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**Datasheet for the decision
of 27 July 2010**

Case Number: T 1861/07 - 3.2.05

Application Number: 99901510.0

Publication Number: 1049590

IPC: B44F 1/12

Language of the proceedings: EN

Title of invention:

Method of verifying the authenticity of a security document
and document for use in such a method

Patentee:

Securrency International Pty Ltd

Opponent:

DE LA RUE INTERNATIONAL LIMITED

Headword:

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Relevant legal provisions:

EPC Art. 54, 56

Relevant legal provisions (EPC 1973):

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Keyword:

"Novelty: main request and third auxiliary request - no"
"Inventive step: first and second auxiliary requests - no";
fourth auxiliary request - yes"

Decisions cited:

-

Catchword:

-



Case Number: T 1861/07 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 27 July 2010

Appellant:
(Patent Proprietor)

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Representative:

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Respondent:
(Opponent)

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Decision under appeal:

Interlocutory decision of the Opposition
Division of the European Patent Office posted
10 September 2007 concerning maintenance of
European patent No. 1049590 in amended form,
Art. 102(3) EPC 1973.

Composition of the Board:

Chairman: W. Zellhuber
Members: H. Schram
M. J. Vogel

Summary of Facts and Submissions

- I. The appellant (patent proprietor) lodged an appeal against the interlocutory decision of the Opposition Division posted on 10 September 2007 maintaining European patent No. 1 049 590 in amended form.

The Opposition Division held that the grounds of opposition under Article 100(a) EPC (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC) did not prejudice the maintenance of the patent on the basis of claims 1 to 17 filed as third auxiliary request on 11 July 2007.

- II. Oral proceedings were held before the Board of Appeal on 27 July 2010.
- III. The appellant requested that the decision under appeal be set aside, and that the patent in suit be maintained on the basis of the following documents:
- (i) main request, first and second auxiliary requests: the sets of claims filed as main request and auxiliary requests 1 and 2, respectively, on 28 June 2010; or
 - (ii) third and fifth auxiliary requests: the sets of claims filed as auxiliary requests No. 1 and 3, respectively, on 10 January 2008; or
 - (iii) fourth auxiliary request: the set of claims filed as auxiliary request No. 4 during oral proceedings.

The respondent (opponent) requested that the appeal be dismissed and that the patent be revoked in its entirety.

IV. Claim 18 of the main request reads as follows:

"18. Banknote (1; 30; 40, 50) including a first at least partially transparent portion (7, 8) and an optical projection element (9) within or superposed with the first at least partially transparent portion (7, 8), characterized in that the optical projection element (9) is a diffractive optical projection element (9) operable to transform a light beam (10a; 43; 54) passing from a light beam source (15; 42; 53) through the first at least partially transparent portion (7, 8) into a patterned beam (11) of selected design."

Claim 18 of the first auxiliary request differs from claim 18 of the main request in that the expression "*comprising a surface microrelief*" has been inserted before the word "operable".

Claim 18 of the second auxiliary request is identical to claim 18 of the first auxiliary request.

Claim 18 of the third auxiliary request differs from claim 18 of the main request substantially in that the feature "*and the security document is a banknote which is foldable, the banknote having an opacifying portion (5, 6) remote from the first at least partially transparent portion on which the patterned beam can impinge when the banknote is folded for verification of the presence of the patterned image*" is added at the end of the claim.

Claim 18 of the fourth auxiliary request reads as follows:

"18. Security document (1; 30; 40, 50) including a first at least partially transparent portion, an optical projection element (9) within or superposed with the first at least partially transparent portion, characterised in that the optical projection element (9) is a diffractive optical projection element (9) operable to transform a light beam (10a; 43; 54) passing from a light beam source (15; 42; 53) through the first at least partially transparent portion into a patterned beam (11) of selected design, and the security document is a banknote which is foldable, the banknote further including a second at least partially transparent portion (31; 51) for transmitting part only of the light beam (10a: 54) from the light beam source (15; 53), the second at least partially transparent portion (31; 51) thus acting as a pseudo point light source when the banknote is folded for verification of the presence of the patterned image."

Claim 24 of the fourth auxiliary request is directed to a "Method of producing a banknote as claimed in any one of the claims 18 to 23, ...".

Claims 1 to 17 of the fourth auxiliary request correspond to claims 1 to 17 as maintained.

The claims of the fifth auxiliary request correspond to the claims as maintained.

V. The following documents were *inter alia* referred to in the appeal proceedings:

D7' *Optical Document Security*, Editor R. L. van Renesse, Artech House, Inc., Norwood, USA, 1993, pages 39 to 73, 149 to 167 and 207 to 225.

D8 EP-A 0 723 501

PZ3 *New Standards for Banknote Security - Polymer Banknotes*, Garoffolo, B., and Gratton, R., a paper presented on 10 June 1997 in Helsinki.

VI. The arguments of the appellant, in writing and during the oral proceedings, can be summarized as follows:

Document D7' should not be admitted into the appeal proceedings, because it was late-filed.

Document D8 disclosed a diffraction structure within a transparent portion of a banknote. Although this diffraction structure was operative in a transmission mode, there was always reflection as well, see page 6, lines 2 to 10. This diffraction structure was not a diffractive optical projection element as defined in claim 18 of the main request, which transformed a light beam passing through it into a patterned beam of selected design. Conventional diffraction gratings did not, in any sense, produce a "patterned beam", but merely set the intensity maxima at various viewing angles. Consequently, claim 18 of the main request was novel over document D8. This also applied to claim 18 of the third auxiliary request.

Claim 18 of the first and second auxiliary requests comprised a further limitation which distinguished the banknote further from the prior art. These claims therefore involved an inventive step.

The additional feature of claim 18 of the fourth auxiliary request, viz. to provide a second transparent portion which acted as a pseudo point light source when the banknote was folded for verifying the presence of the patterned image, was not known from any of the prior art document. The subject-matter of said claim therefore involved an inventive step.

VII. The respondent's arguments, in writing and during the oral proceedings, can be summarized as follows:

The three requests filed by the appellant one month before the oral proceedings should not be admitted into the appeal proceedings, because this would bring the total number of requests to six, which was too high.

In the patent in suit, a (diffractive) optical projection element was described as an element acting "to generate the patterned beam by diffraction of the light passing through the security document", see in particular paragraph [0021] and also paragraphs [0010], [0015] and [0047]. A common transmission hologram met this definition, see document D7', Figure 3.17 on page 70. Claim 18 of the main request lacked novelty over document D8, because the diffraction structure disclosed on page 5, lines 44 to 47, was an optical projection element in the sense of the invention. The additional features of claim 18 of the third auxiliary

request were also known from document D8, so that this claim also lacked novelty.

It was well-known in the art that embossing techniques, by which extremely fine interference patterns were pressed as a surface relief into a plastic film, made it possible that holograms (also see-through holograms) could be economically mass produced, see document D7', page 71, last paragraph of the section preceding section 3.5. The additional feature of claim 18 of the first and second auxiliary requests, viz. that the projection element comprised a surface microrelief, was therefore obvious to the person skilled in the art.

Providing a second at least partially transparent portion in a security document was known from the prior art, see eg document D8, page 6, line 5, and document PZ3, page 5, penultimate line. Claim 18 of the fourth auxiliary request therefore lacked an inventive step, Article 56 EPC.

Reasons for the Decision

1. *Procedural matters*
 - 1.1 The respondent was of the opinion that the sets of claims filed as main request and auxiliary requests 1 and 2, respectively, (in addition to the sets of claims of the requests already on file, which were therefore renumbered as auxiliary requests 3 to 5) should not be admitted into the appeal proceedings, since allowing these requests would made the total number of requests too high.

According to Article 13(1) RPBA (Rules of Procedure of the Boards of Appeal, OJ EPO 2007, 536 ff.) any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion. The criteria for exercise of discretion include inter alia whether or not there are good reasons for the late filing and whether or not the amendments and submissions are relevant to a resolution of the issues to be discussed at the oral proceedings. In the present case, in a communication attached to the Summons to oral proceedings dated 21 April 2010 the Board had expressed its provisional opinion that the amendments to claim 1 of the (then) main request filed on 10 January 2008 seemed to introduce subject-matter extending beyond the content of the application as filed, contrary to Article 123(2) EPC. The three requests filed on 28 June 2010 can be considered as a reaction to said communication and thus meet the criteria mentioned above.

- 1.2 It may be noticed that claims 1 to 17 directed to a "Method of verifying the authenticity of a security document" of the main request and of the first and second auxiliary requests differ from the corresponding claims of the patent as maintained in the interlocutory decision of the Opposition Division. Since claim 18 of each of said requests was not allowable, there was no need to consider the respective independent claims of said requests.

Claims 1 to 17 of the third auxiliary request are, unlike the corresponding claims of the preceding

requests, identical to claims 1 to 17 of the patent as maintained. Following the principle of the prohibition of reformatio in peius, the Board has no power to consider the validity of claims 1 to 17 of the third auxiliary request. However, because claim 18 of the third auxiliary request was found to lack novelty, there was no need to consider the independent claim 21 of said request.

- 1.3 With its reply to the notice of appeal, the respondent intended to file by fax (further) extracts of the book "Optical Document Security", namely the pages 39 to 73, 149 to 167 and 207 to 225, which were not however transmitted to the EPO (said pages are referred to as document D7', see point V above). This was brought to the attention of the parties in the communication of the Board dated 21 April 2010. The pages/chapters mentioned above were refiled by the respondent on 28 May 2010. It may be noticed that pages 149, 156 and 157 of said book were filed with the respondent's notice of opposition as document D7.

The appellant requested that document D7' not be admitted into the appeal proceedings.

In the present case, document D7' was merely filed as evidence of the general technical knowledge of the person skilled in the art.

In exercising its discretion under Article 114(2) EPC, the Board admitted document D7' into the appeal proceedings.

Main request and third auxiliary request

2. *Objection of lack of novelty, Article 54 EPC*

2.1 Document D8 relates to value-bearing documents, such as for example, banknotes, which are suitable for transillumination ("für Durchlicht geeignet"), see page 2, line 3, page 3, lines 5 to 8, and page 5, lines 6 to 9. Figures 1 and 2 show that the cover foil 5 is transparent only in a portion of the window-like opening 4 in a substrate 2, namely the outer region 11, while provided in the inner region of the opening 4 is an additional security feature 12 which is based for example on optical effects, for example in the form of a diffraction structure which is operative in a transmission mode, see page 5, lines 44 to 47.

It is a common, generally known feature of a diffraction element that when light passes through that element, the light undergoes diffraction and the thus modified light beam can be seen or made visible on a screen. The definitions of a diffractive optical projection element given in the patent in suit, cf. paragraphs [0010], [0015] and [0021], do not go beyond that generally known property of a diffraction element. Therefore, in the judgment of the Board, the diffraction structure disclosed in document D8 constitutes "a diffractive optical projection element (9) operable to transform a light beam (10a; 43; 54) passing from a light beam source (15; 42; 53) through the first at least partially transparent portion (7, 8) into a patterned beam (11) of selected design" as claimed in claim 18 of the main request.

The subject-matter of claim 18 of the main request is therefore not new with respect to document D8.

Whilst the Board appreciates that there is a qualitative difference between sophisticated Diffractive Optical Elements (DOEs), which are computer generated holographic devices that can transform an illuminating laser beam into a specified intensity distribution by diffraction rather than refraction or reflection, and conventional optically variable devices (OVDs), such as a transmissive diffraction gratings, the latter are also operable to transform a light beam into a patterned beam of selected design (here a visible interference pattern). The specification of the patent in suit fails to make a clear distinction between a diffractive optical projection element according to the invention and a diffraction grating, cf. paragraph [0047] of the patent in suit.

2.2 Claim 18 of the third auxiliary request differs from claim 18 of the main request substantially in that the following features were added at the end of the claim:

- (i) and the ... banknote ... is foldable,
- (ii) the banknote having an opacifying portion (5, 6) remote from the first at least partially transparent portion on which the patterned beam can impinge when the banknote is folded for verification of the presence of the patterned image"

Document D8 discloses (see page 5, line 12) that the substrate 2 is made of paper, which is inherently a

foldable material when used in a banknote. The additional feature (i) of claim 1 of the third auxiliary request is thus disclosed in document D8.

The additional feature (ii) of claim 1 of the third auxiliary request does not define the opacifying portion of the banknote per se, it merely requires that, when the banknote is folded, eg in a way as shown in Figure 3 of the patent in suit, the patterned beam can impinge on said opacifying portion. In the judgment of the Board, for assessing novelty of feature (ii) it is sufficient that a prior document discloses that the patterned beam is capable of impinging on the opacifying portion.

Since paper, when used in a banknote, is sufficiently opaque for a patterned beam to be capable of impinging on it, the additional feature (ii) of claim 1 of the third auxiliary request is also disclosed in document D8

Consequently, the subject-matter of claim 18 of the third auxiliary request lacks novelty within the meaning of Article 54 EPC with respect to document D8.

First and second auxiliary requests

3. *Objection of lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC*

3.1 The additional feature of claim 18 of the first auxiliary request, namely that the diffractive optical projection element comprising "a surface microrelief" is not disclosed in document D8 in connection with the

embodiment shown in Figures 1 and 2. In connection with the embodiment shown in Figure 3 document D8 discloses that diffraction structures 20, 21, which are not operative in a transmission mode however, can be produced by suitable embossing of the thermoplastically deformable base lacquer layer 19, see page 6, lines 21 to 24.

The subject-matter of claim 18 of the first auxiliary request is therefore new with respect to document D8. This holds mutatis mutandis for claim 18 of the second auxiliary request, which is identical to claim 18 of the first auxiliary request.

3.2 The additional feature of claim 1 of the first and second auxiliary requests (see point 3) is well-known in the art, see eg document D7, page 71, last paragraph of section 3.4 entitled Rainbow Holography. In this passage it is stated that the extremely fine interference pattern of a transmission rainbow hologram is pressed as a surface relief into a plastic film by an embossing technique (which plastic film is then provided with a reflective layer of eg aluminum, which transforms the transmission hologram into a reflection hologram).

The subject-matter of claim 18 of the first and second auxiliary requests therefore lacks an inventive step with respect to document D8.

Fourth auxiliary request

4. *Objection of lack of inventive step, Article 56 EPC*

4.1 Since claims 1 to 17 of the fourth auxiliary request correspond to claims 1 to 17 as maintained, the Board has no power to consider the validity of these claims for the same reasons as given for claims 1 to 17 of the third auxiliary request in point 1.2 above.

Claim 18 of the fourth auxiliary request differs from claim 18 of the main request substantially in that the banknote further includes *"a second at least partially transparent portion (31; 51) for transmitting part only of the light beam (10a: 54) from the light beam source (15; 53), the second at least partially transparent portion (31; 51) thus acting as a pseudo point light source when the banknote is folded for verification of the presence of the patterned image"*.

The use and advantage of a "second at least partially transparent portion" is explained in paragraphs [0040], [0061] to [0063] and [0067] of the patent in suit. In the embodiment of the invention shown in Figure 6, the second transparent portion 31 acts as a pseudo point light source and avoids the transmission of other portions of the light beam 10 through the first transparent portion 7, 8 onto the viewing surface 14. In the embodiment of the invention shown in Figure 8, the portion of the banknote having the second transparent portion 31 constitutes a screen having a small window there through. The light of a conventional household light globe, including white light, or a car

headlight, passing through the second transparent portion is caused to be substantially collimated light.

The authenticity of the claimed security document may be simply verified without requiring the use of dedicated and complex light emitting and viewing devices, cf. paragraph [0050] of the patent in suit.

- 4.2 The additional feature is not known from, or suggested by any of the cited prior art documents.

Whilst on page 6, line 5, of document D8 it is stated that "- it will be appreciated that a plurality of openings could also be provided -", this is not to say that these openings, which are designed to provide an optical falsification effect, acts, or can act, as a pseudo point light source.

Document PZ3 discloses security features for banknotes in the form of self-authentication features, ie the tool for verification is also carried in the note (see page 5, lines 12 to 15). In an example, in a banknote two clear windows are provided acting as filters, which polarising planes are perpendicular (see page 5, penultimate paragraph and paragraph bridging pages 5 and 6). When the banknote is folded over in one direction, the polarised lenses overlap and there is transmission, but if the note is twisted so that the polarisation planes become perpendicular to each other extinction occurs. There is no disclosure that one of the clear windows is constructed in a way that it can act as a pseudo point light source for verifying the presence of a diffracted image.

4.3 The subject-matter of claim 18 of the fourth auxiliary request is therefore not obvious to the person skilled in the art, and hence involves an inventive step, Article 56 EPC.

The subject-matter of claims 19 to 23 which are appendant to claim 18 similarly involve an inventive step. This also holds for claim 24, which is directed to a "method of producing a banknote as claimed in any one of claims 18 to 23", and for the dependent claims 25 to 31.

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 with the order to maintain the patent on the basis of the following documents:
 - (a) claims 1 to 31, filed as auxiliary request No. 4 presented during oral proceedings;

 - (b) description, pages 2 to 7 filed during oral proceedings;

 - (c) drawings, pages 15 to 19 as granted.

The Registrar:

The Chairman:

D. Meyfarth

W. Zellhuber