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Datasheet for the decision of 28 March 2025

Case Number: T 2644/22 - 3.2.05

Application Number: 16777744.0

Publication Number: 3356152

IPC: B42D25/23

Language of the proceedings: EN

Title of invention:
Security print media and method of manufacture thereof

Patent Proprietor:
De La Rue International Limited

Opponents:
Oberthur Fiduciaire SAS
VHP Security Paper B.V.

Relevant legal provisions:
EPC Art. 54(1), 56, 83, 84, 123(2)
RPBA 2020 Art. 12(4), 12(6)

Keyword:

Sufficiency of disclosure (yes)
Compliance with Article 84 EPC (yes)
Added subject-matter (no)
Admittance of novelty and inventive step objections (no)
Novelty and inventive step (yes)

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Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0

Case Number: T 2644/22 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 28 March 2025

Appellants: (Joint Opponents)	Oberthur Fiduciaire SAS 7 Avenue de Messine 75008 Paris (FR) VHP Security Paper B.V. Wezenweg 2 7339 GS Ugchelen (NL)
Representative:	Cabinet Nony 11 rue Saint-Georges 75009 Paris (FR)
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)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 19 October 2022 concerning maintenance of the European Patent No. 3356152 in amended form.**

Composition of the Board:

Chairman	P. Lanz
Members:	O. Randl
	F. Blumer

Summary of Facts and Submissions

I. The joint opponents filed an appeal against the opposition division's decision on the version in which European patent No. 3356152 ("the patent") can be maintained in amended form.

II. The opposition division was of the opinion that the patent proprietor's auxiliary request 9 satisfied the requirements of the EPC.

III. The following documents to which the opposition division referred are cited in the following text.

D1	GB 2 076 337 A	D2	US 2006/0249042 A1
D3	WO 2015/197617 A1	D4	WO 2014/199296 A1
D5	AU 2010247373 B2	D6	US 2005/0012326 A1
D7	WO 91/07285 A1	D8	Wikipedia on "Halftone"
D10	EP 1 674 286 A1	D11	AU 2011101065 A4

IV. The oral proceedings before the board took place on 28 March 2025.

V. The appellants (joint opponents) requested that the decision under appeal be set aside and that the patent be revoked.

VI. The respondent (patent proprietor) requested that the appeal be dismissed, or, alternatively, that the decision under appeal be set aside and that the patent be maintained as amended, based on one of the sets of claims filed as auxiliary requests 10 to 13 with its reply to the statement of grounds of appeal.

In addition, the respondent requested that the following objections not be admitted into the proceedings:

- the novelty objection in view of document D3;
- the inventive step objection starting from document D7 as closest prior art;
- the inventive step objection starting from document D1 in combination with document D8;
- the submissions in the appellants' letter dated 13 March 2025.

VII. Claims 1 and 11 of auxiliary request 9 underlying the impugned decision read as follows (for claim 1, the feature references used by the board are added in square brackets; the amendments with respect to claims 1 and 11 as granted are underlined).

"1. [**1**] A security print medium (1) for forming security documents therefrom, comprising [**2**] a transparent or translucent polymer substrate (5) having first and second opposing surfaces (5a, 5b), and [**3**] a plurality of overlapping opacifying layers (6) disposed on the first and/or second surfaces of the polymer substrate, [**4**] each of the opacifying layers (6) being a layer of semi-opaque material disposed over substantially the whole area of the polymer substrate, [**5**] covering at least 50% of the polymer substrate, wherein [**6**] in at least a region of the substrate a multi-tonal image (10) is exhibited by the plurality of overlapping opacifying layers (6) in combination with one another, [**7**] at least when the security print medium is viewed in transmitted light, [**8**] each of the plurality of overlapping opacifying layers (6) having gap(s) in which the semi-opaque material of the layer is absent, [**9**] the gap(s) of each layer being defined in accordance with a different respective sub-image,

[**10**] the sub-images in combination defining the multi-tonal image (10), whereby [**11**] the number of opacifying layers (6) overlapping one another at any one location varies across the substrate, the resulting variation in optical density of the plurality of overlapping opacifying layers in combination with one another giving rise to the multiple tones of the multi-tonal image (10), characterised in that [**12a**] either all the sub-images are different negative image versions of the multi-tonal image [**12b**] or all the sub-images are different positive image versions of the multi-tonal image, and wherein [**13**] at least one of the sub-images is a multi-tonal sub-image."

"11. A method of making a security print medium (1), comprising:

providing a transparent or translucent polymer substrate (5) having first and second opposing surfaces (5a, 5b);

applying a plurality of overlapping opacifying layers (6) onto the first and/or second surfaces of the polymer substrate, each of the opacifying layers being a layer of semi-opaque material disposed over substantially the whole area of the polymer substrate, covering at least 50% of the polymer substrate, each opacifying layer being applied in accordance with a different respective sub-image across at least a region of the substrate;

whereby each of the plurality of overlapping opacifying layers (6) has gap(s) in which the semi-opaque material of the layer is absent, the gap(s) of each layer being defined in accordance with a different respective sub-image, the sub-images in combination defining a multi-tonal image (10) which is exhibited by the plurality of overlapping opacifying layers in combination with one another, at least when the

security print medium is viewed in transmitted light, whereby the number of opacifying layers overlapping one another at any one location varies across the substrate, the resulting variation in optical density of the plurality of overlapping opacifying layers in combination with one another giving rise to the multiple tones of the multi-tonal image, characterised in that either all the sub-images are different negative image versions of the multi-tonal image or all the sub-images are different positive image versions of the multi-tonal image wherein at least one of the sub-images is a multi-tonal sub-image."

VIII. The parties' submissions may be summarised as follows.

(a) Claim interpretation

(i) Appellants

None of paragraphs [0005], [0008] and [0032] of the patent defines a "print medium". The patent fails to specify the characteristics that enable the medium to receive a print. Thus, the feature is not limitative. The patent does not define a "semi-opaque" material. Any non-transparent material qualifies as semi-opaque (see paragraph [0008]). Any arrangement of superimposed layers can be considered to fulfil the requirement that a multi-tonal image is exhibited by the opacifying layers "in combination with one another". Neither claim 1 nor the description of the patent discloses that the gaps extend through the thickness of the opacifying layer. Thus the gap(s) may be blind.

(ii) Respondent

The skilled person would have understood that a "security print medium" is a document substrate suitable for being printed on and turned into security documents. Paragraph [0032] of the patent distinguishes the security print medium from features such as foils, strips or patches. A "semi-opaque" material is neither transparent nor opaque. A "gap" corresponds to the local absence of opacifying layer, not merely a reduced thickness thereof (see paragraphs [0010] and [0013]).

(b) Sufficiency of disclosure

(i) Appellants

The claimed subject-matter is insufficiently disclosed.

- The concepts of sub-images and positive/negative versions thereof are so poorly defined that the skilled person would not have been able to identify how to solve the problem underlying the patent without undue burden.
- The examples do not unequivocally disclose whether the sub-images are positive or negative versions of the multi-tonal image.
- The description's incompleteness and inconsistency are such that the skilled person would have been unable to determine whether or not they are implementing the invention.
- The skilled person would not have known what the "half-tone sub-image" mentioned in claim 3 is.
- The notice of opposition contains other objections.

(ii) Respondent

The patent provides sufficient information for the subject-matter of the claims to be carried out. It contains nine detailed examples. There are also examples of suitable multi-tonal images. The skilled person would have had no difficulty extending this teaching to form any desired multi-tonal image. "Positive" and "negative" image versions are known to the skilled person and defined in paragraph [0012]. For the purposes of the invention it does not matter whether a particular image is interpreted as positive or negative, provided the interpretation is applied consistently. Regarding the choice of sub-images, the skilled person could choose to reproduce the same multi-tonal images as exemplified in the patent, or to use the instructions in paragraphs [0012] to [0015]. The skilled person is familiar with half-toning and half-tone images (see document D8, second sentence). An image can be both multi-tonal and half-tone.

(c) Compliance with Article 84 EPC

(i) Appellants

Paragraph [0058] of the patent refers to Fig. 4, which is presented as being in accordance with the invention (paragraph [0031]). In view of the wording of paragraph [0058], it is not clear whether the embodiment of Fig. 4 is in accordance with the claimed invention. The minutes of the oral proceedings before the opposition division establish that the question of adapting the description was addressed after the question of the patentability of the subject request. It should have been dealt with first.

(ii) Respondent

Paragraph [0058] does not contradict the claim wording. It follows the description of Fig. 4 and teaches that one or more of the sub-images could be formed as a multi-tonal sub-image, as in Fig. 3, which is in accordance with an embodiment of the invention. The use of the word "could" indicates that no particular sub-image is singled out as being multi-tonal. This is in line with claims 1 and 11. Accordingly, the description is consistent with the claims.

(d) Compliance with Article 123(2) EPC

(i) Appellants

Claim 1 as amended constitutes an inadmissible intermediate generalisation. Page 19, lines 6 to 9, of the application as filed discloses that in the example of Fig. 3 all the sub-images are multi-tonal. In this example, all the images are negative image versions of the multi-tonal image. It cannot be inferred from the words "[i]n other cases" on page 19, line 7 that this covers cases where the sub-images are negative or positive versions of images. Even if "in other cases" meant "in all other cases", the rest of the sentence excludes that *all* the sub-images are multi-tonal.

(ii) Respondent

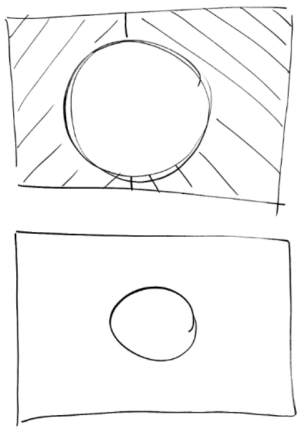
The original application directly and unambiguously discloses that "at least one" of the sub-images may be multi-tonal. The sentence on page 19, lines 7 to 9, of the original application discloses one or more than one of the sub-images being multi-tonal. The final part of the sentence relating to the remaining sub-images is

optional ("may"). There is a further explicit basis for the "at least one" aspect at page 19, lines 12 to 13 and 21 to 22. All the examples of the application as filed have features 12a and 12b. The reference to "other cases" on page 19, line 7 of the application as filed does not refer to cases outside the scope of the claims. The description does not exclude the case of all the sub-images being multi-tonal. Page 18, lines 27 to 28, discloses, in relation to Fig. 3, that "in this case each of the sub-images itself is multi-tonal".

(e) Technical content of feature 13

(i) Appellants

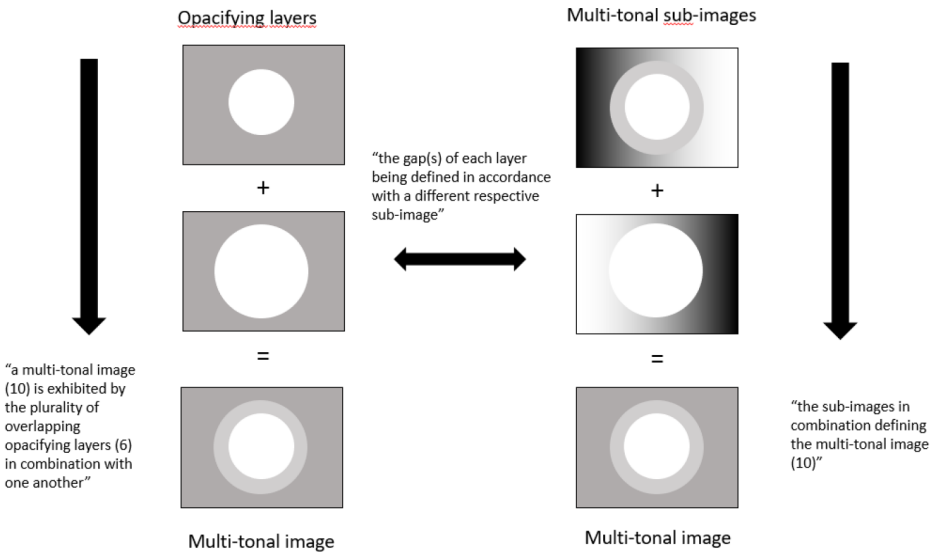
Feature 13 is not technically limitative. According to feature 9, the sub-image defines the form and arrangement of the gaps. It does not define other aspects of the opacifying layers, such as their thickness or appearance. The sub-image constitutes a map of the gaps (paragraph [0010] of the patent), a fictitious representation defining the size and location of the gaps. Consider a case with two opacifying layers, the lower layer having a smaller hole than the layer on top of it. The superposition of the layers generates a multi-tonal image similar to the one in Fig. 2 of the patent. The sub-image defines the edge of the gap (hole). The two differently shaded zones have different tones, but this has no effect on the resulting half-tone image: the sub-image only defines



Drawing made during the oral proceedings before the board

the size and location of the gaps.

The patent does not define 'multi-tonal' images by way of the presence or absence of gaps or as half-tone images. Paragraph [0047] gives a broader definition ("defining at least one intermediate tone beyond the binary options of 'present' or 'absent', on a scale visible to the naked eye"). The sub-image may consist of a set of pixels of varying darkness, as shown below.



The multi-tonal image is not defined by the presence or absence of matter. The gaps are defined by the absence of pixels (white colour), regardless of whether the sub-image is binary or multi-tonal. The linear horizontal gradient from black to white does not necessarily correspond to a plurality of pixels in half-tones, but also encompasses a progressive change of colour. Paragraph [0016] gives just one specific example ("e.g.") of sub-images with a gradual reduction of the opacity towards gaps. Claim 1 is not limited to this case. It also covers multi-tonal images having pixels of different colours or tones.

(ii) Respondent

The skilled person would understand that each sub-image is embodied in an opacifying layer. Gaps are the only way in which an opacifying layer can convey characteristics of a sub-image. When the opacifying layer is viewed in transmitted light, the desired sub-image is seen. This is also supported by the description of the patent, see for example Figs. 2 a) to c). Fig. 9 of the patent shows the opacifying layers. It is apparent that on looking at these layers the sub-images can be seen. The opacifying layer is the physical manifestation of the sub-image. This holds true for multi-tonal sub-images as well, see paragraph [0016] of the patent. The idea that the multi-tonal nature of the sub-images would somehow be "lost" is at odds with the patent and makes no technical sense. The whole point of having a multi-tonal sub-image is to make the multi-tonal image more complex (see paragraphs [0016] and [0049]). The arguments presented in the letter of 13 March 2025 (where the idea of "near-white" ("quasi-blanc") appears for the first time) and put forward during the oral proceedings before the board should not be admitted.

(f) Novelty over document D1

(i) Appellants

Feature 13 is the only distinguishing feature over the disclosure of document D1. Since this feature cannot provide a structural definition of the claimed subject-matter, it cannot establish novelty over document D1.

(ii) Respondent

The subject-matter of claim 1 is new; it differs from document D1 by feature 13.

(g) Novelty over document D2

(i) Appellants

The subject-matter of claim 1 of auxiliary request 9 is not new over document D2. The secure document 1 in D2 is, for example, a banknote or an identity card (paragraphs [0002] and [0078]) and the security element 2 may be for example a security thread (paragraph [0041]). Thus a print medium 2 for forming a secure document 1 is disclosed. The fact that the plastic substrate is part of the security element and not part of the security print medium is irrelevant, as this is not claimed. The print medium comprises a transparent polymer substrate (see paragraph [0050]) and two super-imposed opacifying layers (layers 6 and 7). In all the figures, the areas of the substrate 4 in which layers 6 and 7 are absent appear transparent in transmitted light (see for example element 20 in Fig. 7c or element 23 in Fig. 8c). Each of the opacifying layers is made of a semi-opaque material, see paragraph [0007]. The figures show that the opacifying layers cover more than 50% of the substrate. Since feature 13 is non-limiting, it can be disregarded.

(ii) Respondent

Document D2 fails to disclose at least features 1 to 4 and 13 of claims 1 and 11. It discloses a security element 2, such as a security thread, which can be applied to a security document. The construction of the

latter is not disclosed in any detail, but paragraph [0003] and the use of the term "security paper" from paragraph [0041] onwards suggests that it is a paper substrate. There is no disclosure that it is a transparent or translucent polymer substrate. The security element 2 is not a "security print medium", i.e. a substrate equivalent to paper that can be printed on and transformed into security documents. The substrate of claim 1 is the base substrate of the security print medium and not something applied to it or threaded through it. The layers which the appellants correlate to the claimed "plurality of opacifying layers" are the metal layers 6,7. Only one of them is semi-transparent. Paragraph [0008] discloses that one of the metal layers (layer A) is "perceived opaque by the viewer" (see also paragraphs [0025], [0026] and [0079]). Moreover, these layers 6,7 are not disposed over substantially the whole area of the substrate. The appellants do not assert that feature 13 is disclosed.

(h) Admittance of the novelty objection based on document D3

(i) Appellants

Document D3 was filed within the opposition period. In response to the opposition division's finding that the subject-matter of claim 1 as granted was new over document D3, the appellants provided counter-arguments in their letter of 8 July 2022. The opponents could expect to obtain the final opinion of the opposition division in this respect before claim 1 of auxiliary request 9 was discussed. In point 4.3 of their notice of opposition, the opponents argued that the subject-matter of claim 3 of the patent (i.e. feature 13) was known from document D3. Thus, the presentation of this

argument at the oral proceedings did not constitute a late filing. In its decision, the opposition division did not reaffirm that the subject-matter of claim 1 as granted was new over document D3. Decision G 4/92 concerns the presentation of new facts during oral proceedings; however, the objection of lack of novelty over document D3 is not a new fact but a new argument.

(ii) Respondent

The opposition division was right not to admit the late-filed novelty objection based on document D3.

(i) Novelty over document D4

(i) Appellants

Document D4 discloses a security element 2 of a secure item 10 such as a passport (page 11, lines 12 to 16), comprising a transparent polymer substrate 43 (page 15, lines 12 and 13) and opacifying layers 11,20,18 of semi-opaque material covering more than 50% of the substrate. Each of the opacifying layers has holes: layer 11 has a window 15 (page 15, lines 7 and 8), layer 18 a micro-zone 30 formed by micro-perforation (page 15, lines 9 and 10), and layer 20 a non-opaque zone 23 (page 15, lines 13 and 14) formed by perforation (see page 18, line 25). Since the structures of Figs. 2 and 3 are similar to those of the patent (see for example Fig. 1b), layers 11,20,18 can be assimilated to layers 6a,6b,6c. A multi-tonal image is observed in transmitted light. Features 9 and 12a to 13 are implicitly disclosed. It follows that the subject-matter of claim 1 is anticipated by the embodiments illustrated in Figs. 6, 12 and 13 of document D4.

(ii) Respondent

Document D4 fails to disclose features 2 to 4, 6 and 11 to 13. The material from which the security element 20 is formed is not semi-opaque; rather, the element 20 as a whole is, because of the perforation. The security document is based on a paper substrate rather than on a polymer substrate. The substrate is not transparent or translucent. The paper layers 11,18 are not necessarily semi-opaque. Layer 18 must be opaque, because it forms the periphery of the non-opaque region 30 (see page 2, line 22 to page 3, line 2). The layers 11,18,20 are opaque. Layer 20 is only present on the security element 2 and not across substantially the whole document substrate. Due to the opacity of layers 11,18,20, there is no multi-tonal image in transmitted light. All that is seen in transmitted light is a point of light corresponding to region 30 in opaque surroundings, i.e. a single tone. Consequently, the subject-matter of claims 1 and 11 is new over document D4.

(j) Novelty over document D5

(i) Appellants

Document D5 discloses a print medium (page 4, lines 15 to 21), comprising a polymer substrate 5 (page 15, line 36) and overlapping printable ink layers 6a to 6c. Page 10, lines 13 to 19, and page 9, lines 27 to 31, disclose that the optically variable element 2 can be observed through layers 6a to 6c. Thus these layers are non-opaque. Layers 6a to 6c extend over the entire area of the substrate (page 17, lines 1 to 4). In the example shown in Fig. 3, the security paper comprises a layer of paper. Such a layer is visible in transmitted light. Layers 6a to 6c are of the same thickness (page

16, last paragraph). When observed in transmitted light, a multi-tonal image is necessarily observed. In the example of Fig. 3, each layer 6a to 6c results in a sub-image. Since the layers are semi-opaque, they necessarily form a multi-tonal image. Nothing distinguishes the stack of layers in Fig. 3 of document D5 from those in Fig. 2 of the patent. Feature 13 is non-limiting. Consequently, document D5 discloses all the features of claim 1 in combination.

(ii) Respondent

Document D5 fails to disclose features 4, 6 and 11 to 13. The ink-receptive layers 6a to 6c of Fig. 3 are "substantially colourless" (page 6, lines 27 to 29). The skilled reader would not infer that the ink-receptive layers have a colour, or an optical density greater than zero. They are said to impart no information to the observer and to be "visually inconspicuous". The "matting effect" does not disrupt the viewing of items through the ink-receptive layers (page 3, lines 14 to 16). If the construction of Fig. 3 is viewed in transmitted light, the region surrounding the optically variable element 2 appears to be all of a single tone. There is no variation in optical density, and no multi-tonal image. Moreover, there can be no sub-images which are versions of the multi-tonal image. Feature 13 is not disclosed either. Thus the subject-matter of claims 1 and 11 is new over document D5.

(k) Novelty over document D6

(i) Appellants

Document D6 discloses a print medium (security document, paragraphs [0017] to [0019]), comprising a transparent polymer substrate 11 (paragraph [0022]). Overlapping opacifying layers 3,4,9 are disposed on the polymer substrate (paragraph [0045]). Each of them is semi-opaque (paragraph [0008]) and disposed over almost the entire surface of the substrate (paragraph [0009]). A multi-colour image is exhibited by the overlapping opacifying layers in transmitted light (paragraphs [0007], [0008] and [0013]).The opacifying layers have gaps (paragraph [0056]). Each metal layer 3,4,9 results in a sub-image, these sub-images together forming a multi-tonal image. Fig. 1 shows that the layers cover more than 50% of the substrate. Document D6 also discloses feature 11 (see Figs. 8 and 9 and paragraph [0008]). It implicitly discloses features 12a/12b. There is nothing to distinguish the stacking of the layers in Figs. 8 and 9 of document D6 from those in Fig. 2 of the patent. Feature 13 is non-limiting. Thus, document D6 discloses all the features of claim 1.

(ii) Respondent

Document D6 fails to disclose features 2 to 6 and 11 to 13. It does not disclose a security print medium of the sort required by the patent. There is no direct and unambiguous disclosure of a polymer substrate. Since the layers 3,4,9 are only present on security thread 2, they are not disposed over substantially the whole area of the substrate. The metal layers 3,4,9 are not semi-opaque. Paragraph [0008] describes viewing in reflected light. There is no need for the underneath metal layer

to be semi-transparent. Document D6 seeks to exhibit multiple different colours of metal on the thread. All that is seen in transmitted light are the gaps mentioned in [0013] (if they extend through all the metal layers) against opaque surroundings. Hence there is no multi-tonal image arising from a variation in optical density, and there are no sub-images according to features 12a/12b. Thus the subject-matter of claims 1 and 11 is new over document D6.

(l) Inventive step, starting from document D1

(i) Appellants

The embodiment of Fig. 7 is a suitable starting point for examining inventive step. Feature 13 constitutes the sole distinguishing feature. Its effect is disclosed in paragraph [0016] of the patent. The objective technical problem is to provide a security print medium with increased security or to increase the attractiveness of the print medium.

- Considering document D1 alone

The skilled person starting from document D1 would have arrived at the invention without any inventive step. Document D1 teaches that the perforated layers can be silk-screen printed (page 2, lines 35 to 41). This also applies to the embodiment of Fig. 7 (page 3, lines 9 to 11). The skilled person would have understood that one of the layers may be of a different colour (page 4, lines 29 and 85 to 93). Document D1 proposes printing the semi-opaque opacifying layers with colour mixtures to obtain half-tone (and thus multi-tonal) images, see page 2, lines 14 to 17, 29 to 31, and 54 to 64.

- In combination with document D8

Document D1 dates from 1981. To form a half-tone image as suggested in document D1, it would be obvious to the skilled person to implement a more modern printing technique such as laser or inkjet printing, which was not industrially available in 1981, to achieve half-tone printing (see document D8).

- In combination with document D10

The skilled person starting from Fig. 7 of document D1 would have considered document D10, which solves the objective technical problem (see paragraphs [0003] and [0005]). Document D10 discloses a transparent plastic substrate (paragraph [0030]) with a dot mark appearing to be in three dimensions when observed in transmitted light (paragraph [0001]). The mark can be multilayered (see paragraph [0019]). The dots are arranged in such a way that the mark appears multi-tonal (paragraphs [0004] and [0034]). Alternatively, D10 teaches a mark made of holes (paragraph [0008]). Thus documents D1 and D10 are also compatible from a process point of view. Like document D1, document D10 envisages screen printing (paragraph [0010]). It proposes that, when inserted in a paper medium, the mark should correspond with a watermark that is a copy of it (paragraph [0028]). Thus, both documents seek to produce a multilayer structure having the effect of a watermark in transmitted light. The skilled person seeking to increase the security of the print medium of Fig. 7 of document D1 would have received, in document D10, the explicit suggestion to provide opacifying layers with a multi-tonal mark formed by a set of dots. Thus the skilled person would have implemented feature 13.

(ii) Respondent

The subject-matter of claims 1 and 11 differs from the embodiment of Fig. 7 of document D1 by feature 13. The technical effect of the difference is to enable the formation of more complex images having a greater number of tones, resulting in an enhanced security level of the pseudo-watermark. The objective technical problem is how to achieve this.

- Considering document D1 alone

The passages on page 2, lines 35 to 41 and 54 to 64, do not relate to the embodiment of Fig. 7. Page 3, lines 8 to 23, makes clear that perforation can be used instead of printing (not in combination with it). The passages on page 2 relate only to achieving multi-tonal effects from the ID card as a whole, not within any individual layer. The variations proposed (coating thickness, number of printed layers, composition of the colourant) are not within a single layer. In the examples there is no suggestion of configuring an individual layer so as to exhibit a multi-tonal effect by itself. Even if the skilled person considered a more complex sub-structure, it would not be obvious how to form the perforated layers of Fig. 7 as a multi-tonal sub-image. Thus, the subject-matter of claims 1 and 11 is inventive in view of document D1.

- In combination with document D8

This objection is new and should not be admitted into the appeal procedure: it is not substantiated, and it could have been raised in opposition. Claim 1 does not require modern printing techniques. Neither document D1 nor document D8 teaches that the use of half-tone

printing would enhance security. Even if half-tone printing were implemented in document D1, this would not inevitably result in a multi-tonal image. Perforation and half-tone printing are distinct, alternative approaches. Combining them would not have been obvious to the skilled person.

- In combination with document D10

Document D1 seeks to provide a "pseudo-watermark" in a polymer substrate (page 1, lines 35 to 82). Document D10 concerns a completely different structure to document D1. It discloses a printed image on a thread which is not integral to a security document. The image, which is not a (pseudo-)watermark, is obtained by the lateral arrangement of dots rather than the overlapping of layers. The only reference to watermarks concerns a watermark in the paper of the document into which the thread is incorporated. The argument that documents D1 and D10 both seek to propose a plastic substrate producing an optical effect in transmitted light relies on an extreme abstraction. In reality, the skilled person would not have considered document D10 relevant. The references to silk-screen printing cannot establish a link, because the embodiment of Fig. 7 is not obtained by printing. The 3D appearance in document D10 arises from the artwork and not from providing multiple layers. If the skilled person starting from Fig. 7 of document D1, had tried to apply the teaching of document D10 to it, they would not have retained the perforations or, if they did, they would not have combined them with the dot image of document D10 so that both contributed to the same multi-tonal image. Furthermore, there would have been no incentive for the skilled person to arrange the new print layer to cover more than 50% of the ID card substrate: in document

D10, the material is only applied to a small, localised area. Thus the subject-matter of claim 1 is inventive over document D1 in view of document D10. The appellants' reasoning is based on hindsight.

(m) Inventive step, starting from document D11

(i) Appellants

The opposition division correctly found document D11 to disclose all the features of claim 1 as granted. The skilled person combining documents D11 and D10 would have arrived at the invention in an obvious manner. Document D11 discloses that the stacking of optically variable layers produces an effect similar to that of a watermark. Document D10 aims to formulate a multi-layer digitised mark having the appearance of a watermark. The skilled person would therefore find in document D10 the suggestion of modifying at least one of the opacifying layers of document D11. Thus the subject-matter of claim 1 is not inventive over a combination of documents D11 and D10.

(ii) Respondent

Document D11 does not disclose feature 13. The latter's technical effect is to enable the formation of more complex images having a greater number of tones, which leads to an enhanced security level (see paragraph [0016] of the patent). The objective technical problem is how to achieve this effect. There is nothing in document D11 which would lead the skilled person to contemplate introducing a substructure to any of the individual layers by utilising a multi-tonal sub-image. For the same reasons discussed in relation to the objection based on a combination of documents D1 and

D10, the skilled person would not have combined documents D11 and D10. It is not apparent how or why the teaching of document D10 could be applied to the disclosure of document D11; nor is there any suggestion that this would have enhanced security. The objection is based on hindsight. The subject-matter of claims 1 and 11 is inventive over D11 in view of document D10.

(n) Inventive step, starting from document D7

(i) Appellants

Document D7 does not disclose features 5 and 8. The patent does not disclose any technical effect of feature 5. A skilled person starting from document D7 would have arrived at this feature in a routine manner. Concerning feature 8, document D7 discloses, on page 13, lines 1 to 3, in relation to example 6, which involves the superimposition of two layers, that a two-tone pseudo-watermark is obtained. At least one of the two layers must have holes in it. Starting from document D7, it would be obvious to provide each layer with gaps. The passage on page 9, lines 22 to 25, of document D7 suggests forming the second layer several times and in several places. It also suggests using compositions of different colours for the second layer. This would lead the skilled person to provide at least one multicoloured layer, which necessarily defines a multi-tonal sub-image. Accordingly, the subject-matter of claim 1 (and 11) does not involve an inventive step with respect to document D7. Moreover, document D7, like document D10, seeks to provide a secure document with a plastic substrate that is visible in transmitted light. A skilled person, starting from example 6 of document D7, would have found in document D10 the suggestion of forming a layer with dots to provide an

additional 3D effect to the watermark effect. This would have led the skilled person to the invention.

(ii) Respondent

The opposition division's decision not to admit this objection to the first-instance proceedings was correct. In deciding how to exercise its discretion, it considered the right criteria (*prima facie* relevance). By the appellants' own admission, D7 fails to disclose several features of each independent claim and therefore must be less relevant than D1 or D11. Thus the objection should not be admitted to the appeal.

Document D7 fails to disclose features 2, 4, 5, 8, 12a, 12b and 13. It is not correct that feature 5 has no technical effect and would be implemented "routinely" by the skilled person. Features 4 and 5 make the layers suitable for acting as a print background across the majority of the substrate. The multi-tonal image is directly integrated into these layers, thereby increasing security. The skilled person starting from document D7 and seeking to improve the security level would not have considered forming the multi-tonal image using the imprintable layer of document D7. This runs counter to the teaching of document D7, which uses the imprintable layer to conceal the presence of the mark in reflected light (page 3, lines 22 to 25). The pseudo-watermark of document D7 is obtained by spraying layers on top of each other in a localised area of the substrate. This does not disclose or imply gaps in any of the layers. The skilled person could provide the layers with gaps, but there is nothing to prompt them to do so. Furthermore, there is nothing in document D7 which would lead the skilled person towards the specific requirements placed on the sub-images in the

patent, nor is there any suggestion in document D7 of any multi-tonal sub-image. There is no suggestion in the passage on page 9, lines 22 to 25, that different compositions can be used within one layer. In the embodiment of Fig. 6, only one type of material is used to form both layers. There is no incentive to implement a more complex sub-structure within a layer. Thus the subject-matter of claims 1 and 11 is inventive over document D7 in view of common general knowledge. Feature 13 is not obvious in view of document D10, for the same reasons as given regarding the objection based on a combination of documents D1 and D10.

Reasons for the Decision

1. Sufficiency of disclosure (Article 83 EPC)

In point 14 of the decision under appeal, the opposition division concluded that the invention was sufficiently disclosed for it to be carried out by the skilled person. The board reaches the same conclusion, for the following reasons.

The essential teaching of features 12a and 12b consists in the fact that all the sub-images are either negative or positive image versions of the multi-tonal image. The patent discloses several embodiments. In order to carry out the invention, the skilled person does not need to know whether these are negative or positive; what matters is that they are all of the same kind. The semantic uncertainty regarding the distinction between positive and negative image versions would not prevent the skilled person from carrying out the invention.

The question of whether the skilled person would have been able to determine whether or not they were implementing the invention is a matter of clarity. It is irrelevant to the question of whether the skilled person would be able to carry out the invention.

Half-tone images are well known to the skilled person.

Incidentally, it is not the board's task to identify objections raised before the opposition division. A party wishing to have objections considered by a board of appeal needs to explicitly raise them in the appeal proceedings (see Article 12(1) and (3) RPBA).
A sweeping referral to the notice of opposition is insufficient in this respect.

Consequently, the board concludes that the appellants' objections under Article 83 EPC are unfounded.

2. Compliance with Article 84 EPC

The objection of non-compliance with Article 84 EPC is based on the non-adaptation of paragraph [0058]. This paragraph, which is part of the description of the embodiment of Fig. 4,reads as follows.

> "*Again, any one or more of the sub-images could be formed as a multi-tonal sub-image in the manner previously described with respect to Figure 3 in order to achieve a more gradual variation in tone*."

The objection concerns the use of the word "could" in this paragraph and the fact that claim 1 of auxiliary request 9 comprises feature 13, according to which at least one of the sub-images is a multi-tonal sub-image.

The opposition division dismissed this objection in point 32 of the decision under appeal. It justified this conclusion as follows.

> "*The passage refers to Figure 3, which in [0031, 0047] has been designated explicitly as being in accordance with an embodiment of the invention. Thus, the reference to this figure in connection with the wording 'could' is clearly not inconsistent with the claimed subject-matter, but a clear reference to an embodiment designated as being according to the invention*."

The counter-argument, that it is not clear from paragraph [0058] whether the embodiment of Fig. 4 is in accordance with the invention, is unconvincing. Paragraph [0058] simply states that any one of the sub-images could be multi-tonal, i.e. that there is no requirement for a particular sub-image to be of that kind. The board has no doubt that the embodiment of Fig. 4 is in accordance with the invention according to claims 1 and 11 of auxiliary request 9.

The appellants also criticise the fact that adaptation of the description was addressed only after patentability of the subject-matter of the request had been examined. However, the opposition division's way of proceeding is in line with common practice at the EPO. It is not apparent to the board why the EPC would require an adaptation of the description to be carried out before novelty and inventive step of the claimed subject-matter are examined. It is preferable to examine the need to adapt the description after a set of claims has been found allowable, if only for the sake of procedural efficiency.

3. Added subject-matter (Article 123(2) EPC)

The appellants' objection concerns feature 13.

As can be seen from point 31.1 of the decision under appeal, the opposition division found the amendment to be supported by page 19, lines 6 to 9, of the application as filed. This passage reads as follows.

> "*In the present example, all of the sub-images are formed as multi-tone images in this way but this is not essential. In other cases, just one of the sub-images, or a sub-set of the sub-images, may be multi-tonal whilst the remaining one or more sub-images may be binary images*."

The opposition division justified its conclusion as follows.

> "... *this passage clearly gives a basis for only a single sub-image to be multi-tonal; that the remaining sub-images are binary is only a preferred option ("may") and thus cannot change this finding. Further, in the understanding of the opposition division a sub-image is always either binary or multi-tonal, this is inherent to the layers*."

The board endorses this conclusion. It understands the expression "in other cases" to be equivalent to "alternatively". The application as filed unambiguously discloses the case in which all the sub-images are multi-tonal images (see also page 18, lines 27 and 28). Thus the objection based on Article 123(2) EPC is unfounded.

4. Claim interpretation

4.1 "Security print medium" (feature 1)

According to the plain meaning of the words, a security print medium is a medium to be printed upon in connection with the production of a security document. This understanding is in line with the use of the expression in the description of the patent, and in particular paragraph [0032] of the patent ("... *a medium which can then be printed upon and otherwise processed to form the desired security document ...*"). Thus, the board cannot endorse the view that the "print" feature does not limit the subject matter of claim 1.

4.2 "Semi-opaque material" (features 4 and 8)

It is not correct that any non-transparent material qualifies as a "semi-opaque" material. The expression excludes both transparent and fully opaque materials.

4.3 "Gap(s)" (features 8 and 9)

Feature 8 defines gaps as zones "in which the semi-opaque material of the [opacifying] layer is absent". A blind hole (i.e. a hole that does not fully penetrate a material but stops at a specified depth, unlike a through hole which passes entirely through the material) in an opacifying layer does not qualify as a gap within the meaning of features 8 and 9. The skilled person trying to understand the meaning of the term would note that feature 8 requires "the" (and not just some) semi-opaque material of the layer to be absent in the gap. If the skilled person still had doubts in this respect, they would have examined the description of

the patent and seen that this was in line with the teaching of the patent as a whole. They would have noted that paragraph [0010] assimilates the presence of gaps to a reduced number of opacifying layers.

4.4 Sub-images (features 9, 10, 12a, 12b, 13)

The term "sub-image" is introduced in feature 9, which requires the gap(s) of each opacifying layer to be "defined" in accordance with a different sub-image. The board understands this to mean that the geometry of the opacifying layer - and in particular of its gap(s), the presence of which is required by feature 8 - is such that the desired sub-image is obtained in transmitted light. The combination of the sub-images due to the overlap of the opacifying layers defines the multi-tonal image in transmitted light (features 6, 7, 10).

According to feature 13, at least one of the sub-images must be "multi-tonal". Paragraph [0047] of the patent defines this as

> "*defining at least one intermediate tone beyond the binary options of 'present' or 'absent', on a scale visible to the naked eye. For example, each sub-image may be formed as a half tone image in which elements of the image are laid down with varying size and/or ink weight to give rise to the required variation in tone*."

The image exhibited (to use the language of feature 6) by at least one of the opacifying layers must be of that kind. This has structural consequences for that specific opacifying layer and, therefore, limits the subject-matter of claim 1.

The appellants' main counter-argument is based on a particular construal of the term "sub-image" as an abstract concept. According to this reasoning, the sub-image is a fictitious representation that is connected to the physical reality of the security print medium and its opacifying layers only insofar as it defines the gaps of these layers. The sub-images may possess several other features that may have an effect on its multi-tonality (such as colours) but do not affect the "map" of the gaps of the corresponding opacifying layers. If this understanding was correct, feature 13 would have no structural consequences regarding the print medium and could be disregarded when examining the patentability of the subject-matter of claim 1.

The board cannot endorse this interpretation. Although such an understanding of the term "sub-image" cannot be ruled out from the outset in view of the wording of claim 1, it is excessively sophisticated and does not correspond to the way in which the skilled person would have actually understood the claim.

The claimed print medium is distinguished by the fact that it exhibits a complex multi-tonal image generated by its opacifying layers (feature 6). Each layer has gaps that are defined by sub-images of the multi-tonal image (feature 9). As the multi-tonal image is exhibited by the plurality of opacifying layers, the skilled person would have expected the sub-images to be the images exhibited by the individual opacifying layers and not some abstract concept whose only connection with the physical reality of the print medium resides in its definition of the gaps. The appellants' interpretation of the term "sub-image" would have the consequence that claim 1 refers to two different kinds of images, namely the observable image

of feature 6 and the fictitious "sub-images" of feature 9, despite the fact that, according to feature 10, the sub-images in combination define the observable image. This is not a reasonable interpretation of the claim.

Consequently, feature 13 is understood to mean that the image exhibited by at least one opacifying layer must be multi-tonal.

When understood in this way, feature 13 is not abstract but makes a structural contribution to the definition of the subject-matter of claim 1. It cannot therefore be ignored when examining the novelty and inventive step of the claimed subject-matter.

5. Novelty (Article 54 EPC)

The appellants argue that the subject-matter of claim 1 is known from any of documents D1 to D6.

5.1 Novelty over document D1

Document D1 discloses an ID card with authenticity features which are testable in incident and transmitted light. The card comprises several laminated layers 22 and several monochrome printed images 6; 21,23. In an alternative embodiment shown in Fig. 7, the effect is achieved by means of perforations of homogeneously coloured sheets rather than by printing.

Fig.1B.

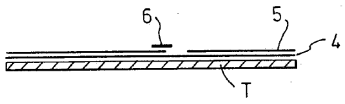
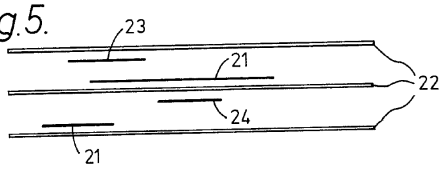


Fig.5.



The opposition division considered that the latter embodiment of document D1 anticipated the subject-matter of claim 1 as granted, but it found that feature 13 was not disclosed by document D1 (see points 18 and 31.2.1 of the decision under appeal).

The appellants' argument to the contrary is based on the understanding that feature 13 is not limitative.

The board disagrees, for the reasons given in point 4.4. It follows that document D1 does not anticipate the subject-matter of claim 1. The same reasoning applies to the subject-matter of claim 11.

5.2 Novelty over document D2

Document D2 discloses security elements with a substrate 4 on which several metal layers 7 having different optical densities are disposed. In point 16 of its provisional opinion issued on 10 January 2022, the opposition division expressed the view that the subject-matter of claim 1 of the patent was new over the disclosure of document D2 because the security thread was not a security print medium "for forming security documents therefrom", as required by feature 1.

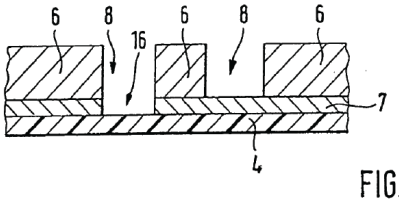


FIG.7a

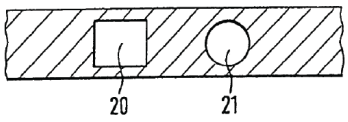


FIG.7b

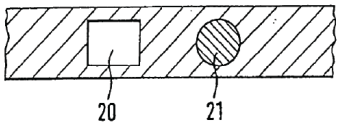


FIG.7c

The respondent considers that features 1 to 4 and 13

are not disclosed in document D2.

The appellants consider the strip-shaped security element 2 of Fig. 1 to be a security print medium suitable for forming security documents therefrom. However, this security strip is not a medium to be printed upon in connection with the production of a security document, as specified by feature 1 as interpreted by the board (see point 4.1 above). Therefore feature 1 is not disclosed in document D2. According to paragraph [0078] of document D2, the security element 2 consists of a plastic layer 4. Therefore feature 2 is disclosed. The metal layers 6 and 7 of Fig. 7a are disposed on the substrate 4. Thus feature 3 is also disclosed. Paragraph [0007] of document D2 discloses that the metal layers have different optical densities. The transmission of the optically thinner metal layer is preferably 20% to 80% higher than that of the optically denser layer. Therefore the board is satisfied that feature 4 is known from document D2. The appellants argue that feature 13 is not structurally limitative. The board disagrees, for the reasons given in point 4.4 above.

Thus, the subject-matter of claim 1 (and claim 11) is new over the disclosure of document D2 because features 1 and 13 are not disclosed.

5.3 Novelty over document D3: admittance of the objection

As can be seen from point 31.2.2 of the decision under appeal, the opposition division did not admit this objection which had been raised for the first time in the oral proceedings before the opposition division. It justified this decision as follows.

"*(i) This new fact had not been raised during the written procedure although the claims corresponding to auxiliary request 9 were already filed as auxiliary request 5 in response to the notice of opposition. Further, in the summons to oral proceedings the opposition division indicated that these claims are preliminary considered novel and inventive. Thus, the opponent has had plural opportunities and ample time to raise this objection during the written procedure.*

(ii) The objection is not considered prima facie relevant. In the summons it was already indicated that the opposition division does not see this document as novelty destroying for the main request, since document D3 is concerned with a security thread as detailed in the summons.

(iii) Moreover, in view of the fact that the (representative of the) patent proprietor was not present at the oral proceedings, and taking into consideration the findings of G4/92, it would have been necessary to adjourn the oral proceedings to give the proprietor the opportunity to reply to the new objection. Thus, also for procedural efficiency this new fact is not to be admitted."

By refusing to admit the objection, the opposition division exercised its discretionary power conferred by Article 114(2) EPC. Considering that the opposition division must have a certain degree of freedom in exercising its power, a board should only overrule the way in which the opposition division exercised its discretion in a particular case if it has done so according to the wrong principles, or without taking into account the right principles, or in an

unreasonable way, and has thus exceeded the proper limits of its discretion. See also "Case Law of the Boards of Appeal", 10th edition (July 2022), section IV.C.4.5.2.

In the present case, the opposition division decided according to the right principles, in a reasonable way.

The initial attack on the novelty of claim 3 of the patent over document D3 raised at the outset of the opposition proceedings was based on the argument that the additional feature of this claim is non-technical (see point 4.3 of the notice of opposition).

Document D3 was not itself filed late during the opposition proceedings, but the objection of lack of novelty over document D3, on the basis that feature 13 was technical, was raised late. This is not simply a new argument but involves the assertion of new facts. The opposition division thus had discretion not to admit this objection.

It is clear from point 31.2.2(ii) of the decision under appeal that the opposition division had not changed its view on the novelty of the subject-matter of claim 1 over document D3 based on the different nature of the security thread of document D3 and the print medium suitable for forming security documents according to feature 1 of claim 1 of auxiliary request 9. The objection was not considered *prima facie* relevant which is a correct criterium for deciding on the admittance of late-filed submissions in opposition proceedings.

Thus, the board decided under Article 12(6) RPBA not to admit the novelty objection based on document D3.

5.4 Novelty over document D4

Document D4 discloses a security structure 2 comprising: a non-opaque micro-zone 30 having a section no larger than 1 mm²; a diffractive optical element 40 generating an interference pattern in a view plane separated from the diffractive optical element, vertically adjacent to the non-opaque micro-zone.

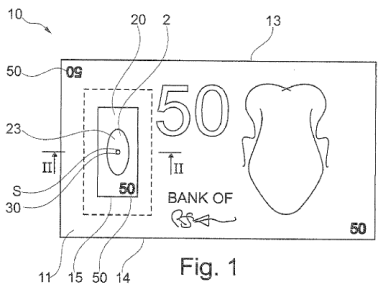


Fig. 1

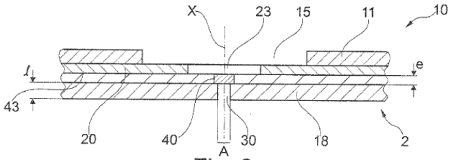


Fig. 2

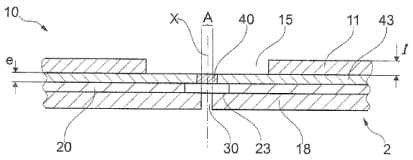


Fig. 3

In point 18 of its provisional opinion dated 10 January 2022, the opposition division stated that the subject-matter of claim 1 as granted was new over document D4, if only because this document was concerned with a paper document and not with a print medium comprising a polymer substrate (feature 1). The respondent considers that document D4 does not disclose features 2 to 4, 6, or 11 to 13.

The appellants are of the opinion that the security document 10 (e.g. the banknote 10 of Fig. 1) is a security print medium suitable for forming security documents therefrom. In view of its interpretation of feature 1 (see point 4.1 above), the board concludes that the banknote 10 does not qualify as a security print medium according to feature 1. Feature 2 is disclosed through layer 43, which is made of transparent plastics (see page 15, lines 12 and 13 of document D4). The fact that this layer is not referred to as a substrate (although paper substrates 11 and 18 are disclosed) is not decisive. Paper substrate 11 (or 18)

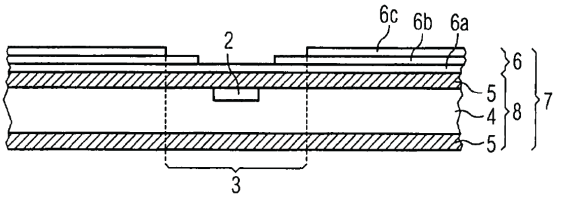
and security element 20 constitute layers according to feature 3. The security element 20 is disclosed to be partially opaque (page 18, lines 23 and 24, of document D4). The respondent explains this as a consequence of the perforation, but the reference to metallisation at the end of the sentence indicates that the layer is itself partially opaque. The criterion of "over substantially the whole area" is unclear and cannot constitute a distinguishing feature. However, there is no direct and unambiguous disclosure that the paper substrates 11 and 18 are semi-opaque. Thus feature 4 constitutes a distinguishing feature. Feature 6 is not disclosed in document D4. Structural similarities with the embodiments of the patent are not sufficient to disclose the existence of a multi-tonal image. Complex multi-tonal motifs are mentioned on page 12, line 17 of document D4, but not in the context of the embodiments discussed above. It is not apparent to the board that document D4 discloses features 11, 12a and 12b. The appellants argue that feature 13 is not structurally limitative. The board disagrees, for the reasons given in point 4.4.

Thus, document D4 does not anticipate the subject-matter of claims 1 and 11.

5.5 Novelty over document D5

Document D5 discloses a security paper 7 for producing valuable documents comprising a substrate 8 with an optically variable security element 2 that can be detected when a first side of the substrate is observed. The security paper also comprises an ink-

FIG 3



receiving layer 6 arranged on the same side of the substrate. The thickness of this layer is reduced in the wobble area 3 in which the element 2 is arranged.

The opposition division examined the novelty of claim 1 as granted over the disclosure of document D5 in point 19 of the communication dated 10 January 2022. It concluded that claim 1 was new over this document, and justified this finding as follows.

- Upper PET film 5 qualifies as the transparent polymer substrate of feature 2.
- Document D5 does not disclose that the layers 6a to 6c are made of semi-opaque material (feature 4). Rather, the paragraph bridging pages 6 and 7 of document D5 teaches that they are substantially colourless and impart no information to the observer.
- These layers do not combine to form a multi-tonal image when the print medium is viewed in transmitted light (feature 6). There is no unambiguous disclosure as to how they behave in transmitted light, and this is all the more true since a paper substrate 4 is laminated between the plastic substrates 5.

The respondent argues that at least features 4, 6 and 11 to 13 are not disclosed in document D5.

The appellants consider that the printable layers 6a, 6b and 6c constitute opacifying layers according to feature 4. However, as disclosed on page 6, line 27 to page 7, line 4, these layers are substantially colourless and "visually inconspicuous". There is no disclosure that they are semi-opaque. The appellants consider features 6 and 11 to be implicitly disclosed

in document D5 because the print medium of Fig. 3 comprises a non-opaque paper layer 4 and because the layers 6a to 6c have the same thickness (page 16, last paragraph). However, the disclosure of document D5 with respect to the opacity of the layers 6a to 6c is not such that there must be a multi-tonal image in the wobble area 3. Even if this were the case, there is no disclosure that one of the sub-images is multi-tonal. It is not apparent to the board that feature 12a or 12b is disclosed in document D5. The similarities between Fig. 3 of document D5 and Fig. 2 of the patent are insufficient to establish identity of disclosure. Furthermore, the board does not agree that feature 13 is not structurally limitative, for the reasons given in point 4.4.

Consequently, the subject-matter of claims 1 and 11 is new over document D5.

5.6 Novelty over document D6

Document D6 discloses security elements for security documents. The security elements comprise a plastic layer 11 on which a plurality of metal layers 3,4,9 of different colour are so disposed side by side and on the same side of the plastic layer that the different colours are visually checkable.

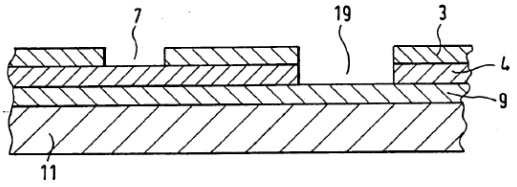


FIG. 8

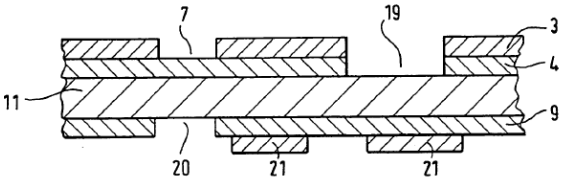


FIG. 9

In point 20 of its communication of 10 January 2022, the opposition division expressed its provisional opinion that the subject-matter of claim 1 as granted was new over document D6, for the reasons mentioned above concerning documents D2, D3 and D4. The board understands this to mean that feature 1 is not disclosed. The respondent argues that features 2 to 6 and 11 to 13 are not disclosed in document D6.

The appellants are of the opinion that the security element of Figs. 8 and 9 of document D6 is a security print medium according to feature 1. Based on its interpretation of this feature (see point 4.1 above), the board does not share this view. Although the embodiment of Fig. 9 of document D6 comprises printed lacquer areas 21 (see paragraph [0057]), the security element is not disclosed as a medium which can then be printed upon and otherwise processed to form the desired security document. Considering that paragraph [0014] of document D6 discloses that the security element can be a security thread that consists of a self-supporting plastic foil to which the different-coloured metal layers are applied, the carrier 11 fulfils feature 2. Feature 3 is anticipated by metal layers 3, 4 and 9, which can be translucent (see paragraph [0009]). Feature 4's criterion of "over substantially the whole area", although unclear, is met. However, there is no disclosure of feature 5 in document D6. The reference to a disposition "over a large surface" in paragraph [0009] of document D6 is insufficient in this regard. Document D6 does not directly and unambiguously disclose features 6, 7 or 11, if only because transmitted light is not envisaged in document D6 and the description of the security elements is not such that precise conclusions on what would be visible in transmitted light can be

drawn. Moreover, there is no disclosure of features 12a or 12b in document D6. The board does not endorse the argument that feature 13 is not structurally limitative, for the reasons given in point 4.4.

It follows that document D6 does not disclose the subject-matter of claim 1 (or claim 11).

5.7 Conclusion on novelty

The subject-matter of claims 1 and 11 is new over documents D1 to D6.

6. Inventive step

The appellants raised the objection of lack of inventive step starting from documents D1, D7 and D11.

6.1 Proposed starting points

6.1.1 Document D1

The subject-matter of claim 1 differs from the disclosure of document D1 in respect of feature 13 (see point 5.1).

6.1.2 Document D7: *prima facie* relevance

In the notice of opposition, document D7 was only used as the basis for an objection of lack of inventive step against claim 1 of the patent as granted (see section 5.1.2).

As can be seen from point 31.4 of the decision under appeal, the opposition division refused to admit the inventive-step objection starting from document D7,

which had been raised for the first time during the oral proceedings against the independent claims of auxiliary request 9. In its view, document D7 did not disclose a layer structure with partially opaque layers comprising gaps. Consequently, this document was believed to be *prima facie* a less relevant starting point than document D1.

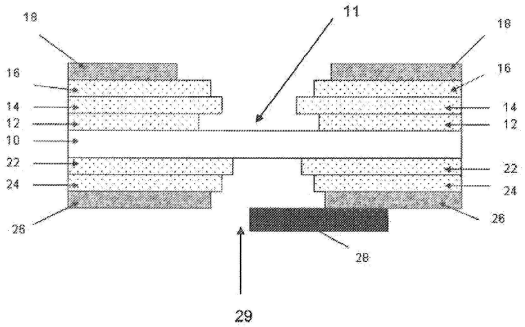
The appellants concede that features 5 and 8 are not disclosed in document D7. The disclosure of feature 13 has not been asserted and is not self-evident. Therefore, document D7 is more remote from the invention than document D1. There are no reasons apparent for overturning the opposition division's exercise of discretion not to admit the inventive-step objection starting from document D7.

Consequently, the board decided under Article 12(6) RPBA not to admit this objection which had not been admitted by the opposition division.

6.1.3 Document D11

Document D11 discloses a security document with a transparent plastics layer 10, a plurality of partially opacifying layers 12,14,16,22,24 and a coloured layer 18,26 applied on both sides of the layer 10. A security layer 28 is applied on one or both sides of the layer 10. The opacifying layers are interrupted to form a window area 11. The security layer 28 extends over the window and into the surrounding region. The partially opacifying layers

Figure 1



cooperate with the coloured layer, the window area and the security layer to produce a first image visible in reflection from the first side of layer 10, a second image visible in reflection from the second side of layer 10, and a third image visible in transmitted light from both sides.

As can be seen from point 31.3 of the decision under appeal, the opposition division was of the opinion that the subject-matter of claim 1 differed from the disclosure of document D11 in respect of feature 13. The parties share this view. Consequently, document D11 is a starting point equivalent to document D1.

6.1.4 Conclusion

Documents D1 and D11 are considered to be equivalent starting points for the examination of inventive step. Therefore, the board will consider only document D1 in the following.

6.2 Objective technical problem

In point 31.3 of the decision under appeal, the opposition division considered the objective technical problem to consist in "how to provide even more different tones and a more complex final image". This formulation was based on paragraph [0016].

The board notes that paragraph [0016] associates the technical effect considered by the opposition division with the feature that "at least some of the sub-images are multi-tonal sub-images" (underlining added by the board), whereas feature 13 requires at least one of the sub-images to be of that kind. It is not apparent to

the board that feature 13 as it stands provides "even more different tones".

The appellants argue that the objective technical problem is to provide a security print medium with increased security. The respondent points out that it is the security level of the pseudo-watermark that is improved rather than that of the document.

In the board's view, the improved security of the watermark leads to improved security of the document as a whole. Therefore, the board adopts the broader formulation, according to which the objective technical problem is to provide a security print medium with increased security.

6.3 Obviousness to the skilled person

The appellants pursued three lines of reasoning.

6.3.1 Document D1 alone

Page 2, lines 35 to 41 and 54 to 64, of document D1 discloses that the hallmarks can be printed using the silk screen process, and that, when printing inks or colours are mixed with transparent pastes, half-tones and colour graduations can be obtained. The board notes that this teaching is given in the context of printed layers (the layer thickness being determined by the print process, see page 2, lines 36 to 39). Page 3, lines 8 to 10, describes printing and perforation as alternatives for obtaining the desired effects. The embodiments of Figs. 3 to 6 comprise a superposition of printed layers, whereas in Fig. 7 homogeneously coated or inked layers are punched out (see page 4, lines 85 to 93). Therefore, the skilled person would not have

considered the teaching of page 2, lines 35 to 64, to apply to the embodiment of Fig. 7. The board is unable to see any suggestion in document D1 that would lead the skilled person to configure an individual layer so as to exhibit a multi-tonal effect. This line of argument is based on hindsight and is not persuasive.

6.3.2 Combination of documents D1 and D8

Document D8 sets forth the common general knowledge of the skilled person. As a rule, such documents and arguments involving common general knowledge can be admitted even at a late stage of the proceedings. Therefore, the board decided to admit this line of argument under Article 12(4) RPBA.

Notwithstanding this, the argument that because document D1 is relatively old it would be obvious to the skilled person to implement a more modern printing technique to achieve half-tone printing fails to establish that the subject-matter of claim 1 would be obvious to the skilled person. The argument is merely assertive and driven by *ex post facto* considerations.

6.3.3 Combination of documents D1 and D10

In point 31.3 of the decision under appeal the opposition division concluded that document D10 did not concern a multi-layer structure using different opacifying layers and that, consequently, the skilled person would not have taken the teaching of document D10 into account when seeking a solution to the objective technical problem.

The board is of the view that the skilled person seeking to provide a security print medium with

increased security would arguably consider the teaching of document D10, because the objective of this document is to "provide security papers/documents having enhanced anti-forgery properties by providing security elements such as threads carrying mark with better appearance" (see paragraph [0003]).

The core teaching of document D10 is summarised in paragraph [0004], as follows.

> *"An object of the invention is therefore a security element comprising a carrier substrate comprising a transparent or translucent area carrying at least one digitised mark made of at least one set of dots appearing as three-dimensional mark when viewed in transmitted light. The dots are arranged in such a way that the mark looks like a multi-tone mark*."

The appellants have not convinced the board that this teaching would lead the skilled person to modify the embodiment of Fig. 7 of document D1 such that at least one of the sub-images is multi-tonal. There are several reasons for this finding, as follows.

- That both documents mention silk-screen printing did not constitute an incentive for the skilled person to combine their teaching, because the embodiment of Fig. 7 is not obtained by printing.
- The security elements of document D10 are structurally very different from those of document D1. There is no straightforward way to combine the two disclosures in a meaningful way.
- Document D1 seeks to provide the equivalent of a watermark feature in a polymer substrate (page 1, lines 35 to 82), whereas document D10 relates to a security element such as a thread applied to a

document. Watermarks are mentioned, but only to the effect that the mark design can reproduce a watermark incorporated in the security document (D10, paragraph [0028]). The skilled person would not have considered it reasonable to provide a (pseudo-)watermark in such a security element.

All in all, the appellants' arguments are based on hindsight. The skilled person could indeed arrive at the invention by combining the teachings of documents D1 and D10, but it is not apparent to the board that they would have actually provided the embodiment of Fig. 7 of document D1 with feature 13 in light of the teaching of document D10.

6.3.4 Conclusion regarding inventive step

The appellants have failed to convince the board that the subject-matter of claims 1 and 11 would be obvious to the skilled person. Since documents D1 and D11 are equivalent starting points for the examination of inventive step, this conclusion applies to the objections starting from any of these documents.

For arriving at the above conclusions on novelty and inventive step, the submissions in the appellants' letter of 13 March 2025 were taken into account since they were not considered to constitute an amendment to their appeal case.

7. Conclusion regarding the respondent's auxiliary request 9 underlying the decision under appeal

The appellants' objections to the respondent's auxiliary request 9 underlying the decision under

appeal are unpersuasive. Consequently, the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Hampe P. Lanz

Decision electronically authenticated