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D E C I S I O N
of 29 September 2000

Case Number: T 0436/95 - 3.4.2
Application Number: 81902997.6
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IPC: G02B 5/32, G03H 1/04
Language of the proceedings: EN

Title of invention:
DIFFRACTIVE COLOR AND TEXTURE EFFECTS FOR THE GRAPHIC ARTS

Patentee:
McGREW, Stephen Paul

Opponent:
(01) GAO Gesellschaft für Automation und Organisation mbH
(02) American Bank Note Holographics, Inc.

Headword:
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Relevant legal provisions:
EPC Art. 56, 111(2), 112(1)

Keyword:
"Inventive step (after amendments - yes)"
"Earlier decision of a board in the same case - *ratio decidendi*"
"Enlarged Board - referral (no)"

Decisions cited:
T 0021/89, T 0078/89, T 0079/89, T 0055/90, T 0757/91,
T 0720/93, T 0113/92, T 1063/92, T 0153/93, G 0001/97

Catchword:
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Case Number: T 0436/95 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 29 September 2000

Appellant: GAO Gesellschaft für Automation und
(Opponent 01) Organisation mbH
Euckenstrasse 12
D-81369 München (DE)

Representative: Hirsch, Peter
Klunker, Schmitt-Nilson, Hirsch
Winzererstrasse 106
D-80797 München (DE)

Respondent: MCGREW, Stephen Paul
(Proprietor of the patent) 149-B Josephine Street
Santa Cruz
California 95060 (US)

Representative: Grünecker, Kinkeldey,
Stockmair & Schwanhäusser
Anwaltssozietät
Maximilianstrasse 58
D-80538 München (DE)

Other party: American Bank Note Holographics, Inc.
(Opponent 02) 500 Executive Boulevard
Elmsford
New-York 10523 (US)

Representative: Blumbach, Kramer & Partner GbR
Patentanwälte
Alexandrastrasse 5
D-65187 Wiesbaden (DE)

Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 21 March
1995 concerning maintenance of the European
patent No. 0 064 067 in amended form.

Composition of the Board:

Chairman: R. Zottmann
Members: A. G. Klein
M. J. Vogel

Summary of Facts and Submissions

- I. Three oppositions were filed against the grant of the European patent No. 0 064 067 with the application No. 81 902 997.6. The Opposition Division first revoked the patent.

In the subsequent (first) appeal proceedings, the (first) Board, in its decision T 884/91, ruled that the single claim complied with Article 123(2) and (3) EPC and that its subject-matter was novel in the meaning of Article 52(1) EPC. Further, he decided that the withdrawal of the opposition of opponent III had, under established case law, no influence on the appeal procedure resulting in the opponent III's ceasing to be a party to the appeal proceedings as far as the substantive issues were concerned. Considering that the Opposition Division *inter alia* did not deal with the issue of inventive step, the Board remitted the case to the Division.

At the end of the resumed opposition proceedings, the Division decided that admissibility of the amendments of the claim and novelty of its subject-matter had been decided by the Board and that the patent as amended met the provisions of the EPC.

- II. The appellant (opponent I) lodged an appeal against said decision referring to documents

D15: Optical Engineering, September/October 1980, vol. 19, No. 5, pages 666-678; and

D16: Applied Optics, vol. 9, No. 12, 1970, pages 2812-2813.

The participant (opponent II) did not file any submissions or requests during the (second) appeal proceedings.

The participant, as announced in his letter following the summons to oral proceedings, did not appear at said oral proceedings.

At the end of said oral proceedings, the decision of the Board was announced.

III. During the oral proceedings the appellant requested that, if the Board refused to resume the discussion of novelty of the claim, the following question should be referred to the Enlarged Board of Appeal: "Kann eine Beschwerdekammer die Frage der Neuheit eines Anspruchs im Lichte einer bestimmten Entgeghaltung erneut diskutieren, auch wenn die Beschwerdekammer in anderer Besetzung in einer früheren Entscheidung (in derselben Sache) bereits festgestellt hat, daß der Anspruch neu sei, dabei aber die bewußte Entgeghaltung nicht berücksichtigt hat und den Fall zur Diskussion der erfinderischen Tätigkeit an die Einspruchsabteilung zurückverwiesen hat?"

The Board rejected to resume the discussion of novelty of the claim with respect to the prior art documents hitherto introduced and rejected said request.

At the end of the oral proceedings, the appellant requested that the decision under appeal be set aside and the patent be revoked.

The respondent (patentee) requested that the appeal be

dismissed and that the patent be maintained with the documents on which the decision under appeal was based.

IV. The single claim reads as follows:

"A method for generating a diffractive graphical composition by recording interference patterns on at least one region of a photosensitive medium, forming said patterns as off-axis holograms by the interference between a reference wavefront and an object wavefront such that the object wavefront for said at least one region has a relatively wide range of directions of incidence at each point on said region in a first axis and a relatively narrow range of directions of incidence at each said point in said region in an axis orthogonal to the first axis, said object wavefront for said region being derived from a random diffuser which is not a hologram, without a lens being interposed between said diffusor (200) and said photosensitive medium (210)."

The claim has been amended during said resumed opposition proceedings and differs from the claim on which decision T 884/91 was based in that "that said object wave for said region is derived" has been replaced by "said object wave for said region being derived".

V. The appellant's arguing is summarized as follows:

Novelty has not been finally decided by the earlier decision of the Board and, therefore, is still open for discussion. Only the order of decision T 884/91 is relevant; there the question of novelty of the claim is not mentioned. The passage dealing with novelty is very

general and thus cannot be a final judgment on novelty of the amended claim even if the case is remitted to the Opposition Division for examination of inventive step. Said decision was juridically incorrect since not all prior documents were dealt with. D16 was discussed before said decision only with respect to a claim different from the present claim.

According to Figure 30 of D15, the object wave is derived from the diffuser. The only difference is that in the claimed method an imaging lens is missing. According to D15, an information is to be transmitted. If this is not necessary and the skilled person tries to simplify the method and to produce only coloured regions, he would omit the lens system. Moreover, D16 would hint at such a step.

In the method according to D16, as shown in Figure 1, an object is used producing a silhouette when viewing the hologram, but in a certain region - shown as region 3 in a diagram annexed to the statement of the grounds of appeal - the interference pattern is produced by beams not impinging on the object and thus by beams not transmitting informations about the object. If the ball shown in Figure 1 is positioned sufficiently near to the record medium, such regions do exist. In the method of D16, the silhouette is important, but if the skilled person intended to restrict the image to coloured effects, he would omit the object and thus arrive at the claimed method.

VI. The respondent's arguing is summarized as follows:

The first Board has already ruled that the subject-matter of the present claim is novel. Prior art

document D16 was discussed during the first appeal proceedings. An explicit mention of said document was not necessary. Therefore, novelty of the claim with respect to D16 is clearly *ratio decidendi* of decision T 884/91. Article 111(2) clearly states that in this case the findings of said decision are binding.

The lens system to image the object is essential to the method of document D15. If the skilled person wished to improve the method, he would consider using a more sophisticated lens system.

D16 does not teach how to obtain a graphical composition in the sense of the description of the attacked patent according to column 6 from line 27 onwards. The presence of an object is essential to the method which explicitly aims at imaging and reconstructing an **object**. The drawings are only schematic and no information can be taken from D16 that there exist areas not carrying object informations. On the contrary, the three-dimensional object scatters light over the whole recording plate.

Reasons for the Decision

1. *Appeal proceedings*

Opponent II is party (participant) to the appeal proceedings pursuant to Article 107 EPC, even though he did not file any submissions or requests during the present appeal proceedings.

2. *Admissibility of the amendments of the claim and*

novelty; binding effect of the earlier decision

T 884/91

- 2.1 The questions of admissibility of the amendments of the claim on which the decision of the first appeal proceedings was based (requirements of Article 123(2) and (3) EPC) and novelty of its subject-matter against the prior art on file were decided in the affirmative by the Board in the first appeal proceedings (see decision T 884/91, particularly sections 3.1 and 3.2).

The present claim differs from said claim only in that "that said object wave for said region is derived" has been replaced by "said object wave for said region being derived". Apparently, this amendment constitutes only a grammatical correction and thus does not change the facts on which said decision was based. This has not been disputed by the parties.

Thus, said *items* are *res iudicata* also for the present claim and examination of these points could not thereafter be reopened. Moreover, all findings of facts on which the decision rested (*ratio decidendi*) are not open to reconsideration and are thus equally binding. The provisions of Article 111(2) EPC are clear in this respect.

- 2.2 The appellant contested that with the earlier decision the question of novelty of the present claim with respect to D16 was finally answered (see sections III and VI above).

In the Board's view, the prior art disclosed in D16 was certainly considered in the first appeal proceedings. Said document was discussed during the proceedings and

mentioned in the summons to the oral proceedings. Later in the decision, it was stated in detail that and why the subject-matter of the claim was novel over the disclosure of four - of thirty-five hitherto introduced - explicitly cited documents not comprising D16 and that the other prior art documents did not come closer to the claimed method than those cited. Said claim was - except for a minor grammatical correction - identical with the present claim. Thus, it is manifest that the first Board considered the prior art of D16 when judging novelty of said claim. Moreover, it is established case law that decisions issued by a board of appeal in the same case are final and without appeal, so that no EPO body - not even a board of appeal and not even in case of procedural violation in the proceedings having led to said decision - can take a different decision on facts which have already been decided (see e.g. T 21/89, T 78/89, T 79/89, OJ EPO 1992, 283, T 55/90, T 757/91, T 113/92, T 1063/92, T 153/93 and G 1/97 OJ EPO 2000, 322).

The question to be referred to the Enlarged Board of Appeal as formulated in German by the appellant can be translated as follows:

"Can a board of appeal resume discussion of the question of novelty of a claim in the light of a certain prior art document, even if the board of appeal in a different composition in an earlier decision (concerning the same case) ruled that the claim was novel, thereby not taking into account said document and remitting the case to the opposition division for discussion of inventive step?".

The appellant in his question stressed the changed

composition of the two Boards. Article 111(2) EPC determines the consequences of a decision of a board of appeal for the subsequent proceedings. Said article and also the other provisions of the EPC do not restrict the binding effect to such cases where the composition of the board remains unchanged. Thus the changed composition of the Board in the two appeal proceedings is of no consequence for the binding effect of said decision.

The *ratio decidendi* of a decision of a board of appeal are not contained in the order at the end of the decision but in the section "Reasons for the Decision". Thus it is of no importance for their binding effect that the question of novelty is not mentioned in the order (see T 720/93).

2.3 Since the (first) Board, in its decision T 884/91, did take into account document D16 when judging novelty of the subject-matter of the claim, the factual basis of the question to be referred to the Enlarged Board of Appeal is not correct. Therefore, the Board did not see any reason to refer the question submitted by the appellant to the Enlarged Board of Appeal.

3. *Inventive step*

3.1 One-step rainbow holography is known from D15 (see there particularly section II). An application of this technique is the archival storage of colour films (see section IV). According to the arrangement of Figure 9, a colour film strip containing the colour images to be recorded is back illuminated by a fine diffuser. The so illuminated film is then imaged by a lens system through a narrow slit nearby the lens onto a plane

close to the holographic film. A collimated reference beam is used in the construction of the holograms. According to the arrangement of Figures 26 and 30 (see sections VIII and IX), a black and white object is transformed into a pseudocoloured hologram. The arrangement is similar to that of Figure 9. However, the (input signal) transparency (s) is directly irradiated with parallel laser light of different wavelengths. The object wave then passes through a spatial filter (F; H) for encoding and is subsequently imaged onto a plane diffuser (GrG1). The scattered light is then - just as in the arrangement of Figure 9 - imaged onto a photosensitive medium (H; Ph) in form of an off-axis hologram by a lens system (L₂) and narrow slit nearby the lens system. To produce a composition with three regions (in the example: pairs of letters) of different colours (Figure 32), three different holograms are recorded on said medium. The colours are produced by using different positions of the slit or by a change of the angle between the reference and object waves (see page 676 last but one paragraph and the paragraph bridging the columns of page 677). The forms of said regions can be obtained by using a suitable transparency (s), e.g. by appropriate masks.

Thus, the main difference of the above described methods of D15 with respect to that claimed is that an imaging lens system with a narrow slit nearby the lens system is used which is expressly excluded from the claimed method.

Prior art document D16 describes a method for producing silhouette holograms without vertical parallax. A narrow horizontal diffusor stripe (A) casts shadows of the opaque object (B) onto the photographic plate (C)

(see Figure 1). The object shown in the figures has a ball-like structure formed of apparently opaque narrow stripes with large openings between them through which said plate can be seen. The diameter is approximately one third of said plate and the distance between said plate and the object cannot be taken from the document but seems to be relatively low. The coherent reference beam from a point light source (F) on the opposite side of the emulsion with respect to the object is converged by a lens (E) and introduced through the rear surface by a cylindrical lens array (D), which focuses the beam to horizontal lines at the photographic plate. When the exposed and processed hologram (C) is illuminated by a vertical source of white light, a white real image reconstruction of the object in silhouette is obtained (see Figure 2).

Thus the main difference between D16 and the subject-matter of the claim is that in the method described in D16 a silhouette hologram is obtained by using an object between the diffusor and the photosensitive medium resulting in a three-dimensional image whereas the claimed subject-matter does not use such an object between the diffusor and the photosensitive medium.

Since only the method of document D16 obtains a holographic image without a lens system, this document represents the nearest prior art with respect to the claimed subject-matter.

- 3.2 The effect originating from the omission of an object between said nearest prior art and the claimed subject-matter is that graphical compositions having new visible effects are obtained.

The problem underlying the solution is thus to further develop the method known from the nearest prior art of D16 such that such compositions are formed.

- 3.3 Document D16 is concerned with silhouette holograms. Use of an object between the diffuser and the photosensitive medium is thus indispensable for the described method. The appellant - relying in particular upon an expert opinion by Mr Greenaway - submitted that in view of the close proximity of the object to the photosensitive plate, there are regions in the plate which are struck by the object wave from the diffuser without any information concerning the object. The Board, however, doubts that such regions would necessarily be generated since relative positions cannot be taken from the rather schematic drawings of D16. In addition, due to the scattering of light on the complex surfaces of the object and to the openings formed in it, it seems likely that all regions of said plate may receive information from the object. Anyway, omission of the object would totally change the essence of the method actually described in D16 and thus not be obvious for the skilled person, unless he knows the solution according to the attacked patent.

Furthermore, in view of the considerable differences between the methods of D16 on the one hand and D15 on the other hand - see section 3.1 above - the skilled person would not envisage combining the teachings of D15 with those of D16 to solve the problem.

- 3.4 Even if the skilled person started from the prior art of document D15, as suggested by the appellant he would not arrive in an obvious way at a method with all features of the claim, since the lens system for

imaging the object is an indispensable part of the methods described there. Omission of the imaging lens system is off-the-track. For the same reason as indicated in the preceding paragraph, the skilled person would not envisage supplementing the teaching of D15 with elements of the prior art disclosed in D16.

- 3.5 Therefore, the Board concludes that the subject-matter of the claim involves an inventive step as defined in Article 56 EPC.
4. In the result, the Board takes the view that the questions of admissibility of the amendments of the claim and of novelty of its subject-matter were finally decided (in the affirmative) by the earlier decision and that the claim complies with the remaining requirements of the EPC. Also the other documents of the patent comply with the provisions of the EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

P. Martorana

R. Zottmann