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Datasheet for the decision of 4 July 2019

Case Number: T 1404/16 - 3.2.05

Application Number: 02777289.6

Publication Number: 1521678

IPC: B42D15/00

Language of the proceedings: EN

Title of invention:
Security element for documents, bank notes, security paper and the like

Patent Proprietor:
Fedrigoni S.p.A.

Former Opponent:
Leonhard Kurz Stiftung & Co. KG

Headword:

Relevant legal provisions:
EPC 1973 Art. 54(1), 54(2), 56, 84, 100(b)
EPC Art. 123(2), 123(3)

Keyword:
Sufficiency of disclosure - main request (no) - 4th auxiliary request (yes)
Novelty - 1st, 2nd and 3rd auxiliary requests (no) - 4th auxiliary request (yes)
Amendments - 4th auxiliary request (allowable)
Claims - clarity - 4th auxiliary request (yes)
Inventive step - 4th auxiliary request (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 1404/16 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 4 July 2019

Appellant: (Patent Proprietor)	Fedrigoni S.p.A. Viale Piave, 3 37135 Verona (IT)
Representative:	TBK Gernot Pirker Bavariaring 4-6 80336 München (DE)
Former Respondent: (Former Opponent)	Leonhard Kurz Stiftung & Co. KG Schwabacher Strasse 482 90763 Fürth (DE)
Representative:	Norbert Zinsinger Louis, Pöhlau, Lohrentz Patentanwälte Postfach 30 55 90014 Nürnberg (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 1 April 2016 revoking European patent No. 1521678.**

Composition of the Board:

Chairman	M. Poock
Members:	P. Lanz
	D. Rogers

Summary of Facts and Submissions

I. The appeal was lodged against the decision of the opposition division revoking European patent No. 1 521 678.

II. An opposition was filed against the patent as a whole based on Article 100(a) EPC (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC) and Article 100(b) EPC (the invention not being disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art).

III. The respondent (opponent) withdrew their opposition with the letter of 12 September 2016.

IV. Oral proceedings were held before the board of appeal on 4 July 2019.

V. The requests of the appellant (patent proprietor) were to set aside the decision under appeal and to maintain the patent upon the basis of the main request, or alternatively upon the basis of one of the 1st to 3rd auxiliary requests, all filed under cover of a letter dated 11 August 2016, or alternatively upon the basis of the 4th auxiliary request filed at the oral proceedings before the board on 4 July 2019.

VI. The following documents were referred to in the appeal proceedings:

D1: DE 14 46 851 A1;

D5: WO 98/55333 A1.

VII. Claims 1 and 2 of the patent in suit as granted (main request) read as follows:

"1. A security element (1; 10) for documents, bank notes, security paper and the like, characterized in that it comprises a continuos *[sic]* supporting layer (2;) *[sic]* on which there is at least one metallized layer (3) which forms at least one high-reflectance region, characterized in that the metallized layer (3) is covered partially, on at least one face, with a layer of print (4) forming a low-reflectance region (4) in order to have, when the security element (1; 10) is at least partially inserted in a document and the like, a different dimensional perception of the security element (1; 10) when viewed under reflected light and when viewed against the light."

"2. The security element (1; 10) according to claim 1, characterized in that said high-reflectance region has a reflectance that is equal to, or greater than, 1.2 Optical Density."

VIII. In 1st auxiliary request claim 2 as granted is deleted. This also applies to the 2nd, 3rd and 4th auxiliary requests.

IX. Claim 1 of the 2nd auxiliary request has the following wording:

"Document, bank note or security paper comprising: a security element (1; 10) which comprises a continuous supporting layer (2) on which there is at least one metallized layer (3) which forms at least one high-reflectance region, characterized in that the metallized layer (3) is covered partially, on at least one face, with a layer of print (4) forming a low-

reflectance region (4), wherein the security element (1; 10) is at least partially inserted in the document, bank note or security paper such that a different dimensional perception of the security element (1; 10) when viewed under reflected light and when viewed against the light is achieved, the security element being fully inserted internally or being inserted by segments."

X. Compared to the 2nd auxiliary request, the last feature of claim 1 of the 3rd auxiliary request is amended as follows:

"... the security element being fully inserted internally ~~or being inserted by segments~~."

XI. In comparison with the 3rd auxiliary request, the characterising portion of claim 1 according to the 4th auxiliary request is amended as follows:

"... characterized in that the metallized layer (3) is covered partially, on at least one face, with a layer of print (4) forming a central printed low-reflectance region (4), while the metallized layer forms two high reflectance regions at the longitudinal edges of the supporting layer (2), wherein the security element (1; 10) is at least partially inserted in the document, bank note or security paper such that a different dimensional perception of the security element (1; 10) when viewed under reflected light and when viewed against the light is achieved, the security element being fully inserted internally, wherein the supporting layer (2) is 4 mm wide, and the central printed region (4) of 2 mm delimits two high reflectance regions of 1 mm at each edge."

XII. The arguments of the appellant in the written and oral proceedings can be summarised as follows:

Main request, sufficiency of disclosure

In the decision under appeal, the subject-matter of claim 2 as granted had been considered to be not sufficiently disclosed, essentially because the skilled person would not understand the term *"optical density"* to correspond to the index of refraction. However, it was not justified to conclude that a skilled person would not be able to perform the invention as defined in claim 2, because the notion of the optical density had not only the meaning of an absorbance but could also mean the index of refraction. This had been clearly shown by means of a Wikipedia article. Thus, the skilled person was aware that there were two different meanings of the term *"optical density"*. Clearly, this claim feature would be understood in a way in which the skilled person could perform the subject-matter of the claim. If the absorbance was considered as being the refractive index, this led the skilled person to an understanding that the reflectance of the high-reflectance region had to be equal to or higher than that of a material having a refractive index of 1.2. For these reasons, the disclosure of the subject-matter of claim 2 was sufficient.

1st, 2nd and 3rd auxiliary request, novelty

The subject-matter of granted claim 1 was novel over document D1. In particular, the printed characters on the cellulose layer did not constitute a layer in the sense of one thickness, course, or fold laid or lying over or under another. Moreover, document D1 did not disclose the feature of claim 1 that the security

element, when it was at least partially inserted in a document and the like, had a different dimensional perception when viewed under reflected light and when viewed against the light. The term *"dimensional"* had to be understood in context with the width of the metallized layer and the layer of print partially covering the metallized layer as described in the patent in paragraph [0021]. In addition, document D1 did not disclose that the aluminium layer was invisible under reflected light. The letters of print of document D1 were so small that they were not even visible without magnifying glass. In view of these differences, the subject-matter of claim 1 of the 1st auxiliary request was novel over document D1. These reasons also applied to the 2nd and 3rd auxiliary requests.

4th auxiliary request

Claim 1 of the 4th auxiliary request was supplemented by the features of the last paragraph of page 4 of the application as filed, corresponding to paragraph [0020] of the patent specification. Moreover, the subject-matter of claim 1 was novel over the prior art on file, in particular documents D1 or D5, since none of these documents disclosed a security element being fully inserted in the document, bank note or security paper, wherein the supporting layer was 4 mm wide and the central region printed thereon had a width of 2 mm and delimited two high reflectance regions of 1 mm at each edge. The technical effect of these differing features was that a user, for example a cashier, would immediately recognise a difference in the security element's width when viewing it under incident light and against backlight, which made it easy to authenticate the security element. Hence, the objective technical problem was to simplify the authentication of

the security element by a user. The proposed solution was not obvious since the prior art on file did not contain any indication of the proposed design, in particular the claimed location and proportion of the printed region. The claimed subject-matter therefore was not only novel but also based on an inventive step.

Reasons for the Decision

1. Main request, sufficiency of disclosure

1.1 Claim 2 defines that *"said high-reflectance region has a reflectance that is equal to, or greater than 1.2 Optical Density"*. Similar wording can be found in the last sentence of paragraph [0014] of the patent specification.

According to the contested decision (section 9.2), the former opponent objected that optical density is not a commonly used unit for reflectance, and that *"optical density"* normally designates the absorbance of a material. The opposition division concluded that the disclosure of the subject-matter of granted claim 2 was insufficient.

1.2 Definitions

1.2.1 The *"reflectance"* (as used in claim 2 as granted) is understood as the reflectance of the surface of a material, i.e. the material's effectiveness in reflecting radiant energy: It is the fraction R of incident electromagnetic power that is reflected at an interface

$$R = \frac{\Phi_e^r}{\Phi_e^i},$$

where

Φ^{r}_{e} is the radiant flux reflected by that surface;

Φ^{i}_{e} is the radiant flux received by that surface.

1.2.2 The *"absorbance"* (*"optical density"*) is understood as the common logarithm of the ratio of incident to transmitted radiant power through a material: the absorbance of a material, denoted A, is given by

$$A = \log_{10}\left(\frac{\Phi^{i}_{e}}{\Phi^{t}_{e}}\right)$$

where

Φ^{t}_{e} is the radiant flux transmitted by that material;

Φ^{i}_{e} is the radiant flux received by that material.

1.2.3 The *"refractive index"*, denoted *n*, describes how light propagates through that medium. It is defined as

$$n = \frac{c}{v},$$

where

c is the speed of light in vacuum and

v is the phase velocity of light in the medium.

1.2.4 It follows from the above definitions that neither *"absorbance"* nor *"refractive index"* are quantities which are suitable for defining the *"reflectance"* of the high-reflective region, because these terms refer to three different material properties which are not directly comparable.

1.3 Furthermore, each claim should be read giving the words the meaning and scope which they normally have in the relevant art, unless in particular cases the description gives the words a special meaning, by explicit definition or otherwise. The contested patent does not provide any explicit indication that the term

"optical density" refers to the index of refraction. Additionally, there also is no implicit indication in the opposed patent that would prompt the skilled person to deviate from the common meaning of the term *"optical density"*.

1.4 Even if the skilled person were to consider the term "*optical density*" as used in the description paragraph [0014] and claim 2 as granted to mean the "*refractive index*" - as argued by the appellant -, the subject-matter of claim 2 would instead define the "*reflectance*" in term of a "*refractive index*" of 1.2. Since there are no explanations of what meaning is intended, the skilled person is not provided with clear instructions of how to carry out the invention as defined in claim 2.

1.5 The board thus concludes that the disclosure of the subject-matter of claim 2 is not sufficiently clear and complete for it to be carried out by a person skilled in the art, Article 100(b) EPC 1973.

2. *1st Auxiliary request, novelty*

2.1 Document D1 (see in particular related examples 2 and 3) concerns a security device for use in security papers and discloses a security ribbon which may comprise a laminate comprising a central layer of reflecting material having a layer of transparent material on either side. The design, lettering or pattern may be printed on both the transparent layers, thereby forming a low-reflectance region. The reflecting material may be a metal foil e.g. aluminium foil (title; paragraph bridging pages 2 and 3; example 2). The security devices of document D1 are intended for incorporation into a security paper during manufacture

by the technique commonly employed in the security-paper field (page 1, penultimate paragraph). Due to its structural features, in particular the combination of printed letters and the highly reflecting aluminium sheet, the security device of examples 2 and 3 of document D1 will inevitable cause a different dimensional perception of the fully embedded security element when viewed under reflected light and when viewed against the light.

In consequence, document D1 discloses a security element having all features of claim 1 of the 1st auxiliary request.

2.2 As to the appellant's submission that the printed characters disclosed in document D1 did not constitute a layer, the board remarks that printed characters are one of the possibilities disclosed in the patent in suit: "*At said low-reflectance region, graphic markings can be printed not only in negative form, but they can also be printed in positive form or …*" (paragraph [0055]) and figures 5, 7 and 9 disclose the Greek letter '**Δ**' (albeit printed in negative form).

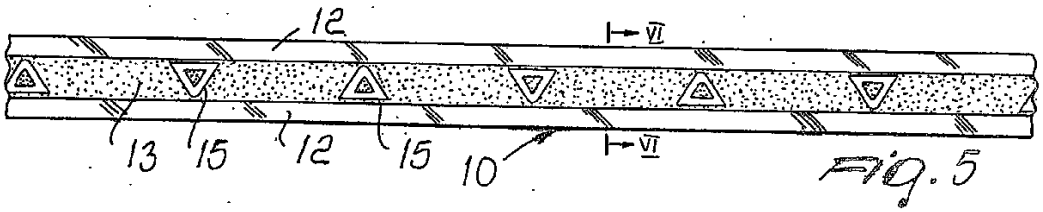

Fig. 5

In consequence, the printed characters disclosed in document D1 constitute a layer of print forming a low-reflectance region (when compared to the mirror-like properties of the aluminium layer: "*wegen des spiegel-ähnlichen Verhaltens der Aluminiumfolie, können die Druckbuchstaben leicht mit einer Lupe erkannt werden*" (see D1, page 5, lines 6 to 8)).

Although the print layer is specifically disclosed in the description of the contested patent as forming a strip-shaped region, the term *"layer of print"* in granted claim 1 is more general. In fact, this wording merely implies that the printed portions, in whichever shape, are provided on top of the printed surface and do not completely permeate into the printed surface so that an additional layer is formed on the surface. In example 2 of document D1, the printed letters form a layer since they are provided on a cellophane film, a material known for its low permeability to liquids. Moreover, granted claim 1 does not define the shape of the low reflectance region formed by the layer of print. The printed letters in document D1 are thus considered to form a layer of print as defined by claim 1. Contrary to the appellant's assertion, contested claim 1 does not require that the aluminium layer is invisible under reflected light.

Finally, the board cannot accept the appellant's argument that if the letter of document D1 can be recognised with a magnifying glass means that the letters are necessarily "*invisible*" without the magnifying glass. The board expects the letters to remain visible, albeit, maybe being too small for reading by the unaided eye. In addition, claim 1 does not require the presence of readable lettering as part of the "*layer of print*". Even granted dependent claims 9 and 10 only require the print to be "*perceivable*".

2.3 For these reasons, the subject-matter of claim 1 according to the 1st auxiliary request, which is identical with claim 1 as granted, lacks novelty with respect of document D1, Article 54(1) and (2) EPC 1973.

3. *2nd and 3rd Auxiliary requests, novelty*

3.1 Claim 1 according to the 2nd auxiliary request is directed to a "*Document, bank note or security paper*" and comprises, in addition to the structural features already present in the 1st auxiliary request, the functional requirement that "*the security element is at least partially inserted in the document, bank note or security paper such that a different dimensional perception of the security element when viewed under reflected light and when viewed against the light is achieved*". Claim 1 according to the 3rd auxiliary request is limited further in that the security element is fully inserted internally.

3.2 The board notes that according to example 3, a security element according to example 2 of document D1 (see point 2.1 above) having lettering with a height of 0,1 mm on a 1 mm wide strip is embedded into a paper bank note close enough to the surface of the note to ensure the visibility of the printed letters under reflective light ("*Die Streifen werden anschließend in einer Vorrichtung zur Herstellung von Banknotenpapier in dieses eingebettet und das Papier dann fertigbearbeitet. Dabei liegt ein wesentlicher Teil der Streifen so dicht unter der Oberflache des Papieres, daß die Mikrodruckbuchstaben leicht mit einer Lupe zu erkennen sind*").

According to example 2, the application of water or of a volatile solvent such as alcohol or petroleum-ether ("*Petroleumäther*") is used to temporarily overcome the opacity of the paper to allow the printed lettering to be recognised with a magnifying glass ("*Da jedoch die Anwendung von Wasser oder vorzugsweise einem flüchtigen*

Lösungsmittel, wie Alkohol oder Petroleumäther, bei mit einem derartigen Sicherungsfaden versehenen Papier die Undurchsichtigkeit der Papierschicht zeitweilig aufhebt und wegen des spiegelähnlichen Verhaltens der Aluminiumfolie, können die Druckbuchstaben leicht mit einer Lupe erkannt werden", document D1, page 5, first paragraph).

Thus document D1 discloses that in reflected light the 0,1 mm lettering of the security thread can be observed, while in transmitted light the opacity of the aluminium layer means that the security thread appears to be 1 mm wide. The claimed effect of a different dimensional perception is thus achieved. Moreover, the additional limitation of claim 1 of the 3rd auxiliary request, according to which the security element is fully inserted internally in the document, bank note or security paper, is disclosed in the above cited passages of document D1.

3.3 Consequently, the subject-matter of claim 1 according to the 2nd and 3rd auxiliary requests lacks novelty in view of document D1, Article 54(1) and (2) EPC 1973.

4. *4th Auxiliary request*

4.1 Amendments

The subject-matter of amended claim 1 according to the 4th auxiliary request is based on original claims 1 and 25 as well as the description, page 4, line 25 to page 5, line 1 of the application as filed. These amendments limit the protection conferred by the patent in suit.

The requirements of Article 123(2) and (3) EPC are thus met.

4.2 Clarity and sufficiency of disclosure

4.2.1 The board is satisfied that the amended claims of the 4th auxiliary request clearly and unambiguously define the subject-matter for which protection is sought and the scope thereof. This applies in particular to the amended specification of the high and low reflectance regions in claim 1. The requirements of Article 84 EPC 1973 are therefore met.

4.2.2 Moreover, on the basis of the evidence on file, the patent discloses the invention as defined in the 4th auxiliary request in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. In that respect, particular reference is made to paragraphs [0015] and [0016] of the patent. Furthermore, it is known in the technical field concerned that low reflectance regions of a security element, which is fully inserted in a document, e.g. a security paper, can be viewed under reflected light, if the low reflectance regions lie closely under the document surface, as explained for example in document D1, example 3. For these reasons, the ground for opposition under Article 100(b) EPC 1973 does not prejudice the maintenance of the contested patent.

4.3 Novelty and inventive step

4.3.1 The subject-matter of claim 1 is novel over documents D1 or D5. None of this prior art discloses a security element being fully inserted in the document, bank note or security paper, wherein the continuous supporting layer is 4 mm wide and the central region printed thereon has a width of 2 mm and delimits two high reflectance regions of 1 mm at each edge.

The requirements of Article 54(1) and (2) EPC 1973 are therefore met.

4.3.2 The technical effect of these differing features resides in that a user, for example a cashier, can instantly recognise a difference in the security element's perceived width when viewing the document, bank note or security paper under incident light and against backlight. Hence, the objective technical problem to be solved is to provide a document, bank note or security paper with a security element that allows the user to immediately perceive the presence of the security element together with a criterion that allows to directly assess its authenticity (see paragraph [0006] of the patent).

4.3.3 Turning to the proposed solution, the board observes that the prior art on file does not contain any indication pointing to the design of the security element according to claim 1, in particular the location and dimension of the printed region. Moreover, it is not apparent that the claimed solution formed part of the skilled person's common general knowledge. For these reasons, the board concludes that the subject-matter of the claims of the 4th auxiliary request is based on an inventive step in the sense of Article 56 EPC 1973.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:

Description:
Pages 2 and 3 of the amended patent specification received during the oral proceedings of 4 July 2019;
Pages 4 and 5 of the patent specification.

Claims:
No 1 to 20 of the 4th auxiliary request received during the oral proceedings of 4 July 2019.

Drawings:
Figs. 1 - 11 of the patent specification.

The Registrar: The Chairman:

N. Schneider M. Poock

Decision electronically authenticated