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Datasheet for the decision of 18 April 2013

Case Number: T 1044/09 - 3.5.04

Application Number: 03014316.8

Publication Number: 1377028

IPC: H04N1/40, H04N1/52

Language of the proceedings: EN

Title of invention:
Method for protecting printed items intended for public use with glossmarks

Applicant:
Xerox Corporation

Headword:

Relevant legal provisions:
RPBA Art. 13(1)
EPC 1973 Art. 84, 54(1), 56

Keyword:
Clarity (yes - after amendments)
novelty and inventive step (yes - after amendments)

Decisions cited:

Catchword:

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Case Number: T 1044/09 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 18 April 2013

Appellant: (Applicant)	Xerox Corporation Patent Department, Xerox Square - 20 A, 100 Clinton Avenue South Rochester, New York 14644 (US)
Representative:	Grünecker, Kinkeldey, Stockmair & Schwanhäusser Leopoldstrasse 4 80802 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 11 December 2008 refusing European patent application No. 03014316.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: F. Edlinger
Members: M. Paci
T. Karamanli

Summary of Facts and Submissions

I. The appeal is against the decision of the examining division refusing European patent application No. 03 014 316.8 published as EP 1377028 A1.

II. The following prior-art documents cited during the proceedings before the examining division are of relevance to the present decision:

D1: US 5 788 285 A and
D2: US 5 583 660 A.

III. The application was refused on the ground that the subject-matter of the independent claims according to the main request and first auxiliary request did not involve an inventive step in view of D1 (Article 56 EPC).

IV. In the statement of grounds of appeal the appellant submitted arguments as to why the reasons for the decision were not convincing. In some of these arguments the appellant referred to D2, which had been cited in the proceedings before the examining division.

V. In a communication under Article 15(1) RPBA annexed to the summons to oral proceedings the board expressed the preliminary opinion that independent claims 1 and 10 according to the main request and independent claims 1 and 9 according to the auxiliary request lacked clarity (Article 84 EPC 1973).

VI. With a letter of 18 March 2013 the appellant submitted amended claims according to a main request and an auxiliary request, replacing all previous claims on file.

VII. Oral proceedings were held before the board on 18 April 2013. During the oral proceedings the appellant's representative submitted amended claims 1 to 9 according to a sole request which replaced all previous claims on file.

VIII. The appellant's final requests are that the decision under appeal be set aside and that a patent be granted in the following version:

Description:
Pages 1, 6, 7, 10 and 11 as originally filed.
Pages 2, 2a, 3, 4, 5, 8 and 9 received during oral proceedings of 18 April 2013.
Claims:
No. 1 to 9 received during oral proceedings of 18 April 2013.
Drawings:
Sheets 1/5 to 5/5 as originally filed.

IX. Claim 1 according to the appellant's sole request reads as follows:

"A method for protecting a printed item (710) comprising:
printing a glossmark information indicia image (700) upon the printed item (710), the glossmark information indicia image being realized by a methodology comprising:
providing a first halftone cell (310) having a first anisotropic structure orientation (210) adapted to generate a first halftone;
providing a second halftone cell (320) having a second anisotropic structure orientation adapted to generate a second halftone;

wherein the first anisotropic structure orientation is different from the second anisotropic structure orientation;
applying the first halftone cell (310) for at least some portion of the glossmark information indicia image (700); and
applying the second halftone cell (320) for the remaining portion of the glossmark information indicia image (700)."

Claims 2 to 9 are dependent on claim 1.

X. The examining division's reasoning, in the decision under appeal, regarding claim 1 according to the main request then on file can be summarised as follows:

Inventive step

D1 represents the closest prior art. It discloses a method of protecting a printed item by printing a glossmark on a substrate. The only feature of the product of claim 10 not disclosed in D1 is that the glossmark represents an "information indicia". However, in view of the letter "V" shown in figure 3 of D1, it would have been obvious to the skilled person to print a "glossmark information indicia image" on the substrate using first and second anisotropic digital or analog halftones for areas 23 and 24 shown in figure 3 of D1, thereby arriving at the product of claim 10 without inventive step. Similarly, the method of claim 1 was obvious since digital or analog halftones were well known to the skilled person.

XI. The appellant's arguments regarding the present set of claims can be summarised as follows:

Amendments

The claims according to the appellant's sole request have been amended in reaction to the clarity objections raised by the board in the annex to the summons to oral proceedings and during the oral proceedings. These amendments make clear that the first and second anisotropic structure orientations refer to the internal structure of the first and second halftone cells. These amendments are based on figures 3 and 4 and the text passage from page 7, line 31, to page 8, line 13, of the application as filed.

Novelty

The method of claim 1 is novel because D1, in particular in the context of the embodiment shown in figure 3, does not disclose the following features:

- a glossmark;
- first and second halftones; and
- first and second halftone cells having different first and second anisotropic structure orientations.

Inventive step

The method of claim 1 solves the objective technical problem of how to provide an improved security indicia which is visible to the naked eye.

D1 does not disclose that lines 22 and 24 shown in figure 3 are printed with a halftoning technique. Even if the skilled person considered using halftones for printing these lines, the skilled person would have no reason and no incentive to use two different halftones for these two types (22,24) of lines. Moreover, there

is no teaching in D1 that a gloss differential can be achieved by selecting two halftone cells having different anisotropic structure orientations.

For these reasons, the method of claim 1 is not rendered obvious by D1.

Reasons for the Decision

1. The appeal is admissible.

Article 123(2) EPC

2. The board is satisfied that the amended claims filed by the appellant comply with the requirements of Article 123(2) EPC, i.e. do not introduce subject-matter extending beyond the content of the application as filed. The amendments are based *inter alia* on the following passages of the application as filed: page 7, line 31, to page 8, line 13, and figures 3 and 4.

Article 84 EPC 1973

3. The amendments made in claim 1 serve to clarify that the expression "anisotropic structure orientation" refers to the internal structure of the "halftone cell".

The board is also satisfied that the expression "halftone cell" used in claim 1 had a clear and well-established meaning in the technical field of printing at the priority date of the present application.
A halftone cell is used in digital halftoning. It is the equivalent of a variable-size halftone dot in traditional halftoning. More specifically, a halftone

cell is a fixed-size matrix of very small dots, wherein each dot can be either black or white. Different densities of grey can be obtained for the halftone cell as a whole by varying the number of black dots. As explained in the paragraph bridging pages 7 and 8 and as illustrated in figures 3 and 4 of the application as filed (see also column 5, lines 57 to 67, and column 6, lines 1 to 5, of D2), the pattern of black and white dots in the halftone cell is predetermined for each of the possible densities (or shades of grey). By arranging halftone cells in rows and columns, a digital halftone is obtained.

For the above reasons, the board is satisfied that claim 1 meets the requirement of clarity of Article 84 EPC 1973. The same applies to dependent claims 2 to 9.

Novelty (Article 54(1) EPC 1973)

4. D1 (see figure 3 and column 3, line 49, to column 4, line 33) discloses a method for protecting a printed item by printing on it an information indicia (the letter "V" in figure 3) which is invisible on the original item but which becomes visible to the naked eye on copies made from this item. The information indicia is formed of vertical continuous lines (22) with a line spacing of 50 to 200 lines per inch. The background area surrounding the indicia is formed of horizontal broken lines (24) with a slightly different line spacing but in the same range of 50 to 200 lines per inch. On the original item the indicia and its background appear to the naked eye to present a continuous pattern in a uniform grey tone, thus rendering the indicia invisible. On a copy, however, the indicia becomes visible based on the assumption that even the best copiers are not able to perfectly

reproduce the two types of lines, thereby causing the indicia to have a grey level slightly different from that of its background.

5. The method of D1 thus does **not** disclose the following features of the method of claim 1:
   - the information indicia image being a glossmark (or gloss differential; see e.g. page 7, line 27, of the description);
   - first and second halftones;
   - first and second halftone cells;
   - the first and second halftone cells having first and second anisotropic structure orientations, respectively; and
   - the first anisotropic structure orientation being different from the second anisotropic structure orientation.

6. The examining division argued in the Reasons for the decision that it was implicit in D1 that the vertical and horizontal lines (22,24) shown in figure 3 were formed by a halftoning technique because this technique was disclosed in column 3, lines 19 to 28, of D1 with reference to the information indicia of figure 1.

   The board is not convinced by this argument for the following reasons.

   D1 is silent as to which technique is used for printing the vertical and horizontal lines shown in figure 3. There were many known techniques which could be used for printing them, some using halftones, some not. The examining division is correct that the large dots (12) and small dots (14) shown in figure 1 are formed by "appropriate well-known half-tone screen techniques" (see D1, column 3, lines 12 to 22).

However, in figure 1, both the information indicia and its background are formed of dots, which make them ideally suited for halftone printing. In contrast, in figure 3, they are formed of closely spaced lines, much less well suited to this printing technique. The board thus does not regard as implicit in the disclosure of D1 that the "appropriate well-known half-tone screen techniques" used for printing the dots of figure 1 are also used for printing the lines of figure 3.

7. D1 does not disclose halftone cells and anisotropic structure orientations inside these cells, not even in relation to figure 1.

8. The board also notes that there is no mention in D1 of a gloss differential (i.e. a glossmark) between the information indicia and its background. The board is not convinced that such a gloss differential would automatically exist merely because the lines of the indicia and those of its background have different orientations. The absence of any reference to the gloss of the printed item in D1 may be regarded as an indication that the lines shown in figure 3, which have a spacing of between 50 and 200 lines per inch, do not produce a gloss differential.

For these reasons, the board considers that D1 does not disclose the feature of claim 1 that the information indicia image is a glossmark.

9. In the Reasons for the decision, the examining division stated that D1 did not disclose an "information indicia". The board disagrees with this finding because the letter "V" in figure 3 must be regarded as an information indicia. However, there is no indication in

D1 that this indicia is a glossmark obtained by using different anisotropic halftone cells.

10. For the above reasons, the method of claim 1 is novel over D1 within the meaning of Article 54(1) EPC 1973. The same applies to the subject-matter of dependent claims 2 to 9.

Inventive step

11. Closest prior art

It is undisputed that D1 represents the closest prior art for the subject-matter of claim 1.

12. Distinguishing features

The method of claim 1 differs from the method of D1 by the features set out under point 5 *supra*.

13. Objective technical problem

According to the appellant, the method of claim 1 solves the objective technical problem of how to provide an improved security indicia which is visible to the naked eye.

The board has no objection to this formulation of the objective technical problem, which is based for instance on page 1, lines 11 to 14 and 35 and 36 of the application and corresponds to the technical effect achieved by the claimed subject-matter.

14. Obviousness

14.1 The information indicia (letter "V") shown in figure 3 of D1 is printed in such a way that it is invisible to the naked eye on the original printed item but becomes visible on a copy.

In contrast thereto, an information indicia according to the method of claim 1 is visible to the naked eye (when viewed from certain angles) as a gloss differential on the original and becomes invisible (from any angle of view) on the copy. The aim of D1 is thus effectively more or less the opposite of the technical effect achieved by the method of claim 1 when it comes to the visibility/invisibility of the information indicia on the original and on the copy.

At column 5, lines 21 to 26, D1 briefly mentions, as an alternative, that the lines of the information indicia and of its background could be chosen in such a way that the indicia (e.g. the word "VALID") would be visible on the original but would become invisible on the copy. In the board's view, this alternative achieves a technical effect which is closer to the one achieved by the method of claim 1, but which still differs in some important respects. Indeed, the indicia according to this alternative solution of D1 would be visible on the original because its background is perceived by the naked eye as having a different grey level. There is no mention in D1 that the indicia would be visible against its background because of a gloss differential. Hence D1 neither discloses nor suggests providing an information indicia image as a glossmark.

14.2 For the assessment of inventive step, it remains to be examined whether the skilled person, starting from D1, would nevertheless have arrived at the method of claim 1 for other reasons.

The appellant does not dispute that digital halftones using halftone cells were well known before the priority date, as evidenced by D2.

It can thus be argued that it would have been a straightforward measure for the skilled person to use a digital halftoning process for printing the image shown in figure 3 of D1 (or an image according to the aforementioned alternative at column 5, lines 21 to 26, of D1). As a result, both the vertical lines (22) of the information indicia (letter "V") and the horizontal lines (24) of its background would have been composed of halftone cells. However, the skilled person would have had no reason to use more than one type of halftone cells, because one type was sufficient for obtaining all the shades of grey needed for printing these vertical and horizontal lines. Moreover, as to the internal structure of the halftone cell, i.e. the distribution of the black and white dots for all the shades of grey (from white to black), the board concurs with the appellant that the skilled person would have been inclined to avoid anisotropic distributions of black or white dots in favour of more randomised distributions known to be less likely to cause disturbing macroscopic effects, such as Moiré patterns (see D2, column 2, lines 38 to 67).

Thus, in conclusion, even if the skilled person had used halftone cells for printing the information indicia shown in figure 3 of D1, he/she would still not have arrived at the method of claim 1.

14.3 For the above reasons, the method of claim 1 is not rendered obvious by the disclosure of D1 or by any other of the prior-art documents cited in the proceedings before the examining division, and is therefore inventive (Article 56 EPC 1973).

The same applies to the subject-matter of dependent claims 2 to 9.

Conclusion

15. The board is thus satisfied that the present application and the invention to which it relates meet the requirements of the Convention.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent in the following version:

Description:
Pages 1, 6, 7, 10 and 11 as originally filed.
Pages 2, 2a, 3, 4, 5, 8 and 9 received during oral proceedings of 18 April 2013.
Claims:
No. 1 to 9 received during oral proceedings of 18 April 2013.
Drawings:
Sheets 1/5 to 5/5 as originally filed.

The Registrar: The Chairman:

K. Boelicke F. Edlinger

Decision electronically authenticated