3 241 078,

but on 10 March 1988 he withdrew his opposition.

VIII. In a communication pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal, the Board expressed its provisional view that, in accordance with the opinion of the Opposition Division, the subject-matter of Claims 1 and 6 lacks an inventive step having regard, in particular, to R4 and R7, and that this view appeared confirmed by R13.

IX. In response, the Appellant stated that he disagreed strongly with this view but added nothing to his earlier submissions.

X. Oral proceedings, due to take place on 9 December 1988, were cancelled on the Appellant's request filed on 30 November 1988.

Reasons for the Decision

1. The appeal is admissible.

It complies, inter alia, with Rule 64(b) EPC as the notice of appeal must be taken to mean that the Appellant requests that the decision under appeal be cancelled in its entirety.

The Patentee's appeal against the decision to revoke his patent and his request to set aside this decision are not affected by the Respondent's having withdrawn his opposition.

2. The amendments made to Claim 1 comply with Article 123(2) and (3) EPC and are therefore admissible.
3. Further, the subject-matter of all claims is new, as will be immediately apparent from the following considerations on the question of inventive step.
4. However, in the opinion of the Board, the subject-matter of Claim 1 lacks an inventive step as will be set out below:
 - 4.1 R4 is considered to be the prior art document coming nearest to the claimed invention.

It represents the prior art having all features defined in the precharacterising portion of Claim 1.

In the system known from R4, the "means for obtaining an intermediate signal" is implemented by band-pass filter (19) and the "means for deriving ... an error signal" is implemented by "synchronous rectifying circuit" (38).

- 4.2 Apart from the fact that thus apparently, in contravention of Rule 29(1)(a) and (b) EPC, the first characterising feature of Claim 1 is part of the prior art defined in the precharacterising portion of Claim 1, it follows that the

claimed invention differs from that prior art only by the feature that the "synchronous rectifying circuit" is implemented by the claimed inverter (72) and switch (74) of figure 2 with the function defined in the remaining characterising features of Claim 1.

- 4.3 For the person skilled in the art of electronics, in particular high frequency technology, it is absolutely clear that there is no difference of principle between a "synchronous rectifying circuit" and a "synchronous demodulator". These terms specifying that an AC signal is rectified or demodulated by means of a reference signal of nominally the same frequency rather than by means of an ordinary detector or demodulator relying on the one-directional conducting properties of an element like a diode.
- 4.4 It is therefore clearly obvious to implement the "synchronous rectifying circuit" or R4 (38) by the "synchronous demodulator" of R7.
- 4.5 According to paragraph "Constitution" of R7, the demodulator comprises differential amplifying transistor stages (Q2, Q2'; Q3, Q3') expressly performing a "switching operation": the input signal V1 is switched by synchronous signal V2. Thus, whether or not the differential amplifiers may be operated in an unsaturated state so that the demodulator may operate in a more or less "analog" way, R7 clearly teaches that a switching function is aimed at or even, at least approximately, achieved.
- 4.6 This is consistent with the teaching of R13, also relating to a synchronous detector or demodulator working as a switch, as was correctly pointed out in the Respondent's letter filed on 5 February 1987.

- 4.7 The obvious implementation of the "synchronous rectifying circuit" of R4 by the "synchronous demodulator" of R7 thus results, apart from the other features, in a "switch" as claimed in Claim 1.
- 4.8 The Appellant's submission concerning an additional distinguishing feature cannot be accepted.

According to R4, the "synchronous rectifying circuit" 38 is fed by the band-pass filtered (19) intermediate signal derived (15) from the reflected light signal (33), on the one hand, and controlled by the phase-adjusted (17) dither signal (from 18), on the other.

As the "synchronous demodulator" of R7 also switches, with the synchronous signal V2, components and inverted components derived (via Q1 and Q1') from the input signal V1, a corresponding implementation of the "synchronous rectifying circuit" 38 of R4 will do the same. This, however, means that it is only the polarity of the dither signal and not its amplitude to which the switch is responsible.

5. As, for these reasons, Claim 1 is not allowable, Claim 6 must fall for essentially the same reasons.

This claim only recites the function of the tracking system of Claim 1 in terms of the function of the individual components of that tracking system.

6. In this situation, there is no basis for the dependent claims. These cannot therefore be allowable either and the decision under appeal must, in effect, be confirmed.