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**Datasheet for the decision
of 11 September 2019**

Case Number: T 1672/17 - 3.2.05

Application Number: 13152894.5

Publication Number: 2591922

IPC: B42D25/00

Language of the proceedings: EN

Title of invention:

Optically variable security device and method

Patent Proprietor:

De La Rue International Limited

Opponents:

Giesecke & Devrient GmbH
CCL Secure Pty Ltd

Relevant legal provisions:

EPC 1973 Art. 83
EPC Art. 123(2)

Keyword:

Sufficiency of disclosure (yes: main request, auxiliary requests 1 to 3)
Added matter (yes: auxiliary requests 1, 3, 5)
Remittal to the depart of first instance (yes)

Decisions cited:

T 0870/92, T 0593/09, T 1513/12



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Case Number: T 1672/17 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 11 September 2019

Appellant: De La Rue International Limited
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Representative: Gill Jennings & Every LLP
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Respondent I: Giesecke & Devrient GmbH
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Respondent II: CCL Secure Pty Ltd
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Representative: David James Fulton
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 26 May 2017
revoking European patent No. 2591922 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman	M. Pooock
Members:	O. Randl
	G. Weiss

Summary of Facts and Submissions

- I. The patent proprietor appealed against the decision of the opposition division to revoke European patent No. 2 591 922 ("the patent").

The opposition division was of the opinion that the main request and auxiliary requests 1 to 3 did not meet the requirements of Article 83 EPC, that auxiliary requests 4 and 5 contravened Article 123(2) EPC and that auxiliary request 5 also did not meet the requirements of Article 84 EPC. By *obiter dictum*, the opposition division indicated that auxiliary requests 4 and 5 appeared not to overcome the Article 83 EPC objection either.

Among the documents considered by the opposition division, the following are relevant to the appeal proceedings:

- D17: R. L. van Renesse, "Iridescent Optically Variable Devices: A Survey", in: R. L. van Renesse, *Optical Document Security*, 2nd edition, 1998, Boston, Artech House, pp. 349-386
- D19: J.-F. Moser, "Document Protection by Optically Variable Graphics (Kinegram)", in: R. L. van Renesse, *Optical Document Security*, 2nd edition, 1998, Boston, Artech House, pp. 247-262

Together with its statement of grounds of appeal, the appellant filed a document entitled "Annex 1".

- II. By letter dated 18 October 2017, respondent I requested a transfer of the opponent status from Giesecke & Devrient GmbH to Giesecke+Devrient Currency Technology GmbH.
- III. When the parties were summoned to oral proceedings to be held on 6 June 2019, the two respondents informed the board that they would not be taking part.
- IV. The board then decided to cancel the oral proceedings and to give its decision in writing.
- V. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained in amended form according to the main request or one of the five auxiliary requests filed together with its statement of grounds of appeal under cover of a letter dated 5 October 2017.

The respondents I and II (opponents 1 and 2) requested that the appeal be dismissed.

- VI. The independent claims of the main request read as follows:

"1. A security device comprising at least first and second superposed and differentiated diffractive or holographic optically variable effect generating structures (4, 4'), each having a surface relief microstructure, the second optically variable effect generating structure (4') being viewable through the first, characterized in that the first optically variable effect generating structure (4) comprises a substantially pure grating structure in combination with a high refractive index dielectric layer (5) and the second optically variable effect generating

structure (4') comprises one of a classical hologram, a zero-order diffractive device, or a Fresnel structure whereby the structures generate a visually integrated image."

"9. A method of manufacturing a security device, the method comprising providing at least first and second superposed and differentiated diffractive or holographic optically variable effect generating structures (4, 4'), each having a surface relief microstructure, whereby the second optically variable effect generating structure (4') is viewable through the first, characterised in that the first optically variable effect generating structure (4) comprises a substantially pure grating structure in combination with a high refractive index dielectric layer (5) and the second optically variable effect generating structure (4') comprises one of a classical hologram, a zero-order diffractive device, or a Fresnel structure whereby the structures generate a visually integrated image."

Claims 1 and 9 of the first auxiliary request differ from claims 1 and 9 of the main request in that "grating structure" has been replaced by "non-diffuse grating structure".

Claims 1 and 9 of the second auxiliary request differ from claims 1 and 9 of the main request in that the word "reflective" has been inserted before the expression "high refractive".

Claims 1 and 9 of the third auxiliary request differ from claims 1 and 9 of the first auxiliary request in that the word "reflective" has been inserted before the expression "high refractive".

Claims 1 and 8 of the fourth auxiliary request differ from claims 1 and 9 of the main request in that the feature "wherein the second optically variable effect generating structure (4') includes an opaque, reflective layer (5')" has been added.

Claims 1 and 8 of the fifth auxiliary request differ from claims 1 and 8 of the fourth auxiliary request in that "grating structure" has been replaced by "non-diffuse grating structure".

VII. The appellant argued as follows:

(a) Main request: sufficiency of disclosure

(i) "pure grating structure"

The term "pure" should be given its plain English language meaning, i.e. "clean, unsoiled, unmixed".

Column 8, lines 22 to 30 of the patent supplies further relevant information.

Minimal diffusion: the phenomenon is discussed in document D19. The skilled person would realise that Kinegram® devices produce minimal diffusion.

That Kinegram® structures also have no depth effects is clear from document D17, which is taken from the same textbook as document D19.

(ii) "visually integrated image"

This feature is sufficiently disclosed. The opposition division has misunderstood the meaning of

paragraph [0044] of the patent. In the feature under consideration, the two structures together generate a visually integrated image. The image obtained appears to be the result of a single structure, but it is not.

(b) First auxiliary request: added subject-matter

Support for the amendment is found on page 10, lines 19 and 20 of the original application. The skilled person would understand that a grating structure that exhibits "minimal diffusion" is a "non-diffuse" grating structure.

VIII. Respondent I (opponent 1) argued as follows:

(a) Admissibility matters

The board should not admit "Annex 1" as evidence.

(b) Main request: sufficiency of disclosure

The invention is insufficiently disclosed. Even document D19 does not appropriately explain the feature "minimal diffusion of the diffracted light". The interpretation of this feature is open to question. Moreover, document D19 does not explain how this feature and the feature "no depth effects" can be both realised in a pure grating structure.

Claim 1 comprises the case in which OVM1 is a hologram. This is, however, contradictory to the teaching of the description.

As to the feature "visually integrated image", column 8, lines 22 to 30 of the patent teach that the effect is derived from a single structure, i.e. not

from viewing the second structure through the first structure.

(c) Auxiliary request 5

The feature "non-diffuse grating structure" of claim 1 extends beyond the content of the application as filed.

IX. Respondent II argued as follows:

(a) Main request: sufficiency of disclosure

According to the Guidelines for Examination in the European Patent Office, for the invention to be sufficiently disclosed, a detailed description of at least one way of carrying it out must be given. The expression "substantially pure grating structure", which has been coined by the appellant, is not a well-known feature in the art. Still according to the Guidelines, the invention has to be described in terms of not only its structure but also its function. In the present case, it was defined only in terms of its function. The feature is so ill-defined that the skilled person would be unable without undue burden to take the technical measures necessary to solve the technical problem underlying the patent (see T 593/09).

There is no teaching in the patent as to how to reach the result that the effect appears to derive from a single OVM.

In respect of the expression "pure grating structure" the definition provided by the appellant has no basis in the patent. The dictionary definition of "pure" is irrelevant, in particular because it is taken from outside the technical field under consideration.

Concerning "minimal diffusion", all that those skilled in the art would learn from paragraph [0046] is that the pure grating structure should be arranged in such a way that there is minimal diffusion. They would not assume that minimal diffusion is inherently a feature of such a structure. Moreover, "minimal diffusion" does not mean "no diffusion".

The feature "no depth effects" does not imply that there is minimal diffusion.

(b) Auxiliary request 4

The request should not be admitted because it could have been presented during oral proceedings.

(c) Auxiliary request 5

The term "non-diffuse" generates added matter.

Moreover, the request does not overcome the objections as to lack of sufficiency.

Reasons for the Decision

1. Applicable law

The application on which the patent is based was filed on 3 April 2003. In accordance with Article 7 of the Act revising the EPC of 29 November 2000 (Special edition No. 4, OJ EPO, 217) and the Decision of the Administrative Council of 28 June 2001 on the transitional provisions under Article 7 of the Act revising the EPC of 29 November 2000 (Special edition

No. 4, OJ EPO, 219), Article 83 EPC 1973 and Article 123 EPC [2000] apply in the present case.

2. Transfer of the party status of opponent

In its communication dated 3 April 2018, the board expressed its provisional opinion that the request to transfer the party status of respondent I should be rejected and that the case should proceed with the original opponent, namely Giesecke & Devrient GmbH. The board referred to T 870/92 of 8 August 1997, point 3.1 of the reasons, and T 1513/12 of 21 September 2017, point 2 of the reasons.

Respondent I did not react to this communication.

As a consequence, the board has no reason to deviate from its provisional opinion.

Therefore, the request to transfer the party status of respondent I is rejected.

3. Admissibility matters

3.1 Admissibility of the appellant's requests

The main request and the first, third and fifth auxiliary requests correspond to requests on which the opposition division has decided in the decision under appeal. Their admissibility is unquestionable.

The fourth auxiliary request was filed for the first time together with the statement of grounds of appeal. According to Article 12(4) RPBA, the board has the power to hold this request inadmissible if it could

(and should) have been filed during the proceedings at first instance.

The appellant justified the request by pointing out that the opposition division had raised its objection in respect of the feature "visually integrated image" for the first time in the course of the oral proceedings and that it had not filed a corresponding request because of the division's comments on the feature "pure grating structure".

The appellant's explanations in this respect are plausible. Consequently, the fourth auxiliary request can be admitted into the proceedings.

3.2 Document "Annex 1"

This document was filed for the first time as an annex to the statement of grounds of appeal. The document is not dated. It consists of two images, which appear to be annotated electron microscopy pictures. The pictures are said to correspond to an Exelgram® grating structure and a classic hologram. As the nature of these pictures and the way in which they have been obtained are unknown, the board disregards this piece of evidence.

4. Terminology

The board adopts the terminology of the patent, according to which optically variable microstructures are abbreviated as "OVM". "OVM1" and "OVM2" designate the first and second optically variable effect generating structures according to the independent claims, respectively.

5. Claim interpretation

5.1 "viewable through"

Claims 1 and 9 require OVM2 to be "viewable through" OVM1. The patent does not contain any particular definition of this expression. The skilled person would understand that at least part of the light scattered from OVM2 would not be absorbed or deflected by OVM1, so that for an observer looking at the security device along a direction in which OVM2 is "behind" OVM1 (i.e. where light originating from OVM2 has to pass through OVM1 to reach the eye of the observer), OVM2 is not completely hidden by OVM1, and that at least some of the light originating from OVM2 reaches the eye of the observer.

This understanding of "viewable" is also in harmony with the only other reference to viewability in the patent, which is found in paragraph [0050]: "... This assembly as it stands will be **transparent or at least translucent and therefore** any printed or photographic information present on the substrate will be **viewable. ...**" (the board's emphasis)

5.2 "substantially pure grating structure"

The expression "substantially pure grating structure", which is present in both independent claims 1 and 9, is not defined in the description of the patent.

The expression "pure grating structure" is used only once in the description of the patent, namely in paragraph [0046], where it is said that in the preferred embodiment according to the invention, OVM1 "is composed of pure grating structures **such that there**

is minimal diffusion of the diffracted light and no depth effects" (the board's emphasis). "Minimal" is understood to mean "as little as possible" in this context.

The parties disagree on how this sentence of paragraph [0046] is to be understood. The appellant understands it to define "pure grating structures" via their effect. When understood in this way, the clause introduced by the words "such that ..." expresses the consequence of the fact that OVM1 is composed of pure grating structures. In the opinion of respondent II, however, "such that ..." qualifies the adjective "composed". Consequently, the sentence is understood to mean that the pure grating structures should be arranged such that certain effects are obtained. From a purely syntactical point of view, both understandings appear to be possible. However, in particular in view of the fact that the expression "pure grating structure" is not a common expression in the art and may have been coined by the drafter of the patent, those skilled in the art would understand the sentence as a functional definition of a concept unfamiliar to them.

Consequently, "substantially pure grating structures" are understood to be grating structures that show little diffusion of the diffracted light and little or no depth effects.

5.3 Holographic OVM1

The respondents argued that claim 1 was drafted in a way that made it inconsistent with the description because, according to claim 1, OVM1 and OVM2 may be "diffractive or holographic" and OVM1 has to comprise a

substantially pure grating structure. As explained in point 5.2 above, such a pure grating structure generates minimal diffusion of the diffracted light, which excludes holographic OVM. This requirement excludes a holographic OVM1, but OVM2 may still be diffractive or holographic.

This way of drafting may be somewhat perfectible as to its clarity (which, incidentally, is beyond the scrutiny of the board), but the skilled person would understand what is meant. The contradiction within the claims is not such that the skilled person would be faced with insurmountable difficulties when trying to comprehend what is being claimed.

5.4 "visually integrated"

The last feature of claims 1 and 9 requires OVM1 and OVM2 to generate a "visually integrated image".

The patent does not provide a proper definition of the concept of visual integration.

The Oxford English Dictionary defines "integrated" as "combined into a whole; united; undivided".

The concept of visual integration is mentioned twice in the description:

- Paragraph [0045] states that "in principle, by visually integrating the optical variable effects generated by OVM1 and OVM2 in ostensibly a single microstructure, a device can be created of unique optical appearance". The board understands the term "ostensibly" here to mean "apparently, but not

necessarily or really" (see the corresponding entry of the Oxford English Dictionary).

- Paragraph [0059]: "Finally it should be stressed that the inventive concept here is the concept of a visually integrated image and not the precise construction of the assembly."

The passage taken from paragraph [0045] is helpful for an understanding of the concept. The basic idea appears to be that the light effects generated by OVM1 and OVM2 have a combined effect such that the onlooker has the impression of an effect generated by a single OVM. In other words, the observer does not simply see two independent effects, but there is what might be called "optical synergy"; in other words, the optical effects combine to form a whole. The board understands this also to be the meaning of the statement in paragraph [0044], according to which "the current invention creates a laminate structure composed of two or more surfaces/layers of microstructure whose optically variable generating effect **appears to** derive from one optical effect generating microstructure" (the board's emphasis).

6. Main request

6.1 Sufficiency of disclosure

Article 83 EPC states that a European patent application must "disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art".

6.1.1 "substantially pure grating structure"

Claim 1 states that OVM1 comprises a "substantially pure grating structure".

The board's understanding of this feature is set out in point 5.2 above. Accordingly, the expression refers to grating structures that show little diffusion of the diffracted light and almost no depth effects.

In point 2.3.1 of the decision under appeal, the opposition division pointed out that this element of OVM1 was defined in a purely functional way and that the patent did not give a single example of how the grating was or could be arranged.

The appellant referred to column 8, lines 22 to 30 of the patent ("... it is important that OVM1 has intrinsically a high diffractive brightness compared to OVM2, i.e. OVM1 is composed of **pure grating structures** such that there is **minimal diffusion of the diffracted light** and **no depth effects**. Suitable origination methods to generate OVM1 in this case would be dot-matrix interferometry, lithographic interferometry and e-beam lithography (the latter two would include origination technologies such as the Kinigram® and Exelgram®)"; appellant's emphasis) and argued that a diffraction grating was a structure whose form is dictated purely by its function.

With regard to "minimal diffusion", the appellant referred to document D19, point 11.4.3 and Figure 11.3.

The board is satisfied that the handbook from which documents D17 and D19 are taken provides evidence for the common general knowledge of the skilled person in the field of security devices at the priority date. Point 11.4.3 of document D19 deals with the difference

between holograms and optically variable graphics. As any point of a hologram diffuses incident light into a wide range of angles, there is a loss of useful light intensity. By contrast, OVG images are said not to suffer from light losses by diffuse scatter. Rather, they diffract light in the direction of the observer's eye (see page 260, first bullet). This situation is illustrated in Figures 11.3(a) (OVG element) and (b) (holographic image):

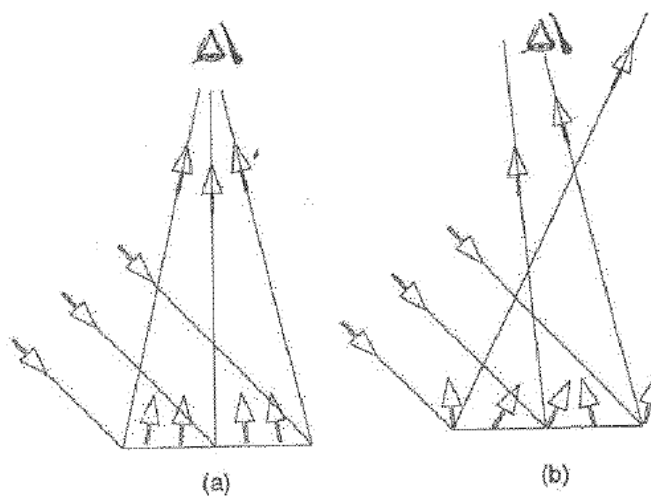


Figure 11.3 Schematic illustration of (a) inverse scatter of OVG elements and (b) diffuse scatter of a holographic image.

Document D19 establishes that those skilled in the art knew, as part of their common general knowledge at the priority date, that little diffuse scattering is to be expected when OVG (Kinegram®) elements are used.

The opposition division expressed its doubts that a Kinegram® device would necessarily have minimal diffusion, and it referred to point 11.4.1 of document D17 [sic; should read D19], where it is stated that "[f]or a fixed set of lighting and observation angles, particular areas will diffract more light toward the eye than others". The board finds this argument

unpersuasive because this is exactly what is to be expected for diffraction gratings. The above statement does not provide information on diffuse scattering by the device.

The opposition division appears to have accepted that Kinegram® devices do not have depth effects. This is also part of the skilled person's common general knowledge, as can be seen from document D15 (see, for instance, page 364, item 15.2.8: "The kinegram concept intentionally abandons three dimensionality, ...").

The board agrees with respondent I that the absence of depth effect does not imply that there is minimal diffusion, but this is hardly relevant in the present case because documents D17 and D19 disclose that Kinegram® devices possess both characteristics.

In light of all the above, the conclusion may be drawn that the skilled person would have known, at the priority date, that Kinegram® devices are substantially pure grating structures within the meaning of claims 1 and 9 of the patent, as defined in paragraph [0046] of the description. In view of this knowledge on the part of the skilled person, the fact that the patent does not provide examples for substantially pure grating structures does not result in the skilled person being at a loss as to how to carry out the invention.

6.1.2 Generation of a "visually integrated image"

In point 2.3.2 of the decision under appeal, the opposition division raised a further objection that is apparently based on the order of the features of claims 1 and 9, respectively. First, OVM2 is said to be

viewable through OVM1, and then OVM1 and OVM2 are required to generate a visually integrated image.

The board has explained its understanding of those features in points 5.1 and 5.4 above. The opposition division's objection appears to be based on a misreading of paragraph [0044] of the patent. The statement that the "optically variable generating effect **appears to** derive from one optical effect generating microstructure" (board's emphasis) does not mean that the effect actually derives from a single OVM, as the opposition division seems to have understood, but that the observer has this impression.

As a consequence, the board cannot endorse this objection either.

6.1.3 Conclusion

The objections raised by the opposition division against the main request are unfounded.

The same holds true for the first, second and third auxiliary requests, which had been dismissed based on the same objection.

7. Auxiliary request 4

The fourth auxiliary request was filed for the first time at the appeal stage. The appellant explained that the request was filed "for the event that the Board of appeal consider that the term "pure grating structure" of the main request is sufficiently disclosed, but the term "visually integrated image" not sufficiently disclosed". (see page 8 of the statement of grounds of appeal). As the board endorses none of those objections

of the opposition division (see point 6.1), there is no need for this request any more. Therefore, the board has decided not to admit this request into the proceedings.

8. Auxiliary request 5

For the sake of completeness, the board has also examined the opposition division's objection to the fifth auxiliary request (i.e. the fourth auxiliary request in the opposition proceedings).

The opposition division found that this request did not meet the requirements of Article 123(2) EPC because the original application did not offer any support for claiming "pure grating structures that would be non-diffuse as such" (see point 4 of the decision under appeal).

The appellant argued that the passage on page 10, lines 19 to 20 of the original application ("... OVM1 is composed of pure grating structures such that there is **minimal diffusion** of the diffracted light and no depth effects"; board's emphasis) provided sufficient support because the skilled person would understand that a grating structure that exhibits "minimal diffusion" is a "non-diffuse" grating structure.

The board finds this argument unpersuasive. The skilled person would consider there to be a difference between a situation of minimal diffusion and one of non-diffusion.

Therefore, the subject-matter of claims 1 and 8 of the fifth auxiliary request (and the subject-matter of the corresponding claims of the first and third auxiliary

requests) extends beyond the content of the application as filed.

9. Remittal to the opposition division

The opposition division dismissed the main request because it did not meet the requirement of Article 83 EPC. The decision under appeal is silent on the patentability of the claimed subject-matter. Therefore, the board finds it appropriate to remit the case to the opposition division for further prosecution based on the main request.

10. Oral proceedings before the board

Both the appellant (in its notice of appeal dated 26 July 2017) and respondent I (in its reply dated 5 February 2018) requested oral proceedings. After the board had summoned the parties, the two respondents announced that they would not be attending the oral proceedings before the board (respondent I by letter dated 8 April 2019 and respondent II by letter dated 7 May 2019). As a rule, such a declaration may be interpreted as a withdrawal of the request for oral proceedings (see "Case Law of the Boards of Appeal of the European Patent Office", 8th edition, 2016, III.C.2.3.1). As the board grants the appellant's main request, it is not necessary to maintain the oral proceedings. Therefore, the oral proceedings before the board were cancelled.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance for further prosecution.

The Registrar:

The Chairman:



N. Schneider

M. Poock

Decision electronically authenticated