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Datasheet for the decision of 26 April 2024

Case Number: T 0982/20 - 3.4.03

Application Number: 16151623.2

Publication Number: 3045972

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Language of the proceedings: EN

Title of invention:
SECURITY DEVICES AND METHODS OF MANUFACTURE THEREOF

Patent Proprietor:
De La Rue International Limited

Opponents:
CCL Secure Pty Ltd
Giesecke+Devrient Currency Technology GmbH

Headword:
Latent image printed on transparent substrate

Relevant legal provisions:
EPC Art. 52(1), 54(1), 54(2), 54(3), 56, 100(a)

Keyword:
Novelty - (yes) - prior disclosure - implicit specific features (no) - only generic disclosure
Inventive step - (yes) - could-would approach

Decisions cited:
T 0651/91, T 1204/00, T 0688/14

Catchword:

Europäisches Patentamt
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Beschwerdekammern

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Case Number: T 0982/20 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 26 April 2024

Appellant: (Opponent 2)	Giesecke+Devrient Currency Technology GmbH Prinzregentenstraße 159 81677 München (DE)
Representative:	Zeuner, Stefan Zeuner Summerer Stütz Nußbaumstrasse 8 80336 München (DE)
Respondent: (Patent Proprietor)	De La Rue International Limited De La Rue House, Jays Close, Viables Basingstoke, Hampshire RG22 4BS (GB)
Representative:	Gill Jennings & Every LLP The Broadgate Tower 20 Primrose Street London EC2A 2ES (GB)
Party as of right: (Opponent 1)	CCL Secure Pty Ltd 1-17 Potter Street Craigieburn VIC 3064 (AU)
Representative:	Frenkel, Matthias Alexander Wuesthoff & Wuesthoff Patentanwälte und Rechtsanwalt PartG mbB Schweigerstraße 2 81541 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 11 March 2020 rejecting the opposition filed against European patent No. 3045972 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	T. Häusser
Members:	M. Stenger
	G. Decker

Summary of Facts and Submissions

I. The appeal of opponent 2 concerns the decision of the opposition division rejecting the oppositions filed against the European patent no. EP 3 045 972 B1 based on European application no. 16 151 623, which is a divisional application of European application no. 12 784 306.

II. Oppositions were filed by CCL Secure Pty Ltd (opponent 1) and Giesecke+Devrient Currency Technology GmbH (opponent 2). During the opposition proceedings opponent 1 requested the revocation of the patent in its entirety based on Article 100(a) EPC for lack of novelty and inventive step and Article 100(b) EPC, while opponent 2 requested the revocation of the patent in its entirety based on Article 100(a) EPC for lack of novelty and inventive step.

III. It is referred to the following documents:

E9: Rudolf L. van Renesse, "Optical Document Security", 3rd edition, Artech House, Boston/London, 2005, pages 84 to 91 and 136 to 139
E16: EP 0 721 849 B1
E17: DE 602 00 552 T2
E18: WO 2012/136597 A1
E23: EP 0 961 690 B2
E24: AU 488,652 B2
E25: Wikipedia article "Polyethylene"

IV. Opponent 1 did not file any substantive submissions during the appeal proceedings. It only indicated that no one would appear at the scheduled oral proceedings before the board.

V. At the end of the oral proceedings before the board the appellant-opponent 2 (in the following the "appellant") requested that the contested decision be set aside and the patent be revoked in its entirety.

VI. At the end of the oral proceedings before the board, the respondent-patent proprietor (in the following the "respondent") requested as a main request that the appeal be dismissed, i.e. that the patent be maintained as granted. Alternatively, it requested that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the claims according to one of auxiliary requests 1 to 4 filed with the reply to the grounds of appeal.

VII. Claim 1 as granted has the following wording (labeling 1a, 1b,... taken from opponent 2's notice of opposition):

1a *A security device comprising*
1b *a substrate which is substantially visually transparent,*
1c *the substrate carrying on one side thereof at least a first array of elements*
1c1 *arranged to form lines which are laterally spaced from one another,*
1c2 *each element having a raised surface profile relative to the surface of the substrate and having a higher optical density than that of the substrate in the spaces between the elements,*
1c3 *wherein the lines formed by the elements of the first array are aligned along a first direction*
1c4 *whereby the appearance of the device when viewed from either side of the substrate changes at different angles of view, generating a latent effect; and*

1d *wherein the one side of the substrate further carries a second array of elements*
1d1 *arranged to form lines which are laterally spaced from one another*
1d2 *and aligned along a second direction which is substantially perpendicular to the first direction,*
1d3 *each element of the second array having a raised surface profile relative to the surface of the substrate and having a higher optical density than that of the substrate in the spaces between the elements,*
1e *whereby at some angles of view, the area of the device corresponding to the first array appears to have an optical density higher than that corresponding to the second array, and at other angles of view, the area of the device corresponding to the first array appears to have an optical density lower than that corresponding to the second array.*

VIII. Relevant arguments of the parties

The appellant essentially submitted arguments relating to lack of novelty with respect to E16 and E18 and lack of inventive step starting from E17.

The respondent essentially pointed out differences between the subject-matter of claim 1 as granted and E16, E17 and E18 and submitted arguments why the skilled person, when starting from E17, would not arrive at the subject-matter of claim 1 as granted without exercising inventive skills.

Reasons for the Decision

1. The contested patent

The claimed invention concerns an optical security device described in paragraphs [77] to [84] and [138] to [143] with respect to Figures 17 and 18 of the contested patent. It comprises two arrays of elements arranged to form lines having raised surface profiles and a higher optical density than that of the substrate between the lines. The lines of the two elements are aligned along two different, substantially perpendicular directions, respectively, such that a latent effect is provided. That is, depending on the angle of view, the optical density of the first array appears to be higher than the optical density of the second array, and at other angles of view, the optical density of the second array appears to be higher than the optical density of the first array. The (lines of the) arrays are printed on a visually substantially transparent substrate, such that the latent effect is visible from both sides of the optical security device.

2. Main request - novelty - E16

2.1 The **opposition division** held that E16 did not disclose a raised surface profile.

2.2 The **appellant** submitted that, in view of column 41, lines 27 to 29 of the opposed patent (in paragraph [143]), the claimed expression "raised surface profile" included elements which were produced by printing on the substrate and whose height could be less than 5 µm. The appellant further submitted that the claimed expression "latent effect" should be interpreted

broadly as in paragraph [77] of the contested patent as merely meaning that the appearance of the device changed at different angles of view. The presence in E16 of the claimed structural features of the lines of the two arrays of elements implied that the effect described in feature 1e was also disclosed in E16. Figure 3 of E16 showed such a device the appearance of which changed at different angles of view, i.e. along the lines, at an angle with respect to the lines or perpendicular to the lines.
The appellant further submitted that the change in appearance did not have to be caused by concealing the space between the lines. In addition, the different angles of view included both different elevation angles obtained by tilting the security device and different azimuth angles obtained by turning it.

2.3 The **respondent** submitted that E16 did not disclose the printed lines having a raised surface profile as defined in features 1c2 and 1d3. Even if the lines in E16 were interpreted as having some minimal height, the lines were too far apart (at least 200 µm) for the space between them to be concealed in any meaningful manner upon a change in viewing angle. At such spacings, the elements would need a very significant height to achieve any such visual effect.
E16 thus did not disclose or suggest that the appearance of the device varied with viewing angle as defined in features 1c4 and 1e.

2.4 The different angles the appellant refers to with respect to Figure 3 of E16 correspond to rotations around an axis which is perpendicular to the surface of the security device (i.e. a changing azimuth angle), not to the viewing angle with respect to the surface of the security device (elevation angle). The **board**

accepts that such a rotation would somehow change the appearance of the device, as submitted by the appellant. The reason for this is simply that the motif shown in Figure 3 is rotationally not symmetric and would be viewed at different orientations.

However, according to feature 1e, the change in appearance for different viewing angles is not due simply to a different orientation, but due to a change in the appearance of the *optical densities* of the two arrays.
For a given viewing angle with respect to the surface of the security device (elevation angle), the different optical densities defined in that feature would be apparent only when the viewing angle was such that the lines seen in perpendicular conceal a relevant, or, in the words of the respondent, meaningful part of the spaces between them. That is, the change in appearance as claimed has to be caused by concealing the space between the lines, contrary to the submission of the appellant.

According to E16 (see paragraph [32]), the spacing of the lines may be as low as 100 µm. Furthermore, E16 suggests using wet offset printing technology for printing the lines (see paragraph [21]). The thickness of the ink layers produced with this technology is typically around 1 µm. Taking 1 µm as the height of the raised surface profile, the (elevation) angle with respect to the surface of the device at which the security device would have to be viewed so that the space between the raised elements is completely concealed would have to be roughly below 0.6 degrees (tangent(elevation angle)=1/100). Concealing half the space between the raised elements would still require an elevation angle of below 1.2 degrees.

The skilled person would not consider such low (elevation) viewing angles to be realistic in any practical situation, in line with the submissions of the respondent.

Thus, E16 does not disclose raised surface profiles that achieve the latent effect mentioned in features 1c4 and 1e, in agreement with the finding of the opposition division. The subject-matter of claim 1 as granted is therefore new over E16 (Articles 100(a), 52(1) and 54(1) and (2) EPC).

3. Main request - novelty - E18

3.1 The **opposition division** held that document E18 did not disclose features 1b and 1c4, because polyethylene or polyvinyl chloride (PVC), both referred to on page 11, lines 25 ff. of E18, were not necessarily transparent, even in view of E23, E24 and E25.

3.2 The **appellant** (referring to E23 and E25) essentially submitted that E18 disclosed that plastic films *of all kinds* ("Kunststofffolien jeglicher Art", page 11, lines 25 ff.) could be used as substrates. Such plastic films, in particular films made of polyethylene and PVC as explicitly mentioned in E18, were normally transparent. Furthermore, in 2011 (the priority year of the contested patent), transparent banknote substrates were commonly used by a number of countries.
Since E18 related to optical security devices, the transparency of the substrate was an essential characteristic thereof that could not be left open.
The skilled person would thus read E18 such that the plastic films referred to were, as commonly known and trivial, implicitly transparent, even if there might be isolated cases of non-transparent substrates. In a

similar manner, the skilled person would understand a "metallic coating" to implicitly have a silver colour, although there might be isolated cases of such coatings being copper- or gold-coloured.

According to the case law, a generic disclosure only *normally* did not deprive any specific example falling within that disclosure of novelty (Case Law of the Boards of Appeal of the EPO, 10th edition 2022 ("Case Law"), section I.C.5.2.6, in particular decision T 651/91). The present case was different for the reasons set out above.

The appellant acknowledged that E18 also mentioned (non-transparent) background coating and the use of (non-transparent) paper as substrate. However, it submitted that the reason therefor was that papers had to be coated to obtain smooth surfaces, in particular when paper substrates were used. Plastic films did not need to be coated.

The skilled person would therefore understand a transparent substrate as being encompassed and implicitly disclosed by the disclosure of E18.

3.3 The **respondent** submitted that neither polyethylene nor PVC were necessarily transparent and referred to E24 showing opaque sheets of polyethylene or PVC used in security substrates. There was not even evidence that plastic films used as substrates for security elements were usually transparent. The fact that the presence of a feature was not ruled out (in this case, the transparency of the plastic films) was not an adequate criterion for assessing novelty.
Moreover, E18 explicitly disclosed opaque substrates in the form of paper substrates and substrates provided

with a background coating. The fact that the coating rendered a possibly rough surface of the substrate smooth was only a side effect; the main purpose of the coating was to provide a dark colour, irrespective of whether the substrate was made of plastic or paper. The skilled person would thus never read E18 such that any of the substrates mentioned was required to be transparent.

According to the Case Law, section I.C.5.2.6, a generic feature did not take away novelty of a specific feature, while a specific feature did take away the novelty of a generic feature. Decision T 1204/00, referring (in the paragraph bridging pages 7 and 8) to decision T 651/91 cited by the appellant, set out that "a disclosure is to be regarded as generic even if it leaves the choice between two alternatives only". The case law was indeed black and white concerning that issue.

3.4 The **board** notes that E18 is a document according to Article 54(3) EPC.

The board further notes that according to the Case Law, section I.C.4.3, an alleged disclosure can only be considered "implicit" if it is immediately apparent to the skilled person that *nothing other* than the alleged implicit feature forms part of the subject-matter disclosed. This is in line with the submissions of the respondent with respect to decisions T 651/91 and T 1204/00.

In the present case, E18 does not mention the (lack of) transparency of the substrate at all. That is, E18 leaves the (degree of) transparency of the substrate

entirely open, contrary to the submission of the appellant.

Therefore, E18 does not exclude (or rule out, in the words of the respondent) that the substrates polyethylene and PVC may be transparent (as submitted by the appellant taking into account E23 and E25). However, transparent substrates are not explicitly disclosed in E18, either.

Instead, substrates that are not transparent (such as paper or generally substrates coated with a coloured background) are explicitly disclosed in E18 (page 12, lines 1 to 8). In that respect, the board notes that E18 presents on page 12, lines 10 to 17 the effect that coating renders the substrate smooth as an add-on effect ("Durch die Beschichtung ... *kann auch gleichzeitig* die Oberfläche ... veredelt werden", emphasis added by the board). The main purpose of the coating, however, is to provide a background colour to enhance the colour shifting effect of the latent image (page 12, lines 1 to 8), in line with the submissions of the respondent.

Thus, E18 discloses in a generic manner that almost any imprintable material ("nahezu jedes bedruckbare Material", page 11, lines 14 ff.), in particular plastic films of any kind ("Kunststofffolien jeglicher Art", page 11, lines 25 ff.), may be used as a substrate for the disclosed security element, as submitted by the appellant. This implies in a general manner that the substrates may be transparent, translucent or opaque. E18 therefore might be seen as implicitly disclosing the generic feature that the substrate must have a certain degree of transparency

ranging from clear (transparent) to opaque (see also E25, section "Optical properties").

However, it is not immediately apparent to the skilled person that *nothing other* than a (visually substantially) transparent substrate forms part of the subject-matter disclosed in E18. In view of the Case Law mentioned above (section I.C.4.3), E18 does therefore not implicitly disclose a (visually substantially) transparent substrate.

Hence, E18 does not disclose feature 1b (substantially visually transparent substrate) and part of feature 1c4 (latent effect visible from either side), in agreement with the findings of the opposition division. The subject-matter of claim 1 as granted is therefore new over document E18 (Articles 100(a), 52(1), 54(1) and (3) EPC).

4. Main request - inventive step, starting from E17

4.1 It was common ground that E17 could be considered to represent the closest state of the art and that the claimed subject-matter of the patent differed from the disclosure of E17 in that

- the substrate was substantially visually transparent (feature 1b) and that
- the appearance of the device *when viewed from either side of the substrate* changes at different angles of view, generating a latent effect (part of feature 1c4).

This was also the finding of the opposition division. The board sees no reason to disagree.

4.2 The **opposition division** held that the skilled person, starting from the disclosure of E17 and irrespective of the objective technical problem to be solved, would not find a pointer in E9 to provide a security device as claimed, in particular because E9 did not disclose printing on a transparent substrate.

4.3 The **appellant's** submissions

4.3.1 The objective technical problem could be formulated as how to improve the visual appearance of the security device disclosed in E17 to thereby increase the security level.

4.3.2 E17 explicitly mentioned that the security device with the latent image could be printed on any substrate ("auf einem beliebigen Träger", paragraph [10]). Moreover, E17 concerned banknotes. The skilled person would thus consult E9 representing the common general knowledge in that technical field when trying to solve the objective technical problem of improving the visual appearance of the security device to increase its security level.

4.3.3 They would learn e.g. from section 3.3.2 on page 89 of E9 that specially treated plastic foils could be used for printing upon them. The special treatment mentioned at the beginning of that section referred not only to the opacified parts mentioned further below, but to plastic foils in general, including transparent substrates.

4.3.4 From the portrait of Captain Cook which "can be observed from the obverse as well as the reverse of the note" (E9, section 3.3.2, penultimate paragraph), the skilled person would learn both that security devices

can be provided in a transparent area of the banknote and what advantages are obtained as a result. It was thus commonly known to provide a security element in a transparent area of a security document to enable the document to be viewed and checked from either side.

4.3.5 It did not matter that the security device referred to in section 3.3.2 of E9 itself was a diffractive security element (DOVID) and not printed, because there was no particular interaction between the nature of the security element and its placement in a transparent area of the banknote. Instead, the security level of the security device was increased only by its provision in a transparent window.

4.3.6 Printing on the transparent area would pose no problem to the skilled person, who would always try to adapt existing security devices to new technologies.

4.3.7 The skilled person would thus, with a "try and see" attitude, print a security device as disclosed in E17 on a transparent area of a banknote and immediately recognise that the security device is visible from both sides. They would thereby arrive at the subject-matter of claim 1 as granted without exercising any inventive skills.

4.4 The **respondent's** submissions

4.4.1 The respondent submitted that including the improvement of the visual appearance into the objective technical problem amounted to incorporating a pointer to the solution into the problem. The objective technical problem should instead be formulated more generally as how to increase the security level.

4.4.2 Section 3.3.2 of E9 only related to *diffractive* security elements which must be embossed in transparent plastic. However, this section taught nothing in relation to the printed security devices as claimed. The security devices of E17 on the one hand and of section 3.3.2 of E9 on the other were thus completely different. Therefore, in the framework of the problem-solution approach, nothing would cause the skilled person to look at section 3.3.2 of E9 when trying to solve the objective technical problem mentioned above starting from E17.

4.4.3 In any case, there was no motivation provided by the prior art that *would*, as opposed to *could*, lead the skilled person to modify E17 by forming the particular printed line array security device disclosed therein on a transparent substrate as claimed. According to point 25 of the Reasons of decision T 688/14 mentioned in section I.D.7.2 of the Case Law, the "try and see" approach mentioned by the appellant also required such a motivation before the skilled person started routine testing.

4.4.4 Moreover, E9 would not motivate the skilled person to print in the transparent window of a security document at all. All printed features mentioned in that document were arranged outside the transparent window on an opacified part of the substrate rendered sufficiently white by a large scale opacifying coating (no "printing") or inorganic fillers. That is, if the security device disclosed in E17 was to be formed on a substrate as the one mentioned in E9, it would be placed on this opacifying coating outside the transparent window.

4.4.5 E9 also mentioned latent images. These were, however, not provided on transparent substrates. At best, reading E9 would lead the skilled person to realise that they could replace the printed latent feature of E17 by a blind-embossed latent feature without ink as disclosed in section 3.3.2.2 of E9.

4.5 The **board's** opinion

4.5.1 The board notes that E9 is an excerpt of a widely known textbook published in 2005. The board is therefore of the view that it represents (a part of) the common general knowledge of the skilled person versed in the art of optical security devices for documents well before the priority date of the opposed patent, in line with the submissions of the appellant (see section 4.3.2 above). Thus, the skilled person would have been aware of its content including section 3.3.2, even though they might not have specifically considered it, as submitted by the respondent (see section 4.4.2 above).
The board further holds that the skilled person would have encountered no particular technical problem when trying to print on plastic foils in general or on the transparent window of E9 in particular, in line with the submission of the appellant (see section 4.3.6 above).

The board therefore does not doubt that the skilled person *could* have printed the relief lines disclosed in E17 on a transparent (part of a) substrate.

4.5.2 The skilled person would always try furthering the existing state of the art. Thus, to a certain extent, the board can accept the submission of the appellant that the skilled person would try adapting existing

security devices to new technologies (see section 4.3.6 above). Nevertheless, the skilled person would not do so by trying adapting any existing security device to any new technology to cover all possible combinations.

Instead, in the present case the board agrees with the respondent that the skilled person would need a motivation to try out a specific combination or approach (see section 4.4.3 above). This is in line with the board's understanding of the explanation in section I.D.7.2 of the Case Law that the adoption of a "try and see" attitude (referred to by the appellant and commented upon by the respondent, see sections 4.3.7 and 4.4.3 above) concerns "an approach suggested by the prior art".

4.5.3 In the present case, E17 does not comprise any hint or suggestion, or in other words any motivation, to print the security devices A and B on a (visually substantially) transparent substrate.

E9, on the other hand, explicitly discloses that a DOVID in a transparent window can be observed from either side, as submitted by the appellant (see section 4.3.4 above). However, E9 does not comprise a general teaching that the security of a(ny) security device can be increased merely by providing it in a transparent window, contrary to the submission of the appellant (see section 4.3.5 above).

4.5.4 Furthermore, E9 does not contain the disclosure that printing in a transparent window of a banknote increases the security level, either. Instead, "sufficient whiteness" is rendered to the synthetic papers. The board holds that the "sufficient whiteness" is provided to enable the synthetic papers to be

printed upon, as set out by the respondent, such that adequate printing from both sides is possible.
Coating the plastic foil or providing it with inorganic fillers to render the synthetic papers sufficiently white are the only examples given in section 3.3.2 of E9 for treating the plastic foils such that they can be used by printing techniques. Thus, the board does not believe that the skilled person would understand that section as disclosing any other special treatments of the plastic foils such that it could be used by printing techniques, contrary to the appellant's submission (see section 4.3.3 above).
For these reasons, the board holds that the skilled person would learn from section 3.3.2 of E9 that any printing should be carried out on the opacified parts of the synthetic paper, as submitted by the respondent (see section 4.4.4 above).

4.5.5 Moreover, E9 explicitly mentions latent images at various places. For instance, according to section 3.3.2.2, a latent image is created by blind embossing (i.e. without ink) a transparent window. In addition, according to section 5.2.5.1 of E9, latent images are created by printing; however, no transparent substrate is mentioned in this section.
That is, the skilled person starting from E17 would get the hint from E9 to either blind emboss the latent image of E17 in a transparent window or to print the latent image of E17 on a non-transparent (part of the) substrate, in line with the submissions of the respondent (see section 4.4.5 above).

4.5.6 It follows from the above that the skilled person would not learn from E9, or consider from their common general knowledge as exemplified in E9, to print the latent image of E17 on a substantially visually

transparent (part of the) substrate. Hence, the skilled person, starting from E17 and taking into account their common general knowledge, for instance as exemplified in E9, *would* not arrive at the claimed subject-matter without exercising any inventive skills.

The board notes that in that respect, it does not matter whether the skilled person, starting from E17, would try to solve the problem of improving the visual appearance of the printed security device (in order to increase its security level) as submitted by the appellant (see section 4.3.1 above) or if they would try to solve the more general problem of simply increasing the security level of the security device of E17 as submitted by the respondent (see section 4.4.1 above). In either case the board would reach the conclusion that subject-matter of claim 1 as granted involves an inventive step (Articles 100(a), 52(1) and 56 EPC).

5. Conclusion

Thus, none of the objections submitted by the appellant with respect to Article 100(a) EPC (lack of novelty and inventive step) prejudices the maintenance of the patent. Therefore, the appeal must fail.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Sánchez Chiquero T. Häusser

Decision electronically authenticated