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Bezeichnung der Erfindung: Photoelectric densitometer system

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : G01J 3/50

ENTSCHEIDUNG / DECISION

vom / of / du 28 March 1988

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Tobias, Philip Emanuel

Einsprechender / Opponent / Opposant :

- I. MAN-ROLAND Druckmaschinen AG
- II. Grapho Metronic Meß-und Regeltechnik GmbH
- III. Gretag AG

Stichwort / Headword / Référence :

EPO / EPC / CBE Articles 56, 54(2)

Kennwort / Keyword / Mot clé :

Inventive step (no);
obvious basic concept of problem and solution;
purpose indications in a claim.

Leitsatz / Headnote / Sommaire

Europäisches
Patentamt
Beschwerdekammern

European Patent
Office
Boards of Appeal

Office européen
des brevets
Chambres de recours



Case Number : T 287/86 - 3.4.1

D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 28 March 1988

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Decision under appeal : Decision of the Opposition Division of the
Patent Office dated 11 June 1986
the oppositions filed against Europea
No. 0 011 376 pursuant to Article 102

Composition of the Board :

Chairman : K. Lederer
Members : H. Reich
W. Moser

Summary of Facts and Submissions

- I. European patent 0 011 376 was granted on the basis of European patent application 79 302 185.8.

Claim 1 reads as follows:

"1. A photoelectric densitometer system for scanning successive coloured areas, which may be different in colour from one another, of a sample sheet, and sensing which colour is present at each area as well as the optical density of said areas as the scan proceeds, comprising a densitometer head (103) having a light source and at least one measuring channel including a colour filter and a photosensitive device responsive to reflected light passing through the filter to generate an electrical signal and scanning means (701 to 711) for causing the head to scan along the sample sheet, characterised in that the densitometer head (103) has three simultaneously effective measuring channels (51, 57; 53, 59; 55, 61), that for the purpose of scanning a sheet including colour swatches each comprising one of a limited set of the basic colours cyan, magenta and yellow, the filters for the three channels transmit red, green and blue light, respectively, that a memory (149, 151) is arranged to store data representing desired values of the optical density of each basic colour, and that the system also comprises computing means (129) receiving the signals from the head and arranged to identify the colour of a particular area being scanned, to address the memory (149, 151) to obtain stored data for that colour, and to compare the signals with the stored data, and a video display means (713) arranged to display the results of the comparisons."

Claims 2-6 are dependent on Claim 1.

- II. The grant of this patent was opposed by the present three Appellants on the ground of lack of inventive step and by one of them, the Appellant: "Gretag AG", additionally on the ground of lack of novelty. In the course of the opposition proceedings the Appellants (Opponents) cited in total 18 documents (including the Cosar Operating Manual), of which finally only the following two have been regarded as particularly important:

US-A-3 376 426 (D13)

Prospectus: Cosar-61 Smart Densitometer (D17).

Furthermore, a Cosar-61 densitometer was demonstrated during an oral proceedings before the Opposition Division.

The Opposition Division, after having, on the basis of Article 114(1) EPC, examined among others the documents D13 and D17, which have been filed after the expiry of the opposition period of nine months according to Article 99(1) EPC, rejected the oppositions. It took the view that the subject-matter of Claim 1 of the impugned patent involved an inventive step for the following reasons: Document D17 does not show scanning means and simultaneously effective measuring channels. Document D13 does not identify the colour in order to address the memory to obtain stored data for the desired value of the identified colour. The combination of documents D13 and D17 leads away from scanning swatches of the three basic colours.

- III. (a) The three Appellants (Opponents) lodged an appeal against this decision. Their Statements of Grounds contain arguments for lack of inventive step with regard to documents D13 and D17, as well as 9 new

documents concerning the Cosar-61 densitometer, and further introduced 4 new documents.

Additionally, the Appellant "Gretag AG" maintains his view already expressed in his notice of opposition, namely that all features of Claim 1 of the impugned patent are known from document D13, in particular because the circuit in Figure 12 of D13 can be referred to as "computing means", see the notice of opposition of the Appellant "Gretag AG", pages 5-8.

- (b) Furthermore, the Appellant "Gretag AG" puts forward arguments pointing out that the subject-matter of Claim 1 of the impugned patent differs from the known Cosar-61 densitometer, in particular as described in document D17, only in that there is provided for scanning means causing the head to scan along the sample sheets, whereas the known densitometer is to be manually displaced for scanning; see the Statement of Grounds of the Appellant "Gretag AG", pages 7-10 and its addendum page 7. He takes the view that in the Cosar-61 densitometer the addressing of the memory in order to obtain the desired stored values of the optical densities on the basis of the colour identified by the computing means is imperative in the determination of the difference between stored and measured density value because there does not exist a fixed relation in the apparatus according to D17 between the displayed colour and the measured coloured area via its position on the sheet to be scanned; see the Statement of Grounds of the Appellant "Gretag AG", page 17, paragraph 4.

IV. All three Appellants request to set aside the decision under appeal and to revoke the impugned patent. In

addition, oral proceedings are requested by the Appellants "MAN Roland" and, auxiliarily, "Gretag AG".

- V. The Respondent (Patentee) defends novelty and inventive step of the subject-matter of Claim 1 of the impugned patent in his response to the three Statements of Grounds of Appeal by arguments, the essence of which can be summarised as follows:
- (a) The apparatus known from document D13 does not scan a line of swatches of basic colours on a sheet, but any mixed colour on a moving continuous web, and points thus away from the present invention.
 - (b) Furthermore, the apparatus known from document D13 does not have computing means arranged to identify a basic colour of a particular area or to address a memory according to that colour. Thus, document D13 does not suggest the idea that the colours of swatches should be identified by computing means.
 - (c) The Cosar-61 densitometer is a hand-held instrument with no scanning means, and with a filter wheel combined with only one photosensitive device, so that its measuring channels for the three basic colours do not work simultaneously but sequentially one after the other. Moreover, the Cosar-61 densitometer is not provided with a video display.
- VI. The Respondent did not make any formal request in the appeal procedure, but on the basis of his arguments mentioned above in point V it is assumed that he maintains his request made in the opposition proceedings that the patent be maintained unamended and, consequently, that the appeal be dismissed. He did not request oral proceedings to be held in the appeal procedure.

Reasons for the Decision

1. The appeal is admissible.

2. Novelty.

2.1 The Board agrees insofar to the Appellants' view mentioned in point III as it considers to be already known from document D13 a "photoelectric densitometer system" with the following features of Claim 1:

- (a) "a densitometer head having a light source and at least one measuring channel including a colour filter and a photosensitive device responsible to reflected light passing through the filter to generate an electrical signal"; see document D13, densitometer head: 47 in Figure 11; light source: 21, 22; and for instance colour filter: 32 and photosensitive device: 31;
- (b) "scanning means for causing the head to scan", see Figure 13, scanning means: 152, 153, 155;
- (c) "the densitometer head has three simultaneously effective measuring channels", see the three measuring channels 32, 31 for violet, 40, 41 for red, and 45, 46 for green. The fact that these three channels are simultaneously effective follows from dichroic mirrors 29, 33, 38 and reflecting dichroic filter 42 in combination with column 7, lines 21-25, stating that each known phototube is connected to an individual amplifier similar to the one shown in Figure 12;

- (d) "for the purpose of scanning a sheet including colour swatches each comprising one of a limited set of the basic colours cyan, magenta and yellow, the filters for the three channels transmit red, green and blue light, respectively", see column 4, line 67 to the bottom of column 4; column 6, line 67 with regard to the red transmitting filter 40; column 6, lines 71 and 72 with regard to the green transmitting filter 45; column 6, lines 55-57 with regard to the blue transmitting filter 32, whereby it follows from column 4, lines 59-61, that the terms "violet" and "blue" in document D13 are used synonymously.

It is generally accepted that any indication of a purpose in a device claim has to be interpreted to the effect that the claimed device has indeed to be suitable for the indicated purpose, but not that it is limited to this purpose. Thus, the additional indication of the purpose of the filters claimed in feature (d) above, i.e. that the material to be scanned is "a sheet including colour swatches, each comprising one of a limited set" of said basic colours, is not regarded to be a feature which characterises or limits the structure of the claimed densitometer system. The analytical efficiency of said red, green and blue light transmitting filters for the basic colours cyan, magenta and yellow is independent from the kind of colour pattern to be scanned;

- (e) "a memory is arranged to store data representing desired values of the optical density of each basic colour"; see the memory 156 in Figure 13 in combination with the indications contained in column 9, line 65 to column 10, line 9 regarding three

of the four individual recording and pickup heads 158 for the desired values of the optical density of each basic colour; and

(g) "a video display means arranged to display the results of the comparisons" of the measured signals with the stored data, see column 11, lines 17-35 with regard to the video display means 217 in Figure 14.

2.2 Moreover, the Board is satisfied that the photoelectric densitometer system known from document D13 is suitable for the purpose indicated in Claim 1, i.e.: "for scanning successive coloured areas, which may be different in colour from one another, of a sample sheet, and sensing which colour is present at each area, as well as the optical density of said areas as the scan proceeds"; the suitability for "scanning of a sample sheet" instead of a moving web is self-evident. As can be seen from Figure 13, there is no mechanical connection between scanning means 152 to 155 and web 25; the suitability of the known device for sensing which colour is present follows from the provision of individual measuring channels according to Figure 12 with individual meters 94 for each basic colour as can be derived from column 7, lines 24-25, and from the provision of the "suppression matrix" described in particular in column 5, lines 7-26 and column 8, lines 38-58. The suitability of the known device for sensing the density of a colour follows from column 8, lines 15-18.

2.3 For the above reason, the Board is satisfied that the photoelectric densitometer system claimed in Claim 1 differs from that known from document D13 only in the fact that the claimed system additionally comprises:

(f) "computing means receiving the signals from the head and arranged to identify the colour of a particular

area being scanned, to address the memory to obtain stored data for that colour, and to compare the signals with the stored data."

In the Board's view, the description of the impugned patent teaches clearly that the term "computing means" should be interpreted in the sense of "digital computer means". The means identifying the colours and comparing the measured and stored density values in document D13 are not digital computer means but realised by a conventional analog electrical circuit.

2.4 The Board regards document D17 as belonging to the state of the art in the sense of Article 54(2) EPC. A prospectus for a product is usually accessible to the public since the impressed year of its copyright (1977). This fact was not contested by the Respondent. However, in the Board's opinion, document D17 does not destroy the novelty of Claim 1 in view of the technical differences mentioned by the Respondent in point V-(c) above.

2.5 The further documents submitted in due time by the Appellants or mentioned in the European search report are more remote from the subject-matter of Claim 1.

Among the late filed documents only document D17 has to be taken into account. The remaining of these documents have been disregarded by the Board pursuant to Article 114(2) because their consideration would not lead to a different assessment of novelty or inventive step.

2.6 Consequently, the subject-matter of Claim 1 is novel in the sense of Article 54 EPC.

3. Inventive step.

3.1 In the Board's opinion, the closest prior art is that disclosed in document D13; see also point 2.1 above. From a comparison of what is achieved by the photoelectric densitometer system disclosed in document D13, and that forming the subject-matter of Claim 1 of the impugned patent, it emerges that the objective technical problem to which said subject-matter provides a solution is to increase the rapidity - i.e. the operating and reading speed - of the known automatic densitometer; see also the description of the impugned patent, column 2, lines 11 and 12.

The additional objects indicated in the description column 2, lines 13 to 16 cannot be included into the formulation of the technical problem. The displayed output of the densitometer known from document D13 already enables an operator to take prompt corrective action so as to minimise waste. The check, whether the optical densities remain within tolerance, is not realised by the subject-matter of Claim 1 but by that of Claim 2.

In the Board's view, the task to improve the working speed of a means which displays a variance - i.e. the difference between a measured and a desired value, such as the claimed densitometer system - belongs to the normal routine of a skilled person who works in practice. For this reason no contribution to inventive step is to be found in the recognition of the technical problem.

3.2 In order to arrive from the densitometer system disclosed in document D13 at the subject-matter of Claim 1, a skilled person has to provide in this known system the features of distinctive characteristic (f) mentioned above in point 2.3.

- 3.3 The Board shares the view of the Appellants, expressed in their Statements of Grounds of Appeal, that the essential features of distinctive characteristic (f) are known from document D17; see also point III-b above:

The photoelectric densitometer system of document D17 is provided with "computing means" in the sense of computer means as indicated in subscript of the figure on page 2 of document D17. This figure also shows that the known computing means "receive signals from the head". The fact that the known "computing means" is arranged "to identify the colour of a particular area being scanned" is indicated on page 2, left column, lines 15-18, and that it is "arranged to obtain stored data for that (identified) colour and to compare the (measured) signals with the stored data" is indicated on page 2, left column, lines 6, 7 and 26-32.

The remaining feature in distinctive characteristic (f), that the known computing means is arranged to "address the memory" to obtain stored data for that (identified) colour, is not explicitly stated in document D17. However, in the Board's view this fact represents a gap in the teaching of document D17, the filling of which readily occurs to the skilled person, because no computer could compare newly entered (measured) data with data already stored in a memory without addressing this memory.

- 3.4 The Board regards it as obvious to use the computing means and the memory of document D17 in the system of document D13 and to arrive thus at the subject-matter of Claim 1, for the following reasons: on page 1, left column, lines 1-3, document D17 teaches explicitly that a use of computing means (with a memory) in a photoelectric densitometer system results in a higher working speed. Thus, document D17 directly points out to a skilled person the basic

concept of the problem and the solution underlying Claim 1. Moreover, the Board sees no difficulties whatever in said use which could arguably be considered as surpassing the normal abilities of a skilled person.

3.5 The Respondent's comments on the Appellants' view of obviousness of Claim 1 with regard to documents D13 and D17 consist mainly of arguments based on differences between the subject-matter of Claim 1 and that of documents D13 or D17, respectively. However, these differences have no bearing on the individually known components, aggregated in function of their use in a densitometer system according to Claim 1, and their properties. It has already been said in point 2.1.(d) and 2.2 above that, in the Board's view, the system disclosed in document D13 is also able to scan a line of swatches of basic colours on a sample sheet. The Board agrees with the Respondent in that the idea that colours of swatches can be identified by "computing means" is not known from document D13. But it is known from document D17 as demonstrated in point 3.3. Likewise, the Board admits that the simultaneous working of measuring channels for the three basic colours and a video display are not known from document D17. But they are both known from document D13 as demonstrated in points 2.1(c) and (g).

A sequential processing in computing means - such as known from document D17 - of signals outputted by measuring channels is not contradictory to a simultaneous working of the measuring channels - such as known from document D13. Indeed, in the embodiment of the impugned patent a sequential processing of signals from the three simultaneously working measuring channels is equally used; see the description, column 7, line 2 to column 8, line 28, see in particular the use of a multiplexer 105. Therefore,

it is considered obvious to a skilled person to utilise computing means as known from document D17 in a densitometer system as known from document D13.

- 3.6 For the reasons set out above, the subject-matter of Claim 1 does not involve an inventive step within the meaning of Article 56 EPC. Consequently, the maintenance of the impugned patent with Claim 1 is prejudiced by the ground for opposition mentioned in Article 100(a) EPC.

Claims 2-6 cannot be maintained because of their dependence on Claim 1.

4. Thus, pursuant to Article 102(1) EPC in conjunction with Rule 66(1) EPC, the Board has to revoke the impugned patent.
5. Under these circumstances, the requests for oral proceedings presented by two Appellants may be disregarded for lack of legal grounds.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The European patent is revoked.

The Registrar:

F.Klein

The Chairman:

K.Lederer