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D E C I S I O N
of 28 October 1997

Case Number: T 0806/95 - 3.3.1
Application Number: 87102596.1
Publication Number: 0279880
IPC: D21H 21/42
Language of the proceedings: EN

Title of invention:
Security paper for currency and banknotes

Patentee:
Crane & Co.

Opponent:
Portals Limited
Giesecke & Devrient GmbH

Headword:
Security paper/CRANE & CO

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - no"
"New ground of opposition not considered in the absence of
Patentee's consent"

Decisions cited:
G 0010/91, G 0001/95

Catchword:
-



Case Number: T 0806/95 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 28 October 1997

Appellant:
(Opponent 01)

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Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 9 October 1995
rejecting the oppositions filed against European
patent No. 0 279 880 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: P. Krasa
Members: P. P. Bracke
R. E. Teschemacher

Summary of Facts and Submissions

I. This appeal is from the Opposition Division's decision rejecting the oppositions against European patent No. 0 279 880, which was granted on the basis of European patent application No. 87 102 596.1, filed on 24 February 1987.

The decision was based on the granted Claims 1 to 10, with the only independent Claims 1 and 8 reading:

"1. Security paper comprising:

a rectangular sheet of paper (7) having first and second opposing planar surfaces defining a uniform paper thickness and a paper length;

first printed indicia legible on both said surfaces under reflective illumination for identifying the subject of said paper; and

second indicia (12) intermediate said first and second surfaces at a predetermined location along said paper length for providing authenticity to said paper, characterised in that said second indicia (12) are defined by metal deposits (31) on a clear plastic strip (28), said metal deposits being produced by a process involving selective metallisation by directly hot stamping onto the strip or using a mask or template in a vacuum metalliser, or by a method involving metallisation and selective demetallisation by chemical etching, or by other methods excluding directly printing metal inks onto the plastic surface, and in

that said strip and said indicia produce no manifestation on said surfaces under reflective illumination, while said second indicia becomes legible in transmitted illumination through both said surfaces."

and

"8. A method of forming a security paper comprising the steps of:

providing a continuous plastic strip (28) having indicia defined by metal deposits on at least one surface, said metal deposits being produced by a process involving selective metallisation by directly hot stamping onto the strip or using a mask or template in a vacuum metalliser, or by a method involving metallisation and selective demetallisation by chemical etching, or by other methods excluding directly printing metal inks onto the plastic surface,

inserting said metallized plastic strip within a paper fibre slurry at a predetermined location in a paper making machine during dewatering of said fibre slurry before said fibre is consolidated into a continuous paper web;

consolidating said paper fibre into a continuous paper web having said metallized plastic strip contained within said paper web; and

heating and pressing said paper web and said metallized plastic strip to form a finished paper having said metallized plastic strip intermediate first and second opposing surfaces, said strip and said

indicia producing no manifestation on said surfaces under reflective illumination and said indicia becoming legible in transmitted illumination through both said surfaces at said predetermined location."

II. The Opposition Division found that the claimed security paper was not obvious vis-à-vis the cited prior art, and especially not vis-à-vis the teachings of documents

- (1) US-A-4 552 617,
- (2) BEP Specification for Paper: "Distinctive, Web, With Security Threads", July 11, 1984, and
- (7) US-A-1 929 828.

More particularly, the Opposition Division was of the opinion that the replacement of the soluble film in the security paper described in document (1) by an insoluble clear plastic strip was nowhere suggested and that a skilled person would not have taken into consideration document (7), since it was not concerned with paper containing a security strip.

Furthermore, it construed the requirement according to section 3.4.2.2 of document (2) that the security threads should be microprinted as meaning that the threads should be microprinted by using printer's ink. According to the Opposition Division no other microprinting of security threads than with printer's ink was known at the date of publication of document (2). Since this printing method was specifically excluded from the wording of Claim 1, the Opposition Division found that the claimed security paper was not suggested by document (2).

III. During oral proceedings, held on 28 October 1997, the Respondent (Patent Proprietor) filed

- as a first auxiliary request a set of 10 claims, which differed from the granted ones only by replacing, in the characterising part of Claim 1, "metal deposits (31) on" by "metal deposits (31) **other than metal inks** on" (emphasis added) and
- as a second auxiliary request a set of 3 claims, which corresponded to granted Claims 8 to 10.

IV. The Appellants (Opponents) submitted that the requirement according to section 3.4.2.2 of document (2) that the script on the clear plastic strip should be microprinted, metallised and conductive made it clear to a person skilled in the art that something other than printer's ink was required to obtain the microprinted continuous script.

Moreover, referring to the introductory part of document (1), they submitted that security papers containing a security thread were generally known and that security threads visible in transmitted light and invisible in reflected light were a desideratum known from document (2). Further it was known from document (7) that micro metallic forms were visible in transmitted light and not in reflective light. They argued that, therefore, it would have been obvious for a skilled person to use clear plastic strips bearing metal deposits as a security device.

Appellant 02 (Opponent 02) also submitted document

(10) DE-A-2 107 113,

disclosing security strips bearing indicia formed from non-continuous metallic films obtained by metallisation of a plastic strip (page 4, last but one complete sentence; page 8, paragraph 2, first sentence; page 8, paragraph 3, first sentence). He argued that the security strips disclosed in document (10) differed from that in the patent in suit only by not specifying the plastic material used.

At the appeal stage, the Appellants contested for the first time that the patent in suit met the requirement of Article 100(c) EPC.

V. The Respondent did not consent to a discussion of the objection under Article 100(c) EPC in the appeal stage.

Furthermore, he submitted that

- at the filing date of the patent in suit, the meaning of "microprinted" in relation to security threads was limited to direct ink printing techniques, as supported by an affidavit of Mr. Paul Cote of 9 May 95,
- the term "metallised" in document (2) was to be interpreted as "made metallic",
- it was against the very core teaching of document (1) to replace the soluble security strip bearing micro-coded information disclosed there (column 1, line 64 to column 2, line 3) with a non-soluble strip and
- a skilled person would not have considered document (7) since metal deposits on a plastic strip are not mentioned there,

and that, consequently, the arguments of the Appellants were not valid.

Moreover, the Respondent argued that security paper meeting the requirements of the BEP specification was only obtained as a result of a tortuous trial and error process, as explained in an affidavit of the inventor Mr Timothy T. Crane, provided with a letter of 14 March 1995, and that this was an indication of the non-obviousness of the claimed subject-matter.

VI. The Appellants requested that the decision under appeal be set aside and that European patent No. 0 279 880 be revoked.

The Appellants also requested that the auxiliary requests be rejected as having been filed late and as not being clearly allowable.

Furthermore, Appellant 02 requested that the discussion on the objection under Article 100(c) EPC be reopened on the basis of the first auxiliary request.

Finally, Appellant 02 requested that the following question be referred to the Enlarged Board of Appeal should it become relevant for the decision of the Board:

"Sind bei der Beurteilung der erfinderischen Tätigkeit die subjektiven Schwierigkeiten des Erfinders bei der Umsetzung einer bekannten Lehre von Bedeutung?"

The Respondent requested that the appeals be dismissed and that the patent be maintained as granted or, alternatively, on the basis of auxiliary request 1 or 2 as submitted during the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. *Main request*

2.1 The objection under Article 100(c) EPC was raised for the first time at the appeal stage. However, a fresh ground for opposition, not arising from an amendment, may not be introduced at the appeal stage unless the patentee consents to this objection being dealt with by the Board (G 10/91, No. 18 of the Reasons for the Decision, OJ EPO 1993, 420 and G 1/95, No. 5 of the Reasons for the Decision, OJ EPO 1996, 615). Therefore, in the absence of the Respondent's consent, the Board will not consider this objection.

2.2 Novelty

The Board is satisfied that the claimed subject-matter is not disclosed in any of the citations and is, therefore, novel. Since novelty was not contested, no detailed reasoning needs to be given.

2.3 Inventive step

2.3.1 During the proceedings before the Opposition Division as well as the appeal stage there was dispute between the Parties about the suitable starting point for applying the problem-solution approach. More particularly, the Parties did not agree whether document (1) or document (2) could be considered as disclosing the closest state of the art in assessing whether or not the claimed security papers were obvious for a skilled person vis-à-vis the prior art.

The relevant part of section 3.4.2.2 of document (2), which was discussed in great detail by the Parties, reads:

"Characteristics and Appearance. The security threads shall be microprinted in continuous script with the words "United States of America". The thread and microprinting shall be visible only when observed by means of transmitted light. The thread should, to the maximum extent possible, not be visible when the paper is viewed in reflected light. The script shall be metallic or metallized so that it is conductive, but non-magnetic."

Thus, since document (2) specifies only the requirements which have to be fulfilled by banknote paper and, in particular, by the security threads contained therein **in order to be considered by the BEP** (Bureau of Engraving and Printing, Washington, USA) for experimental purposes (see section 3.4.2), this citation contains no enabling disclosure as to how such requirements could be met and, thus, cannot qualify as a suitable starting point in assessing inventive step.

By contrast, document (1), which gives clear information about the composition of security features within a paper and how security information may be imparted within such papers, contains an enabling disclosure for security papers and for their manufacture.

Therefore, in the Board's view document (1), which is mentioned in column 2, lines 6 to 11, of the patent in suit, qualifies as the closest state of the art.

2.3.2 In the introductory part of document (1) a brief summary is given of the common general knowledge in the field of optically readable security devices in paper during the paper-making process.

More particularly, it is stated that micro-coded information can be deployed within a paper, by microprinting on a thin strip of transparent material which is then introduced into a paper stock on a Fourdrenier machine during the sheet forming process. After formation of the finished paper, the micro-coded information can be viewed by transmitted light (column 1, lines 24 to 47).

2.3.3 According to the patent in suit this earlier attempt at printing and embedding the strips within the paper had the drawback that the printed information was legible not only under transmitted light but was legible also under reflected light. The public could then rely upon the presence of the printed matter solely under reflected light, which involves a process easily replicated by counterfeit means (column 2, lines 50 to 58).

2.3.4 Therefore, in view of citation (1), the technical problem deducible from the patent in suit was to provide a security paper which can be economically produced at high speeds using modern manufacturing techniques and which contains at a specific location a security thread bearing information that is easily readable in transmitted light but virtually undetectable when it is viewed under reflected light (column 3, lines 12 to 21).

The Board accepts this technical problem, which results from a correct analysis of the state of the art as disclosed in document (1) as the appropriate basis for an assessment of the inventive step of the claimed subject-matter.

- 2.3.5 It has never been contested that the above-mentioned problem was credibly solved by the claimed security paper as defined in Claim 1 and by the method as defined in Claim 8. Neither does the Board have any reason to contest this.
- 2.3.6 Consequently the question arises whether in the light of the teaching of document (1), alone or in combination with other cited prior art, a skilled person, when trying to solve this problem, would have arrived at the claimed security paper and at the claimed method for its manufacture.

Since a security paper as defined in the preamble of Claim 1 was known and since it was also known that micro-coded information on a transparent material, such as a polyester plastic film, introduced to the paper stock, can be viewed by transmitted light (see document (1), column 1, lines 38 to 47), the above-mentioned question requires investigating whether a skilled person would have expected that the second indicia located between both surfaces of a security paper and defined by metal deposits on a clear plastic strip, said metal deposits being produced by any method other than by directly printing metal inks onto the plastic surface, are visible in transmitted light, but produce no manifestation on said surfaces under reflective illumination.

2.3.7 It was known from document (7) that micro-metallic forms of metal foil of any desired metal applied to paper pulp are rendered obscure by reflected light but are clearly discernible by transmitted light (page 1, lines 35 to 45 and 51 to 56, and page 2, lines 80 to 86) and that such effect is not obtained if such forms are printed, for example, with silver-grey ink on ordinary paper (page 2, lines 86 to 88). Therefore, a skilled person faced with the problem underlying the invention according to the patent in suit would have had a clear instruction from document (7) not to produce the metal deposits by a direct printing method, but by using, for example, forms of metal foils as metal deposits.

2.3.8 Consequently, a skilled person would have expected the second indicia defined by metal deposits on a clear substrate and located between both surfaces of a security paper to be visible in transmitted light, but to produce no manifestation on said surfaces under reflective illumination if said metal deposits consist of metal foils.

Further, since the use of a clear plastic strip as security threads was clearly known (see document (1), column 1, lines 38 to 40), the Board comes to the conclusion that a skilled person confronted with the problem underlying the invention would have been led by the general knowledge as presented in document (1) in combination with the teaching of document (7) to the security paper of Claim 1 and would have used partially metallised security strips, differing from those disclosed in document (10) only by the fact that they were made from clear plastic (document (10), page 6, paragraph 2, in combination with the first sentence of paragraph 2 or 3 on page 8).

2.3.9 The Respondent contested that a skilled man faced with the problem underlying the present invention would have considered either of documents (1) or (7).

For the following reasons, the Board disagrees:

- (a) In assessing inventive step the relevant question in this case is not whether it was obvious to replace the soluble strip proposed according to the teaching of document (1) (see point V), but whether a skilled person would have considered the common general knowledge in the field of optically readable security devices in paper during the paper-making process, as presented in the introductory part of document (1). Since a skilled person always considers the common general knowledge in the field he or she is working in, this question is to be answered in the affirmative.
- (b) In view of the problem to be solved, a skilled person would have considered any information available about indicia visible in transmitted light and virtually invisible in reflected light when incorporated in paper pulp, such as the indicia described in document (7).

2.3.10 This finding is also supported by the fact that document (2) requires a script which is metallic or metallised (see above, point 2.3.1), thereby unambiguously suggesting that the security threads incorporated in security paper, in order to be considered by the BEP, should contain metal deposits, this term being used in its broadest sense.

Moreover, since the microprinting should be visible in transmitted light, it is also suggested that the security strip should be transparent (ie clear).

Therefore, in the Board's judgement, a skilled person would have been led, in view also of the requirements listed in document (2), to combine the teachings in documents (1) and (7) and would have expected that threads visible in transmitted light and invisible in reflected light would be obtained if the indicia were defined by metal deposits on a clear plastic strip.

2.3.11 The Respondent also argued that the claimed security paper was not obviously derivable from the state of the art, because the meaning of "microprinted" as used in document (2) (see point 2.3.1) was limited to direct ink printing. In support of this argument, he cited the affidavit of Mr Paul Cote.

However, it is **not** the purpose of this invention to provide **microprinted** security threads, but, as stated in column 3, lines 13 to 17, of the patent in suit, to provide a method of incorporating into a security paper a security thread **bearing information** that is easily readable in transmitted light but virtually undetectable when it is viewed under reflected light. Therefore, it is not relevant, in deciding whether or not the claimed security paper was obviously derivable from the state of the art, how the term "microprinted" is to be interpreted.

2.3.12 Further, the Respondent cited the affidavit by Mr Timothy T. Crane as evidence that the claimed solution of the existing technical problem was not obvious to a person skilled in the art. This affidavit is, according to the third paragraph on page 1 thereof, "a first person account with respect to the many steps that were taken in arriving at a design which satisfied the BEP requirements". Therefore, this affidavit relates to the **problem of meeting the BEP specification** for a security paper as finally set out in document (2). However, whereas this citation relates to

providing a microprinted, conductive, non-magnetic, continuous script (see above, point 2.3.1), the technical problem underlying the patent in suit is a more general one and, accordingly, the solution claimed in the patent in suit, which also embraces, for example, magnetic and/or discontinuous indicia such as bar codes, does not show the limitations of the desideratum disclosed in document (2).

2.3.13 The subject-matter of Claim 1 is a product defined, inter alia, by process features. The difficulties alleged by the Respondent could contribute to the inventive step only if the claimed invention comprised features overcoming specific difficulties. The process features contained in Claim 1 are general definitions comprising different possibilities available in the state of the art, the only specific stipulation being that direct printing with metal ink is excluded. This is not sufficient to show that in this respect the patent teaches more than that the second indicia should be applied to the plastic surface by generally known methods.

Therefore, the process features cannot contribute to the inventiveness of the subject-matter of Claim 1 and, having no bearing on this question, are not taken into consideration in this respect.

2.3.14 Therefore, the Board concludes that the subject-matter of Claim 1 according to the main request does not meet the requirement of inventive step.

3. *First auxiliary request*

The set of claims differs from the one according to the main request only by the further requirement in Claim 1 that the metal deposits are other than metal inks.

Since it was suggested in document (7) that metal inks should not be used (see point 2.3.7), the same reasoning is applicable as for the main request and, consequently, the set of claims according to the first auxiliary request does not meet the requirement of inventive step.

4. *Second auxiliary request*

Since it is specifically said in the patent in suit that the concept of embedding a security device within the paper fibres of a Fourdrinier paper-making machine is described in document (1) (see column 5, lines 26 to 30), it is clear that the method claimed in Claim 8 could derive its inventiveness only from the inventiveness of the security paper made by that method.

More particularly, since the concept of the claimed method was known *inter alia* from document (1), the fact that paper may be economically produced at high speeds by the claimed method using modern manufacturing techniques may not be considered as a basis for inventive step, since the known process must inevitably also have the same advantageous properties.

For these reasons Claim 1 of the second auxiliary request, which is identical with Claim 8 as granted, does not meet the requirement of inventive step.

5. Therefore, none of the sets of claims according to the main request and the first and second auxiliary requests meet the requirements of the EPC.

6. Considering this outcome, it is not appropriate to discuss the Appellants' requests to reject the auxiliary request as being filed late, to reopen the discussion on the objection concerning Article 100(c) EPC in respect of the claims in the auxiliary requests or to refer the question cited under point VI to the Enlarged Board of Appeal.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:


E. Görgmäier

The Chairman


P. Krasa