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Datasheet for the decision of 10 July 2020

Case Number: T 0633/16 - 3.4.03

Application Number: 04747491.1

Publication Number: 1645943

IPC: G03H1/18, G09F3/02, B31D1/02

Language of the proceedings: EN

Title of invention:
FORGERY PREVENTING LABEL AND METHOD OF MANUFACTURING THE SAME

Patent Proprietor:
DAI NIPPON PRINTING CO., LTD.

Opponent:
Bundesdruckerei GmbH

Relevant legal provisions:
EPC Art. 52(1), 123(2)
EPC 1973 Art. 54(1), 54(2), 56
RPBA Art. 12(4), 13(3)
RPBA 2020 Art. 12(3)(a), 25(1), 25(2), 25(3)

Keyword:

documents E6 to E10 filed with statement of grounds of appeal - admitted (yes)
Wikipedia extracts cited by appellant - admitted (no)
appellant's new line of attack - alleged lack novelty based on E3 - admitted (yes)
appellant's new line of arguments - admitted (yes)
main request - claim 1 - novelty (yes)
main request - claim 1 - inventive step (no)
auxiliary requests 1 and 1a - claim 1 - added subject-matter (yes)
auxiliary request 1b filed after oral proceedings have been arranged - admitted (yes)
auxiliary request 1b - claims 1 and 6 - inventive step (yes)

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Case Number: T 0633/16 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 10 July 2020

Appellant: (Opponent)	Bundesdruckerei GmbH Oranienstr. 91 10969 Berlin (DE)
Representative:	Gulde & Partner Patent- und Rechtsanwaltskanzlei mbB Wallstraße 58/59 10179 Berlin (DE)
Respondent: (Patent Proprietor)	DAI NIPPON PRINTING CO., LTD. 1-1, Ichigaya-Kagacho 1-Chome, Shinjuku-Ku Tokyo 162-8001 (JP)
Representative:	Müller-Boré & Partner Patentanwälte PartG mbB Friedenheimer Brücke 21 80639 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 16 February 2016 rejecting the opposition filed against European patent No. 1645943 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	T. Häusser
Members:	M. Ley
	T. Bokor

Summary of Facts and Submissions

I. The appeal of the opponent (hereinafter: the appellant) concerns the decision of the opposition division to reject the opposition according to Article 101(2) EPC.

II. In the notice of opposition, the appellant requested the revocation of European Patent EP 1 645 943 B1 in its entirety based on the ground of Article 100(a) EPC 1973 in combination with Article 54(1) and (2) EPC 1973 and on the ground of Article 100(a) EPC 1973 in combination with Article 56 EPC 1973.

The following documents were submitted within the period according to Article 99(1) EPC :

E1: DE 40 02 979 A1
E2: US 5 944 927 A
E3: DE 43 14 579 A1
E4: DE 196 07 606 A1
E5: EP 1 056 066 A2

III. The appellant requested to set aside the contested decision and to revoke European patent EP 1 645 943 B1.

With the statement of the grounds of appeal, the appellant filed the following documents :

E6: “Briefmarkenurteil”, BGH, XI ZR 395/04, Federal Court of Justice of Germany
E7: DE 10100853 A1
E8: EP 1502732 A1
E9: Online excerpt "Werkzeugbau/Formenbau", www.ks-modell-formenbau.de/fertigungsspektrum/werkzeugbau-formenbau.html, March 17th, 2016

E10: Online excerpt "Heissiegeln", universal_lexikon.deacademic.com/248881/ Heißsiegeln, March 17th, 2016
E11: US 4171766 B1

The appellant also referred to the Wikipedia extracts "Gabriel Lippmann", "Holography" and "Heat sealer".

The appellant requested to disregard auxiliary requests 1b, 3b, 5b and 7b according to Article 13(1) RPBA 2007 respectively Article 13(1) RPBA 2020, see its letter dated 4 June 2020, section 2.2.

The appellant's request for the reimbursement of the appeal fee due to an alleged violation of its right to be heard by the opposition division was withdrawn during the oral proceedings before the Board.

IV. The proprietor (hereinafter: the respondent) requested as a main request to dismiss the appeal, i. e. to reject the opposition and to maintain the opposed patent as granted.

Further, the respondent requested to set aside the decision and to maintain the opposed patent according to auxiliary requests 1, 1a, 1b, 2, 3, 3a, 3b, 4, 5, 5a, 5b, 6, 7, 7a or 7b. Auxiliary requests 1, 1a, 2, 3, 3a, 4, 5, 5a, 6, 7 and 7a were filed with the respondent's reply to the grounds of appeal dated 12 September 2016. Auxiliary requests 1b, 3b, 5b, 7b were filed with letter dated 15 May 2020, and an amended description according to auxiliary request 1b was filed during the oral proceedings before the Board.

Furthermore, the respondent requested not to admit documents E6 to E11 into the procedure as they were

late-filed and to disregard certain arguments of the appellant and Internet citations indicated by the appellant, because they were allegedly submitted for the first time with the statement of grounds of appeal.

The respondent's request to remit the case to the opposition division in case the Board was not in a position to grant the main request was withdrawn during the oral proceedings before the Board.

V. Claims 1 and 7 as granted have the following wording (numbering 1.1 to 1.7 and 7.0 to 7.4 used by the opposition division):

Claim 1

1.1 A counterfeiting prevention label (1) comprising:
1.2 a base sheet (31); and
1.3 a volume hologram layer (22) covering a part of a front surface of the base sheet (31);
1.4 wherein the volume hologram layer (22) has the shape of a ribbon and extends between a first end (31a) of the base sheet (31) and a second end (31b) of the base sheet (31) opposite the first end (31a),
1.5 the end surface of one end of the volume hologram layer (22) is flush with the end surface of the first end (31a) of the base sheet (31) and the end surface of the other end of the volume hologram layer (22) is flush with the end surface of the second end (31b) of the base sheet (31), characterized in that
1.6 the volume hologram layer (22) is bonded to the front surface of the base sheet (31) with a heat-sensitive adhesive layer (23) or a pressure-sensitive adhesive layer (23), and

1.7 a part, coated with the volume hologram layer (22), of the surface of the base sheet (31) is depressed relative to a part, not coated with the volume hologram layer (22), of the surface of the base sheet (31) to form a depression (3a).

Claim 7

7.0 A method for manufacturing the counterfeiting prevention label (1) according to claim 1, comprising the steps of:

7.1 forming a transfer ribbon by releasably laminating a volume hologram layer (22) to a support sheet (9);

7.2 transferring the volume hologram layer (22) to a front surface of a base sheet (31) by superposing the transfer ribbon on the base sheet (31) with the volume hologram layer (22) facing the base sheet (31); and blanking out the base sheet (31) and the volume hologram layer (22) in a predetermined shape, wherein in the step of transferring the volume hologram layer (22) is bonded to the front surface of the base sheet (31) with a heat-sensitive adhesive layer (23) or a pressure-sensitive adhesive layer (23),

7.3 a depression (3a) is formed in the surface of the base sheet (31) before or during transferring the volume hologram layer (22) to the surface of the base sheet (31), and

7.4 the volume hologram layer (22) is transferred to the bottom surface of the depression (3a).

Claim 1 according to auxiliary request 1 differs from claim 1 as granted by the following additional feature:

1.7' a step which is formed at the boundary between the volume hologram layer (22) and a part in which the hologram layer (22) is not placed has a height of 20 µm or below.

Claim 1 according to auxiliary request 1a differs from claim 1 as granted by the following additional features:

1.8 the surface of the volume hologram layer (22) not facing the base sheet (31) is coated with a release protective layer (21),

1.9 the release protective layer (21), the volume hologram layer (22) and the heat sensitive adhesive layer (23) or pressure-sensitive adhesive layer (23) form a volume hologram structure (2), and

1.10 a step which is formed at the boundary between the volume hologram structure (2) and a part in which the volume hologram structure (2) is not placed has a height of 20 µm or below.

Claim 1 according to auxiliary request 1b differs from claim 1 according to the auxiliary request 1a by the following additional feature:

1.11 wherein a lower part of the volume hologram structure (2) sinks in the depression (3a) so that the volume hologram structure (2) projects or protrudes from the surface of the base sheet (31).

The wording of the claims according to the lower-ranking auxiliary requests 2 to 7b is not relevant for the present decision.

VI. The parties' arguments are set out below under the relevant points of the reasons for the decision.

Reasons for the Decision

1. The appeal is admissible.

2. The invention

The invention concerns a counterfeiting prevention label printed with prescribed information and capable of being identified as genuine, and a corresponding method of manufacturing the label. A volume hologram layer is formed on a base sheet, both elements are cut so that the volume hologram layer extends between a first end of the base sheet and a second end of the base sheet opposite the first end, the end surface of one end of the volume hologram layer is flush with the end surface of the first end of the base sheet, and the end surface of the other end of the volume hologram layer is flush with the end surface of the second end of the base sheet. The printability of the label is improved by partially embedding a volume hologram structure formed by an adhesive layer, the volume hologram layer and a protective layer into a depression formed on the surface of the base sheet, wherein the step height at the boundary between the base sheet and the volume hologram structure is less than 20 µm.

3. Procedural issues

3.1 Admission of documents E6 to E11

The respondent requested not to admit documents E6 to E11 into the procedure as they were late-filed.

The Board observes that the documents were submitted with the statement of the grounds of appeal and thus at the earliest stage of the appeal proceedings, complying with the requirements of Article 12(2) and 12(4) RPBA 2007 (Articles 12(4) and 25(2) RPBA 2020).

Document E6 is submitted by the appellant in the context of the question whether E1 or E2 discloses a "label" (feature 1.1) and merely underlines the appellant's understanding of this term.

Documents E7 to E10 were submitted in the context of the question whether the manufacturing of the label known from E3 necessarily produces the claimed depression (feature 1.7) and describe the appellant's understanding of the german term "aufgesiegelt" in E3.

For the Board, the content of documents E7 to E10 in this respect appears to be generally known to the skilled person. Furthermore, the submission of documents E6 to E10 can be considered a reaction to the detailed reasoning in the contested decision in relation to the questions whether feature 1.1 is disclosed in documents E1 and E2 and whether feature 1.7 is disclosed in document E3.

Documents E6 to E10 are therefore admitted into the proceedings (Article 12(4) RPBA 2007 in combination with Article 25(2) RPBA 2020).

Document E11 was filed to support the appellant's argumentation with respect to a lack of inventive step of granted claim 1 based on a combination of E1 as closest prior art with E4. Since document E11 is not relevant for the present decision its admission did not have to be decided by the Board.

3.2 Admission of the appellant's Wikipedia citations

The respondent requested to disregard the Wikipedia citations "Gabriel Lippmann", "Holography" and "Heat sealer" and the appellant's arguments based thereon, because they had not been cited during the opposition proceedings and were not attached as annexes to the statement of grounds of appeal (contrary to Article 12(2)(a) RPBA 2007).

The Board notes that the appellant has not indicated the versions of the Wikipedia extracts it refers to (e. g. the version online the day before the priority of the opposed patent or the version online the date of the statement of grounds of appeal). Neither had it attached the extracts as annexes to the statement of grounds of appeal, contrary to the requirements of Article 12(3)(a) RPBA 2020 in combination with Article 25(1) RPBA 2020. Therefore, the Board disregards these Wikipedia extracts (Article 12(4) RPBA 2007 in combination with Article 25(2) RPBA 2020). In any case, the Board is of the view that the passages cited from these Wikipedia extracts disclose not more than the common general knowledge of the skilled person at the priority date of the opposed patent.

3.3 Admission of appellant's new line of attack

The respondent argued that during the opposition proceedings the appellant did not raise an objection of lack of novelty of granted claim 1 based on the disclosure of E3 and requested that the new line of attack should be rejected as late-filed by the Board.

The Board considers that the appellant did not raise an objection of lack of novelty of granted claim 1 based

on the disclosure of E3, because it argued that the claimed subject-matter lacked inventive step over E3, which did not disclose a volume hologram (see the notice of opposition, section 1.3). Since document E3 is regarded as the closest state of the art (see below) the differences between the subject-matter of claim 1 and document E3 have to be determined when assessing inventive step anyway. This corresponds in effect to the assessment whether the claimed subject-matter is new over document E3. Non-admission of the new line of attack would therefore serve no purpose. Hence, it is admitted into the proceedings (Article 12(4) RPBA 2007 in combination with Article 25(2) RPBA 2020).

3.4 Admission of appellant's arguments

The respondent requested not to admit the appellant's arguments in section 4.2.1.2 of the statements of the grounds of appeal under Rule 12(4) RPBA 2007, because they should have been presented before the first instance.

The Board considers the arguments of section 4.2.1.2 of the statements of grounds of appeal as legitimate submissions by the appellant showing why - in its opinion - the opposition division's conclusion regarding the absence of feature 1.3 in E1 and E2 was not correct. Furthermore, Article 12(4) RPBA 2007 does not provide a legal basis for disregarding a party's arguments. Hence, the respondent's request to disregard the appellant's argumentation is not granted.

4. Respondent's main request - Article 100(a) EPC 1973 in combination with Article 54(1) and (2) EPC 1973

4.1 Documents E1 and E2

4.1.1 According to the opposition division, neither document E1 nor document E2 disclosed a counterfeit prevention label (feature 1.1) comprising a volume hologram (feature 1.3). The opposition division considered a "label" to be an identification means adapted to be attached to a device for providing information about the later. None of the data carrier/banknote of E1 or the security paper of E2 fell within this definition. For the opposition division, the data carrier of E1 or the security paper of E2 had a different structure and purpose than a label, which had "additional inherent features" with respect to a more general data carrier or a banknote, "like for instance attaching means" as the adhesive layer 32 in the patent.

The opposition division also pointed out the difference between "relief" holograms and "volume" holograms as defined in paragraphs [0004] and [0005] of the patent application as originally filed. According to the opposition division, E1 mentioned holograms in general and E2 mentioned relief holograms (col. 6 , lines 49 to 54).

4.1.2 Regarding feature 1.1, the appellant disagreed that novelty of a claim could be based on the "mere assertion of inherent features" and that the data carrier according to E1 or the security paper according to E2 could not be used as a label and comprise attaching means". For the appellant, it seemed unreasonable to give the feature "label" the meaning of "comprising attaching means". In its view, the broadest technically sensible meaning of the feature should be that a label was any item that is suitable for being attached to some object to be labeled, e.g. by being suitable to receive attaching means like a self-adhesive layer, glue, yarn, a magnet or by the size,

form and/or material of the label. For the purpose of judging novelty, an implicit restrictive feature not suggested by the explicit wording of the claim should not be read into the claim. Dependent claim 4 of the patent also made it clear that attaching means were not inherently present in the label according to claim 1. As the data carrier of E1 or the security paper of E2 were suitable for being attached to an object to be labeled by being put in a tag holder or by receiving a self-adhesive layer, according to the appellant, they were labels within the meaning of claim 1.

The appellant also argued that the data carrier of E1 could be a "Wertpapier", i. e. a security paper, and that post stamps (usually comprising an adhesive on their back surface) had been identified as "Wertpapiere" (by the Federal Court of Justice of Germany, see E6) and were usually produced on security paper. The appellant concluded therefore that the data carrier of E1 and the security paper of E2 could have a self-adhesive layer on their back side so that they fell under the appellant's definition of label.

Regarding feature 1.3, the appellant argued that no technical interpretation of the difference between "relief hologram" and "volume hologram" was given, neither by the proprietor nor by the opposition division and that the broadest technically sensible meaning should be given to this term. For the appellant, a volume hologram was therefore a hologram of a "certain volume" inevitably leading to a step formed in a boundary region of the hologram and thus to an unsatisfactory quality of characters printed across that step. The holograms described in E1 (column 1, lines 40 to 44) and having a certain thickness had to be considered as volume holograms. The appellant stated

that the title of E1 made it clear that E1 was not limited to relief holograms. A volume hologram was also disclosed in E2, column 6, lines 49 to 54 ("optically active layers which contain holographic relief structures, diffraction structures, interference structures, reflection structures, ...").

Furthermore, the appellant argued that the reflection hologram in a preferred embodiment in E1 (column 8, lines 23 to 26) was a volume hologram, since reflection holograms could not be made as thin holograms.

4.1.3 The respondent agreed with the opposition division in that E1 and E2 did not disclose labels, as the term "label" did not merely imply "suitability for being attached". Rather, a label defined one or several inherent product features that rendered the label effectively suitable for labeling an object. No provision was given in either E1 or E2 that the disclosed data carriers or security papers could be labels as they were independent and self-standing products. The fact that the hologram 10 might be provided on both sides of paper 8 in E1 (see figure 3) or that the security element 22 might be provided on both surfaces 12a, 12b of paper 12 indicated that these papers were not to be used as labels. The respondent also stated that it was not implied by E6 that E1 or E2 disclosed a post stamp, and hence a label.

With respect to feature 1.3, the respondent agreed with the opposition division and argued that paragraphs [0004] and [0005] explained the difference between relief holograms and volume holograms. In addition, even if the hologram of E1 had a certain volume, it was not a volume hologram within the meaning of claim 1. Column 8, lines 24 to 25 of E1 related to hologram 5,

and not to hologram 6 which had to be identified with the claimed hologram. With respect to E2, the respondent argued that claim 15 or column 6, lines 50 to 53 gave examples of optically variable elements, which might have contained reflection structures. However, column 6, lines 50 to 54 did not disclose a reflection or a volume hologram but "holographic relief structures" which were not volume holograms as set out in paragraphs [0004] and [0005] of the patent.

4.1.4 The Board notes first that it is common ground that E1 and E2 both disclose features 1.2, 1.4 to 1.7. Whether the products known from E1 or E2 are "labels" within the meaning of claim 1 and the holograms disclosed therein are "volume holograms" are the contentious issues between the parties.

Regarding feature 1.1, the Board is of the opinion that a "label" is not merely any item that is "suitable to be attached to an object to be labelled". Such a broad definition would imply that any item that could be attached to another object would possibly be a "label". The Board finds such interpretation unreasonable. Instead, a "label" as presently claimed must have at least one inherent feature (e. g. attaching means like the adhesive layer 32 of figure 5 of the patent or a particular size, form or material) that configures it to be attached to an object to be labeled. This is all the more so as a "counterfeiting prevention label" is claimed and without any attachment between the label and the labelled product the counterfeiting prevention could not be achieved.

As both E1 and E2 are silent about such features and do not disclose the use of the data carrier of E1 or the security paper of E2 as label of a (different) object

to be labelled, the data carrier of E1 or the security paper of E2 cannot be considered as labels. A further indication that E1 and E2 describe independent and self-standing products without any reference to another object to be labelled is given by the fact that both documents disclose holograms positioned on both opposing surfaces of the paper base sheet.

Furthermore, document E6 merely shows that a post stamp - which may indeed be regarded as a label - can be considered as a particular type of security paper from a legal point of view. However, since E1 and E2 do not disclose post stamps, document E6 cannot be prove that E1 or E2 disclose "labels" in the sense of claim 1.

Regarding feature 1.3, the Board is of the opinion that the broad definition of the term "volume hologram" to be a hologram of a "certain volume" is not the one that should be used for interpreting claim 1. According to this definition, any hologram would be a volume hologram, as any hologram necessarily has some "volume". In the view of the Board, the term "volume hologram" is well-known to the skilled person in the technical field of holograms. It refers to a type of holograms having an emulsion thickness significantly larger than the mean lattice constant in the hologram, i. e. the wavelength used for its recording. This definition is also in accordance with the appellant's statement on page 5/13 of the statement of the grounds of appeal that a "thick or volume hologram is one where the thickness of the recording medium is greater than the spacing of the interference pattern" (citing from Wikipedia). This definition also corresponds to the teaching in paragraph [0047] of the contested patent.

The Board accepts the appellant's argument that a Lippmann or Denisyuk hologram or a reflection hologram is necessarily a volume hologram.

However, with respect to E1, the Board is of the opinion that neither column 1, lines 6 to 8, column 1, lines 24 to 68 nor column 8, lines 20 to 26 disclose that the ribbon-shaped hologram layer 6 in E1 is a volume hologram, column 8, lines 23 to 26 referring to another "hologram element 5". Even accepting that a reflection hologram is a volume hologram, E1 does not disclose that optically active layer 6 is a volume hologram. Column 8, lines 26 to 30 merely mention a diffraction grating pattern ("ein sich wiederholendes fortlaufendes Beugungsgitter") and not a hologram (see also column 8, line 54 to column 9, line 15).

Regarding document E2, the Board is of the opinion that column 6, lines 50 to 54 does not disclose that security element 22 is a volume hologram. From the unspecific term "reflection structures", a skilled person would not necessarily understand that a reflection hologram or volume hologram must be meant.

As a consequence, the Board agrees with the opposition division and the respondent that documents E1 and E2 do not disclose features 1.1 and 1.3.

4.2 Document E3

4.2.1 According to the opposition division, E3 did not disclose features 1.3 (volume hologram) and 1.7 (depression), see the contested decision, section 12.2 of the Reasons.

4.2.2 With respect to feature 1.3, the appellant argued that E3, column 3, lines 44 to 50 disclosed a volume hologram ("Regenbogenfarbspiel"), wherein mono-angular incident light was reflected if the Bragg condition was fulfilled, i. e. "the period length of the grating structure had a specific relationship to the wavelength and the thickness of the grating structure". Hologram 1 in E3 was also a volume hologram in the sense that it had a "certain volume". During the discussion of column 1, line 62 to column 3 in the oral proceedings before the Board, the appellant stated that from this passage, the skilled person would understand that volume holograms were used in E3.

With respect to feature 1.7, the appellant argued that E3 disclosed that the ribbon-shaped holographic layer 1 was applied to the base sheet using "Aufsiegeln", which was a synonym of "Heißsiegeln", i. e. heat sealing. The appellant provided E7 to E9 to show that "Aufsiegeln" corresponded to heat sealing and provided E10 and mentioned "Wikipedia: Heat sealer" to show that heat sealing was the process of sealing one thermoplastic to another similar thermoplastic using heat and pressure. In view of the pressure applied during the manufacturing of E3, the appellant referred to page 27, lines 30 to 36 of the application as originally filed and concluded therefrom that the label of E3 necessarily had a depression according to feature 1.7 of claim 1.

4.2.3 Regarding feature 1.3, the respondent was of the opinion that the properties and effects disclosed in column 3, lines 44 to 50 or column 1, line 62 to column 2, line 3 of E3 could also be obtained by relief holograms or thin holograms.

With respect to feature 1.7, the respondent argued that "Aufsiegeln" or "sealing on" (see E3, col.2, lines 62 and 63) was not a synonym of "Heißsiegeln" or "heat sealing" and that E3 did not disclose that a depression was produced. Even if pressure was used in the process of E3, there was no indication that a depression was formed. According to page 27, lines 30 to 36 of the description of the application a certain amount of pressure was needed to form a depression (see in particular page 27, line 31: "pressed firmly").

4.2.4 Regarding feature 1.3, the Board is of the opinion that the passage indicated by the appellant (E3, column 3, lines 44 to 50) discloses a multi-color hologram ("Regenbogenfarbspiel") comprising micro- and grating structures. From the passage in column 1, line 53 to column 2, line 1 of E3 a skilled person understands that the hologram ribbon 1 is visible by daylight ("bei Tag") or when illuminated by a flashlight, e. g. by a police officer at night. From this passage it follows that the hologram 1 must be a reflection hologram, i. e. it is recognizable by an observer (e. g. a police officer) when illuminating it from the viewing side, e. g. by the sun or with a flashlight. Moreover, hologram 1 must be a white light hologram ("Weisslichthologramm"), as it should be seen under normal daylight conditions or when illuminated by a flashlight. The Board finds that column 1, line 62 to column 2, line 1 makes it clear for the skilled person using its common general knowledge that the hologram 1 in E3 must be a reflection hologram. Furthermore, the Board agrees with the appellant's argument that a reflection hologram is necessarily a volume hologram as defined in section 4.1.4 above, fifth paragraph, the reflection of a thin relief hologram being too weak to

provide a reflection hologram. Hence, E3 is found to disclose a volume hologram as claimed in feature 1.3.

With respect to feature 1.7, the Board concurs with the respondent's argumentation. From E7 (paragraphs [0002] and [0008]) or E8 (paragraphs [0007] and [0008]), E9, E10 or his common general knowledge, a skilled person would possibly derive that heat sealing is a specific kind of sealing using heat and pressure. However, these documents do not show that "Aufsiegeln" and "Heißsiegeln" are synonyms. In other words, from E3, the skilled person cannot derive that pressure and/or heat is used to seal the hologram structure 1 onto the base sheet of E3. Even if one would accept that pressure is involved, there is no disclosure in E3, that the sealing process would result in a depression that is still present in the finished label, because the use of pressure is not mentioned or suggested in E3, let alone the use of a significant amount of pressure. Therefore, feature 1.7 is not found to be directly and unambiguously disclosed in document E3.

4.3 From the above, the Board concludes that the subject-matter of claim 1 as granted is novel (Article 52(1) EPC and Article 54(1) and (2) EPC 1973) since neither E1 nor E2 disclose features 1.1 and 1.3 and since E3 does not disclose feature 1.7.

5. Respondent's main request - Article 100(a) EPC 1973 in combination with Article 56 EPC 1973

5.1 Selection of the closest prior art

5.1.1 In the statement of the grounds of appeal, the appellant argued that the subject-matter of claim 1 lacked an inventive step in view of E1 as closest prior

art in combination with either one of E2 to E4 or the common general knowledge of the skilled person or in view of E3 as closest prior art in combination with either one of E1, E2 and or the common general knowledge of the skilled person.

5.1.2 The respondent accepted that E3 was the closest prior art as it belonged to the technical field of security labels (rather than of security papers), its subject-matter had a function similar to the one of the present invention (see E3, column 1, lines 4 and 5 and the contested patent, paragraphs [0002], [0005], and [0032]) and addressed a similar technical problem, namely the provision of a security label having improved security characteristics (see E3, column 1, lines 44 to 48 and the contested patent, paragraph [0008]). The respondent pointed out that according to the passages in column 1, lines 24 to 29 and column 2, lines 24 to 29 in document E3 it was desirable to use paper with a low tear resistance so that a counterfeit preventing label made of this paper was ripped into pieces in case someone tried to detach the label from the labelled object, e. g. a car window, whereas the security papers of E1 and E2 were made of high tear resistance papers. For the respondent, this was a further indication that E3 was to be considered as the closest prior art.

5.1.3 The Board is of the opinion that E1 is not a suitable starting point for the assessment of inventive step of the claimed subject-matter, because the present invention as defined in claim 1 is directed to a counterfeiting prevention label so that a piece of prior art related to such a label is a more promising starting point. E3 is a suitable closest prior art,

because its teaching is directed to the same purpose, namely providing a counterfeiting prevention label.

5.2 Distinguishing features

As already stated above, the Board is of the opinion that E3 discloses a volume hologram so that the subject-matter of claim 1 differs from the label disclosed in E3 only by feature 1.7.

In particular, using the wording of granted claim 1, E3 discloses a counterfeiting prevention label (column 2, line 55, "Wertdruck-Aufkleber 11", figure) comprising: a base sheet (column 2, lines 21 to 29 and line 61, "Trägermaterial"); and a volume hologram layer (column 2, line 62, "Streifen 1", column 3, lines 43 to 50) covering a part of a front surface of the base sheet (figure); wherein the volume hologram layer (1) has the shape of a ribbon (figure) and extends between a first end of the base sheet (11) and a second end of the base sheet (figure) opposite the first end, the end surface of one end of the volume hologram layer (1) is flush with the end surface of the first end of the base sheet (11) and the end surface of the other end of the volume hologram layer (1) is flush with the end surface of the second end of the base sheet (11), wherein the volume hologram layer (1) is bonded to the front surface of the base sheet (11) with a heat-sensitive adhesive layer or a pressure-sensitive adhesive layer (column 2, lines 61 to 65, "aufgesiegelt" implies an adhesive layer).

Hence, E3 does not disclose that a part, coated with the volume hologram layer, of the surface of the base sheet is depressed relative to a part, not coated with

the volume hologram layer, of the surface of the base sheet to form a depression.

5.3 Objective technical problem

5.3.1 The respondent formulated the objective technical problem as to provide a counterfeiting prevention label having an improved printability across the boundary between the volume layer and the base sheet. It referred to paragraphs [0114] and [0119] of the opposed patent, which correspond to page 35, lines 27 to 36 and page 36, lines 22 to 27 of the application as originally filed. Page 37, lines 5 to 12, which corresponds to paragraph [0122] of the opposed patent, was cited to show that a label with excellent security characteristics was obtained. In the first of these passages the print quality of a label without depression and with a step height of 26 µm was "unsatisfactory" when compared to a "modified" label having a depression resulting in a step height of only 15 µm. For the respondent, the objective problem formulated as indicated above was therefore technically reasonable, plausible and not contradictory to the description. It pointed out that neither E1 nor E2 addressed the objective technical problem of improved printability. E1 mentioned other advantages of a depression related to printing processability (see column 7, lines 9 to 67, in particular column 7, lines 61 to 67: "Das Bedrucken ... führt somit nicht zur Beeinträchtigung ihrer Qualität" or column 9, lines 22 to 26: "Diese Vertiefung hat den Vorteil, daß ein darin liegendes optisches Element ... beim Bedrucken des Papiers, vor Berührung und Beschädigung geschützt ist"). E2 mentioned in column 5, lines 19 to 26 that the security paper might "be passed through a laser printer or the like without interference", which also

related to "printing processability". For the respondent, a security paper or label had good printing "processability" when it can be subjected to a printing process without negatively affecting the security paper, whereas it had a good "printability" when the resulting printing was clear and free from distortions. The respondent noted during oral proceedings that the appellant did not provide any comparative tests.

5.3.2 The appellant stated that the objective technical problem was not more than to provide an alternative way of attaching a volume hologram layer on a base sheet, because, as the height of the volume hologram layer and the depth of depression were not part of the claimed label, no improvement of printability was obtained, see in particular page 10/13, penultimate paragraph of the statement of the grounds of appeal.

5.3.3 The Board does not share the respondent's view that the objective technical problem is to provide improved printability due to the depression.

It might be correct that the printability is improved for characters printed across the boundary portion between the surfaces of the volume hologram and the base sheet (e. g. characters 9 shown in the figure of E3) when the depth of the depression is equal to or smaller than the height of the volume hologram layer, as it is the case for figures 5 and 6 or the example described in paragraph [0114] of the opposed patent. In this example the height of the volume hologram structure (2) appears to be 26 µm so that the step height in the example without depression is 26 µm. When a depression (3a) having a depth of 26 µm - 15 µm = 9 µm is used, the step height becomes 15 µm. The Board accepts that that the printability is increased in this

case, because the step height is small and decreased compared to the case without depression (3a). However, in case the depth of the depression is e. g. 60 µm, then the step height is 60 µm - 26 µm = 34 µm, so that the printability is deteriorated compared to the example without depression. Therefore, it is not plausible that an improved printability is achieved if the depression is significantly deeper than the height of the volume hologram layer, as also suggested by the appellant, see the statement of grounds of appeal, page 10/13, penultimate paragraph. As another illustrative example, a very shallow depression which is significantly smaller than the height of the volume hologram layer (e. g. a depression depth of 100 nm in case of a 26 µm high volume hologram layer) would probably not have any positive (or negative) impact on the printability.

The respondent argued that a skilled person, who read the claim and took the whole disclosure of the patent into account, would understand that providing a depression significantly deeper than the height of the volume hologram layer was illogical and in contradiction with e. g. paragraph [0005] of the opposed patent and that this arrangement was excluded by the wording of claim 1.

This argumentation does not convince the Board. The skilled person does not need the help of the description for the interpretation the wording of claim 1 since claim 1 as such is clear. As the height of the volume hologram layer and the depth of the depression are not restricted by claim 1, a skilled person would assume that the claim as formulated also encompasses an arrangement with a depression which is deeper than the height of the volume hologram layer.

In other words, the Board follows the appellant's view that without an indication of the step height at the boundary between the volume hologram layer and the base sheet, an improvement of the printability is not plausibly achieved by the distinguishing feature over the entire breadth of the claim. As claim 1 does not require any limitations regarding the depth of the depression, the Board is of the opinion that the objective technical problem solved by feature 1.7 over the entire breadth of claim 1 cannot be to provide an improved printability and has to be formulated in a less ambitious manner. The Board opines that the objective technical problem is to provide an alternative way of bonding a volume hologram layer to a base sheet.

5.4 Obviousness

The appellant argued that the skilled person attempting to solve this problem would consider documents E1 or E2. In particular, a skilled person would combine E3 and E1, because both use similar ways to combine a hologram on a base sheet (E3: "Aufsiegeln", column 2, lines 61-65, and E1: "Heißprägen", column 1, lines 35-38), E1 further disclosing an improvement of the base sheet's roughness before transfer printing.

The Board finds that the skilled person wishing to solve the objective technical problem would consult E1. This document is from the same technical field of security papers comprising hologram ribbons bonded thereon by a transfer process (see column 8, line 68 to column 9, line 15; column 10, line 59 to column 12, line 12; figure 5). E1 discloses several advantages (see column 7, lines 9 to 67) when using a depression

in the base sheet (see figure 2, paper substrate 8) produced by locally smoothening ("glätten") the paper before transferring the volume hologram ribbon on the base sheet.

When applying the teaching of E1 to the label of E3, the skilled person would produce a depression by including a smoothing unit ("Glättwerk") like the one shown in figure 5 of E1 (item 52) into the manufacturing line of E3. In this manner the skilled person would arrive at a label, wherein a part, coated with the volume hologram layer (1), of the surface of the base sheet (11) is depressed relative to a part, not coated with the volume hologram layer (1), of the surface of the base sheet (11) to form a depression.

Hence, the skilled person would arrive at a label according to claim 1 without any inventive activity.

Consequently, the subject-matter of claim 1 as granted does not involve an inventive step (Article 52(1) EPC and Article 56 EPC 1973).

6. Respondent's auxiliary request 1 - added subject-matter (Article 123(2) EPC)

Neither in its response to the grounds of appeal nor in its letter dated 15 May 2020 did the respondent explicitly indicate the basis for feature 1.7' added to claim 1 according to auxiliary request 1. It merely stated that a step of 20 µm or below was not "inextricably linked with further features disclosed in the description". During the oral proceedings before the Board the respondent indicated claims 1 and 5 as originally filed and argued that a step was already present in these claims. It also referred to page 36,

lines 22 to 27 and to page 37, lines 30 to 32 of the description of the application, which showed that the step mentioned on page 7, lines 31 to 34 was disclosed independently from further features.

The Board is of the view that the skilled person would not derive a step formed "at the boundary" between a volume hologram layer and a "part in which the hologram layer is not placed", as required by claim 1 of auxiliary request 1, either from the original claims or from the passages on pages 36 and 37 of the description of the application. The only passage in the description as originally filed mentioning a step having a height of "20 µm or below" is page 7, line 31 to page 8, line 1 of the application as filed, see also the respondent's reply to the notice of opposition.

However, as also pointed out by the appellant in its letter dated 11 November 2015, feature 1.7' is not disclosed in the patent application as originally filed. Page 7, line 31 to page 8, line 1 disclose a step which is formed at the boundary between the volume hologram structure 2 and a part in which the volume hologram structure is not placed, and that this step has a height of 20µm or below. The volume hologram structure 2 itself consists of a release protective layer 21, the volume hologram layer 22 and the heat-sensitive adhesive layer 23 (see page 5, lines 30 to 32 and figures 1, 5(b), 5(d) and 6). In this embodiment, a lower part of the volume hologram structure sinks in the depression (page 27, lines 23 to 26 and lines 30 to 36; figure 5(b) and (d)) so that the volume hologram structure projects or protrudes from the surface of the base sheet (see page 8, lines 7 to 16; page 27, lines 23 to 26; figures 5(b), 5(d) and 6).

In other words, the step having a height as claimed is only disclosed for a volume hologram structure having the specific composition of three layers and protruding from the base sheet so that claim 1 represents an unallowable intermediate generalisation based on the embodiment described on page 7, line 31 to page 8, line 16 and shown in figures 5(b), 5(c) and 6.

Hence, claim 1 of auxiliary request 1 contains subject-matter which extends beyond the application as filed, contrary to the requirements of Article 123(2) EPC.

7. Respondent's auxiliary request 1a - added subject-matter (Article 123(2) EPC)

The respondent did not submit any arguments on the issue of added subject-matter different from those provided for auxiliary request 1. Thus the Board finds that the amendments made to claim 1 according to auxiliary request 1a do not overcome the added subject-matter objection raised against claim 1 of auxiliary request 1 so that it also contains subject-matter extending beyond the content of the application as filed (Article 123(2) EPC).

8. Respondent's auxiliary request 1b

8.1 Admission of auxiliary request 1b

The appellant requested to disregard auxiliary request 1b according to Article 13(1) RPBA 2007 respectively Article 13(1) RPBA 2020, see its letter dated 4 June 2020, section 2.2. During the oral proceedings, the appellant did not further comment on the admission of auxiliary request 1b.

The respondent justified the filing of auxiliary request as being occasioned by the objections concerning the compliance of auxiliary requests 1 and 1a with the provision of Article 123(2) EPC as raised in sections 8.1 and 8.3 of the Board's communication pursuant to Article 15(1) RPBA 2007. The respondent pointed out that said objections were considered to be overcome by the amendments effected to claim 1 of auxiliary request 1b, i. e. by the addition of feature 1.11.

Auxiliary request 1b was filed after oral proceedings have been arranged so that it may be admitted only at the discretion of the Board, see Article 13(1) RPBA 2020 and Article 13(3) RPBA 2007 in combination with Article 25(3) RPBA 2020. Only a part of the objections raised in sections 8.1 and 8.3 of the Board's communication had been brought up by the appellant during the opposition procedure (see its letter dated 11 November 2015, page 4/5, "Zum 1. Hilfsantrag"). The filing of auxiliary request 1b is therefore a reaction to the objections raised in the Board's communication, which overcomes these objections (see section 8.2 below) and does not raise to new objections.
In addition, the appellant could expect that the respondent would add feature 1.11 to claim 1 of auxiliary request 1b, whose omission the Board objected to under points 8.1 and 8.3 in its communication.

Hence, the Board decides to admit auxiliary request 1b into the proceedings.

8.2 Added subject-matter - Article 123(2) EPC

The Board is satisfied that claim 1 is based on original claims 1, 3, 4 and 5 as well a page 5, lines

30 to 32, page 7, line 31 to page 8, line 16, page 27, lines 23 to 26, lines 30 to 36, figures 5(a) to 5(d) and 6. The appellant had no objections under Article 123(2) EPC against auxiliary request 1b.

8.3 Inventive step - Article 56 EPC 1973

8.3.1 It is common ground between the parties that document E3 does not disclose features 1.8 to 1.11.

8.3.2 In its communication, the Board expressed its provisional view that the surface of the volume hologram layer not facing the base sheet in E1 is coated with a release protective layer 11. It would be obvious to use such a protective layer in E3 so as to form a volume hologram structure. This view was not contested by the respondent and the Board maintains its opinion that E1 renders obvious features 1.8 and 1.9.

8.3.3 The respondent argued that the objective technical problem solved by the step as defined by features 1.7, 1.10 and 1.11 was to provide a counterfeiting prevention label having an improved printability across the boundary between the volume structure and the base sheet, as confirmed by paragraph [0114] of the opposed patent, which corresponds to page 35, last paragraph of the application as originally filed. None of the documents E1, E2 or E3 would address the problem of improved printability so that the skilled person wishing to solve the objective technical problem would not consider documents E1 or E2. Moreover, neither E1 nor E2 disclosed a printed area across the boundary between the hologram and the base sheet. As argued for claim 1 as granted, documents E1 and E2 addressed printing processability and not printability.

Even if it were to combine one of these documents with E3, the skilled person would not arrive at the claimed step, the only dimensions indicated in E1 being those of the tool used to provide the depression (5 to 50 µm, column 10, lines 6 to 11, "Kalandrierzylinder") and of the transferred elements (E1, column 7, lines 25 to 36, "Transferelemente typischerweise nur eine Dicke im Bereich von wenigen Mikrometer aufweisen"). Figure 2 of E1 showed a hologram structure 10, 11 that did not project or protrude from paper base sheet 8, because it should be protected against damage (see E1, column 9, lines 22 to 26, "vor Berührung und Beschädigung geschützt").

8.3.4 The appellant accepted the respondent's formulation of the objective technical problem. The skilled person would arrive at a counterfeit preventing label by combining E3 with either E1 or E2. The appellant stated that column 10, line 11 of E1 gave an indication of the depression depth produced by the cylinder used in E1 and that the hologram had a thickness of a few micrometers (column 7, lines 25 to 36). Although there was no indication about the height of the hologram structure 1 in E3, the height of element 1 would be in the order of several micrometers. It argued that the wording of claim 1 encompassed an arrangement with the volume hologram structure and the base sheet being coplanar. Such an arrangement were suggested by figure 4 and column 5, lines 20 to 26 of E2 or figure 2 of E1 with no step between the upper surface of the optical active element 6 and the original surface roughness 9.

8.3.5 The Board agrees with the parties that the objective technical problem solved by features 1.7, 1.10 and 1.11 is to provide a counterfeiting prevention label having an improved printability across the boundary between

the volume structure and the base sheet. Paragraphs [0029] and [0114] of the contested patent indicate that an improved printability is obtained compared to a base sheet with no depression (like the one known from E3) if the step height is less than 20 µm so that the respondent's formulation of the objective technical problem is accepted.

Document E3 discloses overprints 2 to 10 printed across the boundary of volume hologram 1 and base sheet 11, see column 3, lines 30 to 34 and the figure so that it can be reasonably assumed that the skilled person starting from E3 would be aware of the objective technical problem. However, in the Board's view, the skilled person would not consider document E1 and E2, because none of these documents addresses the problem of printability across the boundary between a hologram and a base sheet. In fact, neither E1 nor E2 discloses printing on both the surface of the base sheet and the hologram layer or structure or across the boundary between the two surfaces. In E1, a printed area 2 on the base sheet 1 is shown in figure 1 (see column 8, lines 15 to 18) and in E2, printed characters are located either on the hologram or on the base sheet, see figures 5A to 6B. As pointed out by the appellant, see section 5.3.1 above, E1 and E2 are not related to printability, but to printing processability, see E1, column 7, lines 9 to 67, column 9, lines 22 to 26 or E2, column 5, lines 19 to 26.

Furthermore, even if the skilled person were to consider E1 or E2, it would not arrive at a step as defined by features 1.10 and 1.11, because E1 either teaches to completely embed the volume hologram structure in a depression (see figure 2) or to provide a depression by smoothening the base sheet paper, fill

it with material 20, 21 ("Streichmasse") and put the hologram structure 10, 11 onto the filling material 20, 21 (see figure 3). E2 teaches to completely embed a hologram 22 into a depression and provide a coating 26 (see figure 4) so as to obtain a planar surface (figure 4; column 5, lines 22 - 26). The claimed solution, i. e. features 1.7, 1.10 and 1.11, is taught neither by E1 nor by E2.

Hence, the Board accepts that the subject-matter of claim 1 is based on an inventive step within the meaning of Article 56 EPC 1973. As method claim 6 is directed to a method of producing the label according to claim 1, its subject-matter is based on an inventive step, as well.

9. The Board is satisfied that the amendments made to the description brought it in conformity with the claims of auxiliary request 1b and did not add subject-matter. Thus the patent can be maintained in an amended form on the basis of auxiliary requests 1b.

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: columns 1 to 27 as filed in the oral proceedings before the Board,

   Claims: No. 1 to 7 of the auxiliary request 1b filed with letter dated 15 May 2020,

   Drawings: Figures 1 to 6 of the patent specification.

The Registrar: The Chairman:

S. Sánchez Chiquero T. Häusser

Decision electronically authenticated