BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen
(D) [ ] No distribution

Datasheet for the decision of 19 November 2009

Case Number: T 0037/07 - 3.3.01

Application Number: 98118635.6

Publication Number: 0927750

IPC: C09D 11/00

Language of the proceedings: EN

Title of invention:
Use of inorganic particles and method for marking and identifying a substrate or an article

Patentee:
SICPA HOLDING S.A.

Opponent:
GIESECKE & DEVRIENT GmbH

Headword:
Non-stoichiometric crystals as marking means/SICPA HOLDING S.A.

Relevant legal provisions:
EPC Art. 123(2)(3), 113(1), 100(a)(c), 84, 56
RPBA Art. 13(1)(3)

Relevant legal provisions (EPC 1973):
-

Keyword:
"Added matter - (no)"
"Admissibility of a new ground - (no)"
"Inventive step (yes) - subject-matter cannot be deduced from the prior art"

Decisions cited:
G 0007/95, G 0009/91, T 0200/07, T 1119/05

Catchword:

-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0037/07 - 3.3.01

D E C I S I O N
of the Technical Board of Appeal 3.3.01
of 19 November 2009

Appellant: (Opponent)
GIESECKE & DEVRIENT GmbH
Prinzregentenstr. 159
D-81677 München (DE)

Representative:
Klunker . Schmitt-Nilson . Hirsch
Destouchesstrasse 68
D-80796 München (DE)

Respondent: (Patent Proprietor)
SICPA HOLDING S.A.
Avenue de Florissant 41
CH-1008 Prilly (CH)

Representative:
Hepp, Dieter
Hepp, Wenger & Ryffel AG
Friedtalweg 5
CH-9500 Wil (CH)

Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 7 November 2006 rejecting the opposition filed against European patent No. 0927750 pursuant to Article 102(2) EPC.

Composition of the Board:

Chairman: P. Ranguis
Members: J.-B. Ousset
C.-P. Brandt

Summary of Facts and Submissions

I. The opponent (appellant) lodged an appeal against the decision of the opposition division to reject the opposition raised against the patent EP-B-0 927 750.

II. Claim 1 of the granted version reads as follows:

"1. Use of at least one inorganic particle comprising at least one predefined ratio of at least two chemical elements as a marking means, wherein said predefined ratio represents a code or a part of a code and wherein said particle is selected from the group of non-stoichiometric crystals."

III. The opponent sought revocation of the patent in suit on the basis of Article 100(a) EPC (lack of inventive step) and Article 100(c) EPC. Furthermore, an objection of lack of novelty was raised by the opponent during the written procedure before the opposition division (see letter of 02 June 2006).

IV. In the opposition procedure inter alia the following documents were cited:

(1) US-A-3 772 200
(2) US-A-4 452 843
(3) US-A-4 146 792
(4) DE-A-27 45 301
(5) US-A-4 463 970
(6) "Phosphor handbook", CRC press, 1999, pp. 101-112
(7) Auszug aus Römpp Chemie Lexikon, achte Auflage, pages 4723, 4724 and 4728.

The opposition division concluded that the replacement in claim 1 of the expression "one type of inorganic particles" present in claim 1 as originally filed by "at least one particle" did not infringe Article 123(3) EPC. Moreover, the presence of the expression "analytical means" in claim 12 was not considered as being in contradiction with the requirements of Article 100(c) EPC, since the subject-matters of claims 17 and 18 were not restricted to specific analytical means. The ground of lack of novelty of the patent in suit vis-à-vis document (1) was additionally introduced by the opponent. During oral proceedings, the admissibility of this ground was discussed and the opposition division decided not to admit this new late filed ground, because it was prima facie not relevant. The opposition division justified its decision by asserting that document (1) did not mention non stoichiometric crystals and that the carrier system of document (1) cannot be present in a crystalline form. Starting from document (1) as closest prior art, the opposition division found that there is no hint in the other cited documents, which would lead the person skilled in the art to select the said inorganic particle of claim 1 from the group of non stoichiometric crystals and concluded that an inventive step should be acknowledged.

V. With its statement setting out its grounds of appeals, the appellant provided the following new documents:

(8) Auszug aus Römpp Chemie Lexicon, Band 4 (1995), pages 2806, 2989 and 3296

(9) FR-A-2 556 867

VI. The parties were invited to oral proceedings to be held on 19 November 2009.

During these oral proceedings, the respondent filed a new main request. Claim 1 reads as follows:

"1. Use of at least one inorganic particle comprising at least one predefined ratio of at least two chemical elements as a marking means, wherein said predefined ratio represents a code or a part of a code and wherein said particle is selected from the group of non-stoichiometric crystals, and is held in place in a coating composition or printing ink for analysis of said predefined ratio of said chemical elements."

VII. The arguments submitted by the appellant to the extent that they are relevant for this decision can be summarized as follows:

- The claimed subject-matter was not novel in view of example 1 of document (9), which disclosed marking security means made of mixed crystals. Document (9) disclosed in example 1 a non-stoichiometric crystal consisting of an yttrium oxide marked with 5% holmium oxide and 2% europium oxide which represents a code for analysis. Reference to the decision of the Enlarged Board of Appeal G 7/95 was made in order to justify the late introduction of the lack of novelty as new ground of appeal (G 7/95, OJ EPO 1996 626, second paragraph of the order of the decision). Furthermore, if document (9) was not considered as novelty-destroying, it remained relevant to assess inventive step.

- Document (1), in example V, contrary to the finding of the opposition division disclosed non-stoichiometric crystals, namely zirconium silicates wherein Mn, Cd and Ce are embedded, as taught by document (7).

- Even if the opinion of the opposition division was followed, according to which said document does not disclose non-stoichiometric crystals as marking means but glasses as non-stoichiometric material, the use of non-stoichiometric crystals was obvious, because it is well-known in the art that glasses are difficult to grind. By contrast, crystals are easily ground into fine particles. The claimed subject-matter was not inventive in view of the disclosure of document (1) alone. Should the person skilled in the art need further information, the common general knowledge represented by document (8) mentioned that "Perowskit" (like in claim 2 of the main request of the patent in suit) are well-known non stoichiometric crystals. Moreover, the making of small crystalline particles was easy contrary to the making of large crystals.

- The claimed subject-matter was obvious in view of the disclosure of document (1) combined with the disclosures of documents (2), (3) and (4). Documents (1) to (4) dealt all with the same technical field, namely the marking and the identification of objects. Small non-stoichiometric particles are particularly appropriate for their use in inks or colours as disclosed in documents (2), (3) and (4). Starting

from document (1), the person skilled in the art would thus use the small particles described in these documents. The examples 1 to 4 of document (5) also described non stoichiometric crystals as marking means and its combination with the teaching of document (1) rendered the claimed invention obvious. No objection under Article 100(c) was put forward by the appellant.

VIII. The arguments submitted by the respondent to the extent that they are relevant for this decision can be summarized as follows:

- There was no clear and unambiguous disclosure of the use of non-stoichiometric crystals as security marking means in document (9).

- The claimed invention was based on the fact that a particle selected from the group of non-stoichiometric crystals and being composed from at least two chemical elements making up at least one predefined ratio represented a code or a part of a code for analysis. The claimed subject-matter had the following advantages:

  a) The growing of the non stoichiometric crystals was easy and allowed the making of small-size particles required in printing applications.

  b) The claimed non-stoichiometric crystals having a large degree of freedom with respect to their chemical composition expanded the coding possibilities.

c) Easy identification and localisation of the claimed crystals with authentication methods such as SEM-EDX analysis.

d) The claimed crystals were heat-resistant.

e) The marking means made by using the claimed crystals was resistant to perturbing elements.

- Document (1) was silent with respect to the presence of non-stoichiometric crystals as marking means. Moreover, the person skilled in the art would never consider the teachings of documents (2) to (4) when trying to solve the problem underlying the present invention, since these documents related to identification of marked articles by fluorescence means, said method having drawbacks summarized in the patent in suit (see paragraph [0009]). There was no mention in these documents of a predefined ratio of at least two elements in a single non stoichiometric crystal representing a code for analysis. The person skilled in the art seeking to improve one way of identification of marked articles, would not consider the documents (2) to (4), due to the drawbacks of these methods.

- At concentrations above the "quenching concentration", the luminescence yield decreased as taught by document (6), point 2.8.1.4. This was in contrast with the teaching of the patent in suit, wherein the concentration was not tied to any upper limit. The concentrations in the examples of the patent in suit were much higher than the "quenching concentration" and thus the

compounds of the examples of the patent in suit would not show a substantial luminescence.

IX. The appellant (opponent) requested that the decision under appeal be set aside and that the European patent No. 927750 be revoked.

X. The respondent (patentee) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the set of claims (claims 1 to 14) filed at the oral proceedings on 19 November 2009.

XI. At the end of the oral proceedings, the decision of the board was announced.

Reasons for the Decision

1. The appeal is admissible.

Main and sole request

2. Admissibility

This request was filed during the oral proceedings after discussion of the allowability of claim 1 as granted based on arguments with respect to the disclosure of document (2), presented for the first time during oral proceedings by the appellant. New claim 1 corresponds to claim 5 as granted and this amendment was occasioned by the new argument. Moreover, the nature of the amendments carried out by the respondent does not render the claims more complex and

does not lead to an undue delay of the appeal procedure. It furthermore cannot surprise the respondent, since the added feature was already present in dependent claim 5 as granted.

In view thereof, the board uses its discretion to admit this request (see Article 13(1) and (3) of the RPBA).

3. Amendments

3.1 The respondent has amended the granted version of claim 1 by adding the expression "... and is held in place in a coating composition or printing ink for analysis of said predefined ratio of said chemical elements." to the wording of the granted version of claim 1.

3.2 This amendment corresponds substantially to the wording of the granted claim 5, which was dependent of claim 1 as granted. Furthermore, the respondent replaced the expression "carrier medium" present in claim 5 as granted by the expression "...coating composition or printing ink...". A corresponding basis for such a replacement is found on page 8, second paragraph, lines 4 to 7 of the said paragraph of the application as originally filed. Moreover, the other dependent claims being dependent of the preceding ones, this amendment does not amount to a new subject-matter not disclosed in the application as originally filed.

3.3 The main request thus fulfils the requirements of Article 123(2) EPC.

3.4 The adding of the expression "... and is held in place in a coating composition or printing ink for analysis of said predefined ratio of said chemical elements." into claim 1 limits the claimed scope.

3.5 Consequently, the main request is in accordance with Article 123(3) EPC.

4. Clarity

4.1 The appellant argued that the particles in the ink are not held in a place to allow their analysis when they are in a liquid form (e.g. in a bottle), since printing inks are liquids and thus the particles can precipitate.

4.2 This argument cannot convince the board, because the analysis of the particles, subject-matter of claim 1, will not be performed on the printing ink in the flask and/or reservoir but once the printing ink has been applied on the object to be identified.

4.3 The amendments carried out by the respondent are thus in accordance with Article 84 EPC.

5. Admissibility of lack of novelty as a new ground of opposition.

5.1 Although this ground of opposition was put forward by the appellant to question the patentability of the granted version of the claims, it was not maintained for the current version of the main request. However, for the sake of completeness, the board would like to comment this point as follows:

5.1.1 It is not entirely clear from the statement of grounds for appeal whether the appellant wishes to invoke, or rather resubmit, lack of novelty as the ground for opposition. In any event, this ground was invoked, by letter of 2 June 2006, in the proceedings before the opposition division. The opposition division rejected it as prima facie irrelevant and refused to admit it to the proceedings. That refusal forms part of the opposition division decision under appeal and will therefore be reviewed by the board. However, in accordance with the boards' settled case law, since the refusal constitutes a discretionary decision of the opposition division, the board may review it only in so far as it is required to examine whether the department of first instance, when exercising its discretion, applied the wrong criteria, disregarded the correct criteria or acted arbitrarily. Accordingly, the board need not decide whether it would have exercised, or would exercise, discretion in the same way as the department of first instance.

Should the board conclude that there was no error or abuse of discretion by the department of first instance, lack of novelty could be admitted as a ground for opposition in the appeal proceedings only with the consent of the patent proprietor / respondent. However, the patent proprietor has already expressly refused consent to such admission in the reply to the appeal.

5.1.2 The opposition division considered this new ground of opposition as not relevant. The introduction of the said ground based on the disclosure of document (1) was rejected by the opposition division, because this document, contrary to the subject-matter of the patent

in suit, did not mention the use of a non-stoichiometric crystal.

5.1.3 The board is convinced that the opposition division exercised its discretion to refuse the introduction of this new ground of opposition in an appropriate way, because the argument put forward by the appellant against the novelty of the patent in suit has been discussed during oral proceedings before the opposition division (see Minutes, point 3), fulfilling therefore the requirements of Article 113(1) EPC. Thereafter, the opposition division decided upon this point, thus following the appropriate approach when assessing the admissibility of a new ground of opposition (see T 200/07, not published, point 2 of the reasons; T 1119/05, not published, point 3 of the reasons).

5.1.4 As stated in the Decision of the Enlarged Board of Appeals G 9/91 (JO EPO 1993, 408, point 18 of the reasons): "The purpose of the appeal procedure inter partes is mainly to give the losing party the possibility of challenging the decision of the Opposition Division on its merits." Although the appellant maintained its objection of lack of novelty of the claimed subject-matter before the board, it never disputed the decision of the opposition division, which did not admit the lack of novelty as new ground of opposition (e.g. by applying wrong principles, when exercising its discretion).

5.2 In view thereof, the board does not see any reason to reverse the decision of the opposition division in that respect. The lack of novelty is thus not admitted into the procedure.

6. Inventive step

6.1 The subject-matter as reflected by claim 1 of the present request relates to the use of inorganic particles comprising at least one predefined ratio of at least two chemical elements as a marking means, wherein said predefined ratio represents a code or part of a code, and is held in place in a coating composition or printing ink for analysis of said predefined ratio of said chemical elements.

6.2 According to the established jurisprudence of the boards of appeal, it is necessary, in order to assess inventive step, to identify the closest prior art, to determine in the light thereof the technical problem which the invention addresses and successfully solves, and to examine the obviousness of the claimed solution to this problem in view of the state of the art. This problem-solution approach ensures the assessment of inventive step on an objective basis and avoids an ex post facto analysis.

6.3 The first step is thus to identify the closest prior art. According to the established jurisprudence of the boards of appeal, the closest prior art is a prior art document disclosing subject-matter aiming at the same objectives as the claimed invention and having the most relevant technical features in common, i.e. requiring the minimum of structural modifications (see Case Law of the Boards of Appeal of the EPO, 5th edition 2006, Section I.D.3.1., "Determination of the closest prior art in general", page 121).

6.4 Document (1) discloses the use of uniquely coded micro particles incorporated into units of production such as surface coating substance, paper for use as money, and the recovery of a single micro particle would be sufficient to identify the unit of production. The micro particles are coded by incorporation therein of selected combinations of tagging elements and the level of each of them (see column 1, lines 11 to 21; column 3, lines 58 to 60 and column 6, lines 2 to 10). Furthermore, the tagging element should be incorporated in an amount of at least 0.1 percent of the total weight to allow an analysis with an electron microprobe analyser (see column 1, lines 11 to 21; column 3, lines 61 to 64). More particularly example V shows coded micro particles made out of ZnO2:SiO2 as carrier and several tagging elements (Mn, Cd, Ce). In a preferred embodiment of document (1), the micro particles of document (1) can comprise ceramic (crystalline) as carrier (see column 2, lines 61 to 63). In that respect, it is to be noted that the fact that the carrier may be crystalline (ceramic) does not mean that the chemical elements are non-stoichiometric crystals. Furthermore, it cannot be unambiguously derived from document (7) that the tagging elements Mn, Cd, and Ce disclosed in example V of document (1) are non-stoichiometric crystals. Although document (1) aims at the same objective as the patent in suit, it does not disclose that the tagging elements must be in a crystalline form and that the said crystal must be non-stoichiometric.

Document (2) describes the use of non-stoichiometric crystals (see column 5, lines 13 to 14, "perowskite" and lines 31 to 37, "garnets") to identify security

papers (see column 1, first paragraph).The examples of this document show that the non-stoichiometric crystals used in document (2) contain at least two different elements. The luminescent properties of the non-stoichiometric crystals described in document (2) are used to identify security paper (see "Summary of the invention").

Document (9) discloses the use of one or several rare earth derivatives as marking means (see page 1, first paragraph and page 4, lines 7 to 12). The amounts of the different rare earth compounds can be measured and thus can constitute marking means (see page 3, lines 17 to 19). Different analytical methods are used to determine the nature and the amount of the rare earth ions (X-ray diffractions...) (see page 3, line 32 to page 4, line 6). Example 1 shows that different rare earth elements are present in the marking means and that, once applied to the substrate (here on bank notes), the internal code obtained by the ions of the rare earth can be analysed to assess the correspondence between the visible serial number of the bank note and its same invisible codified number (see page 6, example 1, lines 23 to 31). Furthermore, this example mentions that a specific ratio of two rare earth elements were used for marking the yttrium oxide used in the marking means. However, document (9) remains silent as to the non-stoichiometric crystalline nature of the compounds used as marking means. In that respect, the appellant's contention that it can only be derived from example 1 that the percentage of holmium oxide and europium oxide refers necessarily to a non-stoichiometric crystal remains unsubstantiated.

6.5 Document (1) as well as document (9) can be considered as representing the closest prior art. The board considers document (1) as closest prior art.

6.6 In view of document (1) and in the absence of any proper comparison vis-à-vis this document, the problem underlying the patent in suit can be seen in the use of a further inorganic particle containing at least two chemical elements in a predefined ratio as marking means representing a code or a part of it for analysis of the predefined ratio.

6.6.1 As a solution, the patent in suit proposes the use of at least one inorganic particle selected from the group of non-stoichiometric crystals.

In view of the examples present in the description as originally filed, the said problem is regarded as solved.

6.7 It should be decided whether or not the proposed solution is obvious for the person skilled in the art in view of its technical knowledge and the content of the cited prior art.

6.7.1 The appellant argued that on the basis of document (1) alone in combination with the person skilled in the art's general knowledge, the claimed invention is obvious (see point VII, second paragraph, above).

6.7.2 Starting from the disclosure of document (1) mentioning the use of compounds containing several inorganic derivatives as marking means, the person skilled in the art would not find in this document any mention as to

the use of non-stoichiometric crystals wherein the predefined ratio of the constituting elements is analysed. Document (1) rather describes the making of the particles including inorganic elements (see example V). Although these particles are made at rather high temperature (see example V) and incorporated into spheroids of glass, it cannot be deduced by the person skilled in the art that a crystal is formed and even less that this crystal is non-stoichiometric under these conditions of preparation. Document (8) discloses non-stoichiometric crystals such as Perowskite. However, this document gives no hint to use such crystals within the framework of the teaching of document (1).

6.7.3 The appellant also put forward that the combination of the teaching of document (1) with documents (2) to (5) renders the claimed invention obvious (se point VII, third paragraph, above).

6.7.4 The only difference between the teaching of document (1) and the claimed use is that non stoichiometric crystals are not disclosed in document (1) (see point 6.4). Document (2) discloses the use of non-stoichiometric crystals containing at least two chemical elements (see example 1 and column 5, lines 13 to 36) to be used as authenticity features for a security paper (see column 1, lines 5 to 12). However, the person skilled in the art would not have considered document (2) for solving the problem defined above, because the method used in document (2) to analyse the coding is based on the luminescence of the non-stoichiometric crystals deposited on the security paper. Nothing was submitted that such a method allows the person skilled in the art to determine the specific ratio of the different

elements of the non-stoichiometric crystal. This specific ratio does not therefore represent a code or a part of a code in view of the identification method used (fluorescence). This document, in the board's judgement belongs to a remote technical filed and would not have been considered without hindsight. In view thereof, the claimed subject-matter cannot be deduced in an obvious manner from the combination of the teachings of the documents (1) and (2). This conclusion applies to documents (3), (4) and (5) concerning all luminescent materials.

6.8 The subject-matter of claim 1 cannot be deduced in an obvious way from the prior art and involves an inventive pursuant Article 56 EPC. Dependent claims 2 to 9 and claims 10 to 14 relating to a method for identifying an article comprising at least one inorganic particle according to any claims 1 to 8 derive their compliance with Article 56 EPC for the same reason.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent on the basis of the set of claims (claims 1 to 14) filed at the oral proceedings on 19 November 2009 and after any necessary consequential amendment of the description.

The Registrar | The Chairman

B. Atienza Vivancos | P. Ranguis