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Datasheet for the decision of 24 October 2013

Case Number: T 0014/09 - 3.4.03

Application Number: 04000073.9

Publication Number: 1437692

IPC: G07D11/00, G07D7/12, G07D7/20, G07F7/04, G06K9/20

Language of the proceedings: EN

Title of invention:
Bill serial number reading device and bill serial number reading method

Patent Proprietor:
Glory Ltd.

Opponent:
GIESECKE & DEVRIENT GmbH

Headword:

Relevant legal provisions:
EPC 1973 Art. 100(a), 56
EPC Art. 100(c), 123(2)

Keyword:
Amendments - added subject-matter (no)
Inventive step - (no)

Decisions cited:

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It can be changed at any time and without notice.

Catchword:

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Case Number: T 0014/09 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 24 October 2013

Appellant: (Opponent)	GIESECKE & DEVRIENT GmbH Prinzregentenstrasse 159 81677 München (DE)
Respondent: (Patent Proprietor)	Glory Ltd. 3-1 Shimoteno 1-chome Himeji-shi, Hyogo 671-8567 (JP)
Representative:	Goddar, Heinz J. Boehmert & Boehmert Pettenkoferstrasse 20-22 80336 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 6 November 2008 rejecting the opposition filed against European patent No. 1437692 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman: G. Eliasson
Members: R. Bekkering
P. Mühlens

Summary of Facts and Submissions

I. This is an appeal against the rejection of the opposition against European patent EP 1 437 692.

II. Oral proceedings were held before the board.

III. The appellant opponent requested that the decision under appeal be set aside and that the patent be revoked.

IV. The respondent patent proprietor requested that the appeal be dismissed.

V. Claim 1 as granted reads:

"*A bill serial number reading device for reading a serial number of a bill to be transported on a transport path, comprising:*
first (35a) and second (35b) image reading means, each image reading means having an image sensor (354) and at least two light sources (351, 352) each having a different emission color, the first image reading means being located above the transport path and the second image reading means being located below the transport path;
identification means (24) for identifying a denomination and direction of the bill being transported on the transport path; and
control means (42) for controlling the first image reading means or the second image reading means to scan and read a portion where a serial number of the bill being transported on the transport path is printed by selectively switching the first image reading means and the second image reading means, selectively driving one

of the at least two light sources, each having a different emission color, of the selected image reading means and driving the image sensor based on information on the denomination and direction identified by the identification means."

Claim 13 concerns a corresponding bill serial number reading method.

VI. Reference is made to the following documents:

D1: WO 98 40839 A

E1: JP 63 137 382 A with corresponding Patent Abstracts of Japan and English translation (E4)

VII. The appellant opponent submitted in substance the following:

The amendment in claim 1 as granted "*by selectively switching the first image reading means and the second image reading means*" included the case of simultaneously switching one sensor off and the other on, and *vice versa*, which was not disclosed in the application as originally filed. The same applied for claim 13.

The subject-matter of claims 1 and 13 as granted, thus, extended beyond the content of the application as filed.

From document D1 a bill serial number reading device was known with image reading means located above and below the transport path of the bill. First the denomination was identified. Then based on the outcome, the serial number was located and read. The problem to be solved was to improve the reading of the serial

number. Document E1 concerned character reading on moved documents and involved determining the drop-out colour of the document and switching-on one of the light sources accordingly. It was obvious for a skilled person to adopt the solution suggested in E1.

The subject-matter of claims 1 and 13 as granted, thus, did not involve an inventive step.

VIII. The respondent patent proprietor argued in substance as follows:

The feature "*by selectively switching the first image reading means and the second image reading means*", meant that either the first image reading means was switched on and the second image reading was switched off, or *vice versa*. This was supported by the description as originally filed.

Accordingly, the amendment was directly and unambiguously derivable from the application as originally filed, so that Article 123(2) EPC was not contravened.

Document D1 neither disclosed that colour detection was used for recognising the serial number of a bill, nor that colour detection was dependent on the irradiation of a specific light source with a specific emission colour.

Document E1 dealt with optical character recognition (OCR) and therefore did not belong to the same field as the subject of document D1 and the subject of the invention. Moreover, E1 did not disclose or suggest that the colour of the irradiating light was changed

according to the denomination and the direction of the bills.

Accordingly, the subject-matter of claims 1 and 13 as granted involved an inventive step.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments, Article 100(c) EPC 1973*

2.1 The appellant opponent has objected to the amendment in claim 1 as granted "*by selectively switching the first image reading means and the second image reading means*" as extending beyond the content of the application as filed.

2.2 In the board's judgment, the skilled person would understand claim 1 as granted, and in particular the feature "*by selectively switching the first image reading means and the second image reading means*", to mean that either the first image reading means is switched on and the second image reading is switched off, or *vice versa*. It is noted in this respect that, as essentially also argued by the appellant, the switching of the image reading means is insofar selective, that only one of the two image reading means is actually switched on.

At the oral proceedings, the appellant argued that the above amendment included the case of simultaneously switching one sensor off and the other on, and *vice versa*, which was not disclosed in the application as

originally filed. The board, however, fails to see a definition of such a specific sequence in the above amendment, or indeed in claim 1 as granted as a whole.

2.3 As basis for the amendment, the respondent patent proprietor referred in particular to page 25, lines 11 to 14 of the application as originally filed.

In the board's view, the above understanding of claim 1 is indeed supported by this passage. From the fact that the sentence starts with "*In the same way*", thereby referring to the description of figures 6(a) to 6(d), relating to a 10 Euro bill which has the serial number in two locations on one side of the bill, where either the top side line sensor or the bottom side line sensor is used, and from the fact that the sentence ends with "*respectively according to the bill transport directions A1, B1, A2 and B2 described in Figs 6(a) to 6(d)*", it is clear to a skilled reader that what is meant is that either the top side line sensor or the bottom side line sensor is used depending on the transport direction.

The above, ie switching either the first image reading means or the second image reading means, is also disclosed elsewhere in the application as originally filed (see eg original claims 3 and 15).

The above also applies to independent claim 13 as granted which includes a corresponding amendment.

2.4 Accordingly, the amendments to claims 1 and 13 do not introduce subject-matter which extends beyond the content of the application as filed, Article 100(c) EPC 1973 and Article 123(2) EPC.

Therefore, the ground for opposition under Article 100(c) EPC 1973 invoked by the appellant does not prejudice the maintenance of the patent as granted.

3. *Inventive step*

3.1 The appellant has, moreover, opposed the patent on the ground that the subject-matter of claims 1 and 13 lacks an inventive step over document D1 and document E1.

3.2 Document D1 discloses a document and currency processing system capable of processing documents utilizing full image scanning and a currency discriminator.

According to D1, "*As shown in FIG. 3, the front and back surfaces of the documents are scanned by scan heads 80 and 82 and the images processed into video image data by electronic circuitry*" (page 24, lines 3 to 5; figure 3). Moreover, "*As is known in the art, the optical scanners can additionally scan specified fields on the faces of the document.[...] Also, when scanning currency, the system searches for the serial numbers printed at defined locations which the image processor 92 can locate. The processor 92 can be programmed to locate fields for various types of currency and perform processing as follows. Based on scanning certain areas on the currency or document, the processor 92 first identifies the type of currency, for example, U.S. bank notes. Then, based on the outcome of the previous step, certain fields of interest are located, and the information stored for use by the system*" (page 24, line 27 to page 25, line 5; see also page 39, lines 6 to 15).

Furthermore, according to D1, "*In addition to size and scanned characteristic patterns, color may also be used to discriminate bills. For example, while all U.S. bills are printed in the same colors, e.g., a green side and a black side, bills from other countries often vary in color with the denomination of the bill. For example, a German 50 deutsche mark bill-type is brown in color while a German 100 deutsche mark bill-type is blue in color. Alternatively, color detection may be used to determine the face orientation of a bill, such as where the color of each side of a bill varies. For example, color detection may be used to determine the face orientation of U.S. bills by detecting whether or not the "green" side of a U.S. bill is facing upwards. Separate color sensors may be added upstream of the scanheads described above. According to such an embodiment, color information may be used in addition to size information to preliminarily identify a bill. Likewise, color information may be used to determine the face orientation of a bill which determination may be used to select upper or lower scanheads for scanning a bill accordingly or compare scanned patterns retrieved from upper scanheads with a set of master patterns generated by scanning a corresponding face while the scanned patterns retrieved from the lower scanheads are compared with a set of master patterns generated by scanning an opposing face*" (page 37, line 31 to page 38, line 15).

Finally, according to D1, "*Alternatively, color sensing may be incorporated into the scanheads described above. Such color sensing may be achieved by, for example, incorporating color filters, colored light sources, and/or dichroic beamsplitters into the currency discrimination unit of the present invention*" (page 38, lines 15 to 18).

Accordingly, document D1 discloses, using the terminology of claim 1, a bill serial number reading device for reading a serial number of a bill to be transported on a transport path, comprising:
first and second image reading means (80, 82), each image reading means having an image sensor, the first image reading means being located above the transport path and the second image reading means being located below the transport path;
identification means for identifying a denomination and direction of the bill being transported on the transport path; and
control means for controlling the first image reading means or the second image reading means to scan and read a portion where a serial number of the bill being transported on the transport path is printed by selectively switching the first image reading means and the second image reading means, and
driving the image sensor based on information on the denomination and direction identified by the identification means.

3.3 Not disclosed in document D1 is selectively driving one of the at least two light sources, each having a different emission color, of the selected image reading means.

The effect of this difference is a more accurate reading of the serial number when it is printed on a coloured background.

Accordingly, the objective problem to be solved relative to D1 is to improve the reading accuracy of the serial number against a coloured background.

3.4 The problem per se is obvious as it presents itself when attempting to read the serial number of common banknotes (eg Euro notes).

Moreover, as argued by the appellant, the objective problem lies in the field of optical character recognition so that the skilled person entrusted with solving it would take into account solutions available in this field, thereby considering document E1.

Document E1 is concerned with reading characters on a text input form where the information on the form which does not need to be read is printed in a different colour (cf translation, page 1, last paragraph). As this colour is dropped during character reading, it is referred to as the drop-out colour. The drop-out colour of the form is determined by illuminating the form with light from a wide band emission spectrum light source and detecting the reflected light. For character reading the device comprises plural fluorescent lamps having mutually different emission spectra. The characters on the form are read while switching-on one of the lamps based on the drop-out colour of the form thereby providing accurate reading (cf translation, page 4, second paragraph).

As document E1 provides a solution to the above problem, it would be obvious to the skilled person to apply the solution proposed in E1. In this respect it is noted, as also argued by the appellant, that this is all the more so as document D1 already suggests including coloured light sources in the scan heads, so that only minimal adaptations to the device are required.

Moreover, as also argued by the appellant, since in D1 the colour of the bill is already detected for the purpose of determining the denomination and the face orientation, it would readily occur to the skilled person to use this information to determine the drop-out colour and set the appropriate light source for character reading accordingly.

3.5 The respondent argued that since document E1 dealt with optical character recognition it did not belong to the same field as the subject of document D1 and the subject of the invention. Accordingly, the skilled person would not have considered this document. Moreover, document E1 did not disclose or suggest that the colour of the irradiating light was changed according to the denomination and the direction of the bills.

These arguments are, however, not found convincing. As discussed above, document D1 is concerned with determining the serial number of bills using an image scanner, implying the use of optical character recognition. Document E1 is concerned with optical character recognition on coloured forms, and thus clearly relevant to the above objective problem to be solved relative to D1 relating to serial number reading on coloured bills. Moreover, as discussed above, in D1 the colour of (each side of) the bill and the location of the serial number field, and therewith the denomination and the direction of the bill, is determined. It would be obvious for the skilled person to use this information for driving the image sensor, as applying the teaching of E1 requires that the drop-out colour be determined. Moreover, insofar as claim 1 as granted actually defines that the colour of the irradiating light is changed according to the

denomination and the direction of the bills, it would be obvious for the skilled person to use this information to change the colour of the light source.

3.6 Accordingly, having regard to the state of the art, the subject-matter of claim 1 as granted is obvious to a person skilled in the art and therefore lacks an inventive step (Article 56 EPC 1973).

Accordingly, the ground of opposition under Article 100(a) EPC 1973 invoked by the appellant prejudices the maintenance of the patent as granted, Article 101(2) EPC, first sentence.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

S. Sánchez Chiquero G. Eliasson

Decision electronically authenticated