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Datasheet for the decision of 22 December 2022

Case Number: T 1041/17 - 3.3.06

Application Number: 07838720.6

Publication Number: 2074260

IPC: D21H21/16, D21H21/40

Language of the proceedings: EN

Title of invention:
A soil and/or moisture resistant secure document

Patent Proprietor:
Crane & Co., Inc.

Opponents:
Landqart
ARJOWIGGINS SECURITY

Headword:
Soil/moisture resistant secure document/CRANE

Relevant legal provisions:
EPC Art. 56, 123(2)

Keyword:
Added subject-matter (main request and auxiliary requests 1 to 11) - (yes)
Inventive step (auxiliary request 12) - (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Chambres de recours

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Case Number: T 1041/17 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 22 December 2022

Appellant: (Patent Proprietor)	Crane & Co., Inc. 30 South Street Dalton MA 01226 (US)
Representative:	Grünecker Patent- und Rechtsanwälte PartG mbB Leopoldstraße 4 80802 München (DE)
Respondent I: (Opponent 1)	Landqart Kantonstrasse 7302 Landquart (CH)
Representative:	Bremi, Tobias Hans Isler & Pedrazzini AG Giesshübelstrasse 45 Postfach 1772 8027 Zürich (CH)
Respondent II: (Opponent 2)	ARJOWIGGINS SECURITY 32, Avenue Pierre Grenier 92100 Boulogne Billancourt (FR)
Representative:	Nony 11 rue Saint-Georges 75009 Paris (FR)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 1 March 2017 revoking European patent No. 2074260 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	J.-M. Schwaller
Members:	L. Li Voti
	C. Brandt
	S. Arrojo
	C. Heath

Summary of Facts and Submissions

I. The patent proprietor's appeal lies against the decision of the opposition division to revoke European patent no. 2 074 260.

II. With its grounds of appeal the appellant defended the patent on the basis of the requests filed before the opposition division and filed three new documents labeled D57 to D59.

III. In their replies, respondents I and II (also opponents 1 and 2) maintained that the main and 1st to 11th auxiliary requests did not comply with the requirements of Article 123(2) EPC and that the subject-matter of claim 1 of auxiliary request 12 lacked an inventive step. Respondent II also filed two additional documents designated D60 and D61.

IV. In their submissions the parties relied inter alia on documents:

D1L/D3: US 5,928,471 A
D2: EP 1319104 B1
D5L: W. Henry et al., "*Sizing/resizing*", chapter 17 in Paper Conservation Catalog, 1988, pages 1-33.
D7L: WO 03/087471 A1
D10: US 4,892,336
D11: US 2005/0180020 A1
D19: Papermaking Science and Technology, Book 11 "*Pigment Coating and Surface Sizing of Paper*", 2000, pages 414, 418-419, 462-467, 488-510
D23: The Sizing of Paper, 3rd Edition, Papermaking Additives Committee, 2005, pages 211-225 and 257-265.

V. In reply to the board's preliminary opinion, the appellant filed new auxiliary requests 13 and 14 with a letter dated 24 March 2020.

VI. During the oral proceedings held on 22 December 2022, the appellant withdrew auxiliary requests 13 and 14 and the parties' final requests were as follows:

The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims of the main request filed with letter of 29 October 2013 or, auxiliarly, of any one of auxiliary requests 1 to 11 filed with letter of 7 October 2016, or of auxiliary request 12 filed on 9 December 2016. It also requested that the case be remitted to the department of first instance for the assessment of Article 56 EPC as regards the main request, or of patentability under Articles 54 and 56 EPC if the main request was dismissed and any of the auxiliary requests 1 to 11 were found to comply with the requirements of Articles 123(2) and 84 EPC.

Respondent I requested that the appeal be dismissed, that documents D57-D59 not be admitted into the proceedings and that the request to remit the case to the department of first instance be rejected.

Respondent II requested in writing that the appeal be dismissed and that documents D57-D59 and the main request not be admitted into the proceedings.

VII. Claims 1 and 10 of the **main request** read as follows:

"*1. A method for imparting soil and/or moisture resistance to a porous substrate used in the*

production of secure documents and having a thickness, the method comprising:

applying a soil and/or moisture resistant formulation to opposing surfaces of the porous substrate;

forcing the soil and/or moisture resistant formulation into the pores of the substrate, the formulation thereby penetrating and extending throughout at least a portion of the thickness of the substrate;

and removing excess formulation from opposing surfaces of the substrate."

"*10. The method of claim 1, wherein the porous substrate has one or more non-porous, optically variable, security devices contained on, or exposed through one or more windows in, at least one surface of the substrate, the method comprising:*

a) applying a soil and/or moisture resistant formulation to opposing surfaces of the porous substrate; and

b) employing a size press or other similar device to force the soil and/or moisture resistant formulation into the pores of the substrate and to remove excess formulation from opposing surfaces of the substrate, thereby leaving exposed surfaces of the one or more non-porous, optical variable, security devices substantially free of the soil and/or moisture resistant formulation."

Claim 1 of **auxiliary request 1** corresponds to the combination of above claims 1 and 10.

Claim 1 of **auxiliary request 2** differs from claim 1 of auxiliary request 1 in that it requires additionally that 5 to 20 % by dry weight, based on the total dry weight of the treated substrate, of the soil and/or

moisture resistant formulation is forced into the pores of the substrate from both sides thereof.

Claim 1 of **auxiliary request 3** differs from claim 1 of auxiliary request 2 in that it includes the additional step c) drying the size press-treated substrate in a secondary dryer section of the papermaking machine to a moisture level of from 4 to 6%.

Claim 1 of **auxiliary request 4** differs from claim 1 of auxiliary request 1 in that the one or more non-porous, optically variable, security devices is a microlens-based film structure.

Claim 1 of **auxiliary request 5** differs from claim 1 of auxiliary request 4 in that it includes the same additional feature as auxiliary request 2.

Claim 1 of **auxiliary request 6** differs from claim 1 of auxiliary request 5 in that it includes the same additional features as auxiliary request 3.

Claim 1 of **auxiliary request 7** differs from claim 1 of auxiliary request 1 in that it further comprises in step (b) the features thereby increasing the durability in areas of the porous substrate overlying the one or more security devices, those areas framing the device(s) and forming at least one window through which the device(s) is exposed.

Claim 1 of **auxiliary request 8** differs from claim 1 of auxiliary request 7 in that the porous substrate further is a windowed porous substrate having one or more security devices partially embedded therein and visible in one or more windows on at least one surface thereof.

Claim 1 of **auxiliary request 9** differs from claim 1 of auxiliary request 4 in that the microlens-based film structure is in the form of security strip or thread that is partially embedded within the document, with the film structure being visible in one or more clearly defined windows on one or both surfaces of the document.

Claim 1 of **auxiliary request 10** differs from claim 1 of auxiliary request 4 in that it includes the same additional features as auxiliary requests 5, 6 and 9.

Claim 1 of **auxiliary request 11** differs from claim 1 of auxiliary request 10 in that it specifies various characteristics of the soil and/or moisture resistant formulation.

Claim 1 of **auxiliary request 12** reads as follows (amendments with respect to auxiliary request 5 highlighted by the board):

"*1. A method for imparting soil and/or moisture resistance to a porous substrate used in the production of secure documents and having a thickness* ***without obscuring optically variable effects generated by non-porous security devices,*** *the method comprising:*

applying a soil and/or moisture resistant formulation to opposing surfaces of the porous substrate;

forcing the soil and/or moisture resistant formulation into the pores of the substrate, the formulation thereby penetrating and extending throughout at least a portion of the thickness of the substrate; and

removing excess formulation from opposing surfaces of the substrate, wherein the porous substrate has one or more non-porous, optically variable, security devices contained on, or exposed through one or more windows

in, at least one surface of the substrate, the method comprising:
a) applying a soil and/or moisture resistant formulation to opposing surfaces of the porous substrate; and
b) employing a size press to force the soil and/or moisture resistant formulation into the pores of the substrate and to remove excess formulation from opposing surfaces of the substrate, thereby leaving exposed surfaces of the one or more non-porous devices substantially free of the soil and/or moisture resistant formulation, wherein the one or more non-porous, optically variable, security devices is a microlens-based film structure, and wherein from ***about*** *5 to* ***about*** *20% by dry weight, based on the total dry weight of the treated substrate, of the soil and/or moisture resistant formulation is forced into the pores of the substrate from both sides thereof."*

Reasons for the Decision

1. Admissibility of the requests on file

The main and first to twelfth auxiliary requests being those underlying the contested decision, they are in the proceedings and they are thus admissible under Article 12(4) RPBA 2007.

2. Main request - Article 123(2) EPC

2.1 Claim 10 of this request, which depends on claim 1, concerns a method for imparting soil and/or moisture resistance to a porous substrate used in the production of secure documents and having a thickness, wherein one or more non-porous, optically variable, security devices (in the following **OVDs**) are contained on, or

exposed through one or more windows in, at least one surface of the substrate. This method comprises
a) applying a soil and/or moisture resistant formulation to opposing surfaces of the porous substrate;
b) employing a size press or other similar device to force the soil and/or moisture resistant formulation into the pores of the substrate, the formulation thereby penetrating and extending throughout at least a portion of the thickness of the substrate, and removing excess formulation from opposing surfaces of the substrate, thereby leaving exposed surfaces of the one or more OVDs substantially free of the soil and/or moisture resistant formulation.

2.2 These features are disclosed on page 3 (paragraphs [0013] and [0014]) and in claim 10 of the application as filed (reference being made to the international application published as WO 2008/054581 A1). However, according to these disclosures said method requires (page 3, lines 18-20 and claim 10, lines 2-4) that soil and/or moisture resistance is imparted to the porous substrate "*without obscuring optically variable effects generated by non-porous security devices contained on, or exposed through one or more windows in, at least one surface of the substrate*", which requirement is at least explicitly no longer contained in the wording of claims 10 or 1 of the main request.

In the appellant's view, said requirement simply identifies the technical effect achieved by means of the claimed method and the recited steps would lead necessarily to such an effect. Therefore, its omission would not infringe Article 123(2) EPC.

2.3 The board notes however that, even though claim 10 at issue requires that step (b) leaves the exposed surfaces of the OVDs substantially free of the soil and/or moisture resistant formulation, the expression "the method comprising" does not exclude the presence of additional steps, for example the application of a coating or varnish to the outer surfaces of the substrate, which may obscure the OVDs as explained in the application as filed (paragraphs [0008] and [0009]). Moreover, the claim does not contain any other wording implying that the OVDs in the final product should not be at least partially obscured.

The board further notes that the application as filed recites the now omitted wording "*without obscuring optically variable effects generated by non-porous security devices contained on, or exposed through one or more windows in, at least one surface of the substrate*" and thereby explicitly excludes any additional step potentially causing at least a partial obscuring of the OVDs. The omitted wording thus represents not only the technical effect to be achieved but also an essential technical feature of the claimed method.

Therefore, its omission generates subject-matter extending beyond the content of the application as filed.

2.4 Claim 10 of the main request thus contravenes Article 123(2) EPC, and the main request is not allowable.

3. Auxiliary requests 1 to 11 - Article 123(2) EPC

3.1 Claim 1 of auxiliary request 1 corresponds to the combination of claims 1 and 10 of the main request, and

the respective claim 1 of auxiliary requests 2 to 11 is a further modification of this claim, that neither requires that soil and/or moisture resistance is imparted to the substrate "*without obscuring optically variable effects generated by non-porous security devices contained on, or exposed through one or more windows in, at least one surface of the substrate*", nor excludes an additional step which may cause at least a partial obscuring of the OVDs. Therefore, none of these requests complies with the requirements of Article 123(2) EPC for the same reasons as the main request.

3.2 None of auxiliary requests 1 to 11 are thus allowable either.

4. Request for remittal

Since none of the main and first to eleventh auxiliary requests are found to comply with the requirements of Article 123(2) EPC, the appellant's conditional request for remittal becomes moot and does not need to be discussed.

5. Auxiliary request 12 - Inventive step (Article 56 EPC)

5.1 Claim 1 of this request relates to a method for imparting soil and/or moisture resistance to a porous substrate used in the production of secure documents having a thickness.

5.1.1 As stated in the patent (paragraphs [0007]-[0011]), secure documents are commonly coated in order to improve their durability. However, some background art coating techniques had the drawback of at least partially obscuring or adversely affecting OVDs contained in the security documents, and methods used

for avoiding this detrimental effect had a negative impact on the durability of the security documents.

5.1.2 The purpose of the present invention is thus, as described in the patent (paragraphs [0011] and [0012]), the provision of a method which provides a secure document substrate with soil and/or moisture resistant qualities that preserve the optical effects of the OVDs contained on or in the substrate exposed through one or more windows while increasing the durability of the embedded portions of OVDs.

5.1.3 As a solution to this problem, the patent proposes the method of claim 1 at issue, which comprises the following features:

a) applying a soil and/or moisture resistant formulation to opposing surfaces of a porous substrate;

a1) the porous substrate having one or more microlens-based film structure as OVDs, contained on, or exposed through one or more windows in, at least one of its surfaces;

b) employing a size press to force the soil and/or moisture resistant formulation into the pores of the substrate from both sides thereof, the formulation thereby penetrating and extending throughout at least a portion of the thickness of the substrate, and to remove excess formulation from opposing surfaces of the substrate;

b1) thereby leaving exposed surfaces of the one or more non-porous OVDs substantially free of the soil and/or moisture resistant formulation;

b2) wherein about 5 to about 20 % by dry weight, based on the total dry weight of the treated substrate, of the soil and/or moisture resistant formulation is forced into the pores of the substrate from both sides thereof;

c) imparting soil and/or moisture resistance to the substrate without obscuring optically variable effects generated by non-porous security devices contained on, or exposed through one or more windows in, at least one surface of the substrate.

5.2 As found in the decision under appeal, document D2 (paragraphs [0005]-[0008]) represents a suitable starting point for the evaluation of inventive step since its purpose is very similar to that of the patent in suit, namely the provision of a security paper having increased durability, thereby maintaining a good visibility of the security elements contained therein, such as security threads and other OVDs.

As submitted by the parties, the method disclosed in its example 1 is considered to represent the closest prior art.

5.2.1 According to this method (paragraph [0031]), a porous substrate suitable for manufacturing banknotes and comprising iridescent planchets and a microprinted "window thread", i.e. a security device exposed through one or more windows in the substrate, is surface treated in a size press with a size formulation and dried.

5.2.2 As regards the surface treatment in a size press, it was common general knowledge (see D5L: pages 8 and 9, B.2b and D23: page 257-258, figure 1) that the surface sizing of a paper substrate by means of a size press, such as a puddle-type size press, implies the application of the size formulation to both sides of the paper web as it passes through rollers that press the size into the sheet (the size formulation thereby penetrating and extending throughout at least a portion

of the thickness of the substrate) and the removal of excess size. This type of surface sizing, which is also applied in the patent, has to be distinguished from that carried out by using the different technique of "gate-roll size press" (see D5L: page 9, B.2e; D19: page 493 and D23: page 260), wherein there is no penetration of the size into the substrate, and from "internal sizing" wherein the size is added to the pulp stock before sheet formation (D5L: page 8, B.1; see also D7L (page 31, line 23 and page 32, line 20 ff) and D1L (column 5, lines 58-59) addressing the difference between internal and external sizing).

The surface treatment of the substrate by means of a size press according to D2/example 1 is thus understood by the skilled person to relate to a surface sizing by means of a size press, such as a puddle-type press, as disclosed in D5L and D23, and as applied in the patent in suit (column 3, lines 24-25).

Moreover, it was common general knowledge (see D23: page 257, first paragraph) that surface sizing imparts paper with resistance to the penetration of liquids, usually water, and improves inter alia grease resistance. Therefore, any sizing formulation used in the surface sizing of D2/example 1 would necessarily provide (at least to a certain extent) these advantages, implying that said sizing formulation can be regarded as soil and/or moisture resistant, as required by claim 1 at issue.

In view of the above considerations, the method of D2/ example 1 already discloses the above steps (a) and (b).

5.2.3 As regards the embedded "window thread" contained in the substrate treated in D2/example 1, the board agrees with the respondents that a metallic thread falls within the scope of OVDs, as it necessarily shows optical variable properties, since it cannot be reproduced by a photocopier, as stated in D1L/D3 (column 1, lines 20-32) and also has a different appearance depending on the angle from which it is observed (as also noted in the decision under appeal, page 15, first paragraph). In fact, D2 (paragraph [0007]) and the patent in suit (paragraph [0005]) include such security threads in the list of OVDs.

Moreover, D2 (paragraph [0053]) teaches with respect to the examples - wherein the substrate treated according to example 1 undergoes a further coating step - that the visibility of the security elements contained in the substrate, including the window-thread and its micro-inscriptions, is not negatively affected. Therefore, their visibility is also necessarily not affected by the surface sizing carried out in example 1, so that the exposed parts of the window thread must be understood to be necessarily free of the sizing formulation applied with the size press.

For these reasons, the method of D2/example 1 also discloses above features (b1) and (c).

5.2.4 The method in claim 1 at issue thus **differs from the closest prior art** only in that it includes features (a1) and (b2), namely in that the porous substrate has one or more microlens-based film structure(s) as OVDs, contained on, or exposed through one or more windows in, at least one of its surfaces, and in that about 5 to about 20% by dry weight, based on the total dry weight of the treated substrate, of the soil and/or

moisture resistant formulation is forced into the pores of the substrate from both sides thereof.

5.3 As regards the technical problem convincingly solved over this closest prior art, it is noted that neither the amount (b2) chosen for the soil and/moisture resistant formulation is indicated in the patent to be critical for achieving a superior effect, nor did the appellant provide any evidence supporting its allegation that the selected amount is relevant for achieving the desired technical effect.

In fact, the depth of penetration and the distribution of the soil and/or moisture resistant formulation within the substrate depends on many factors like the substrate porosity, the speed of the rollers of the size press, the viscosity of the used formulation or the hydraulic pressure applied (see D23, page 219, right column to page 222, left column), features which are not part of the wording of claim 1 at issue.

It is thus not credible that the chosen amount (b2) provides a technical advantage independently from the other factors influencing the size press step.

Moreover, in the absence of the specification in the claim of such other factors known to influence the result of the size press step, also the alleged effect of an improved durability of the layer covering the OVDs addressed to in the patent description (paragraphs [0042] and [0043]) in particular with respect to the use of microlens-based structures as OVDs, cannot be considered to be credibly achieved with respect to the method of D2/example 1.

Therefore, the claimed subject-matter does not provide any credible technical improvement across its whole ambit.

5.3.1 The underlying technical problem has thus to be formulated in less ambitious terms as the provision of a further method for providing a secure document substrate with soil and/or moisture resistant and durability qualities, thereby preserving the optical effects of the OVDs contained on the substrate or in the substrate but exposed through one or more windows.

5.4 It remains to be evaluated if it was obvious for the skilled person, in the light of the prior art and common general knowledge, to force into the pores of the substrate about 5 to about 20 % by dry weight, based on the total dry weight of the treated substrate, of the size formulation and to use microlens-based film structures as OVDs instead of the embedded window thread of D2/example 1.

5.4.1 As convincingly argued by the respondents, the chosen amount (b2) was commonly used in the background art, as disclosed in D23 (page 211, lines 8-9 below "Surface Sizing" and page 212, figure 1). Moreover, the selection of a specific amount of sizing formulation (soil and/moisture resistant formulation) to impregnate the substrate of D2/example 1 amounted to an obvious routine operation for the skilled person in the attempt to optimise the quality of the resulting product. Therefore, the selection of an amount as required by claim 1 at issue cannot support the presence of an inventive step.

5.4.2 Moreover, it was known from D10 (column 1, line 12 to column 2, line 68; figure 10) and D11 (paragraphs

[0164]-[0167]; figure 21b) to use embedded microlens-based film structure OVDs in security documents instead of window threads, in particular in order to facilitate the visual testing of the contained information and to render more difficult their forgery.

Therefore, it was obvious for the skilled person faced with the above problem to replace the window thread contained in the substrate of D2/example 1 with a microlens-based film structure in view of these known advantages.

5.4.3 The appellant argued that the skilled person would not have been prompted to use a microlens structure in D2/example 1, since he would have expected microlenses to be damaged during size pressing and that a too viscous size formulation would remain in the depressions between lenses thus impairing any possible favourable effect derived from their use.

5.4.4 The board disagrees therewith because it would have been obvious for the skilled person, wishing to provide a microlens structure as an alternative to the window thread of D2/example 1 and being aware of the above possible drawbacks, to block the areas on the substrate surface containing the exposed microlens structures before sizing, such method being already known (as stated in the patent in suit at column 2, lines 55-57) for protecting areas on a document surface during coating. Moreover, it was common general knowledge to adapt the hydraulic pressure of the size press so that the skilled person would have been able to adjust it to conditions not negatively affecting the microlens structure and still ensuring some penetration of the applied size.

5.4.5 As regards documents D57-D59, the board notes that they were no longer cited with respect to the above discussion of inventive step. Therefore, they can be disregarded and there is no need to decide on their admittance into the proceedings.

5.5 The board thus concludes that it was obvious for the skilled person, in the light of the prior art and of common general knowledge, to force into the pores of the substrate used in D2/example 1 about 5 to about 20 % by dry weight, based on the total dry weight of the treated substrate, of the size formulation, and to consider the use of embedded microlens-based film structures as OVDs instead of the embedded window thread of D2/example 1, and so to arrive without inventive skill at a method having all the features of claim 1 at issue.

The subject-matter of claim 1 according to auxiliary request 12 thus lacks an inventive step.

6. Since none of the claims requests is allowable, the decision of the opposition division must be affirmed and consequently the appeal be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Pinna J.-M. Schwaller

Decision electronically authenticated