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**Datasheet for the decision
of 9 May 2017**

Case Number: T 0535/12 - 3.4.03

Application Number: 02017928.9

Publication Number: 1286314

IPC: G07D7/00, G07D11/00

Language of the proceedings: EN

Title of invention:

Bank note evaluation apparatus and bank note evaluation result
data processing method

Patent Proprietor:

Kabushiki Kaisha Toshiba

Opponent:

GIESECKE & DEVRIENT GmbH

Headword:

Relevant legal provisions:

EPC Art. 54(1), 54(2)

EPC 1973 Art. 56

Keyword:

Novelty - (yes)

Inventive step - (yes)

Decisions cited:

T 0312/94

Catchword:



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Case Number: T 0535/12 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 9 May 2017

Appellant: GIESECKE & DEVRIENT GmbH
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted on 5 January 2012 rejecting the opposition filed against European patent No. 1286314 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman G. Eliasson
Members: M. Stenger
 C. Schmidt

Summary of Facts and Submissions

- I. The appeal of the opponent concerns the decision of the opposition division rejecting the opposition against European patent No. 1286314.
- II. The opposition had been filed against the patent as a whole. Grounds of opposition were lack of novelty and inventive step (Articles 54, 56 and 100(a) EPC).
- III. At the oral proceedings before the opposition division, the opposition division on its own motion raised a further ground of opposition under Article 100(c) EPC. The opponent was not present at these oral proceedings.
- IV. At the oral proceedings before the board, the opponent (appellant) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (proprietor) requested that the appeal be dismissed, i.e., that the patent be maintained as granted.

- V. Reference is made to the following document
D1: DE-A-4013585
- VI. Independent claims 1 and 6 as granted by the examining division and maintained by the opposition division read as follows:

- 1. *A bank note evaluation system comprising:
a bank note evaluation apparatus (1-N) adapted to evaluate a bank note and output a bank note evaluation result, comprising:
an encrypted data generation unit (11) configured to encrypt the bank note evaluation result data*

and unique data by an encryption key, thereby generating encrypted data;

and

an output unit (11) configured to output the encrypted data, characterized in that:

the output unit (11) is configured to output the bank note evaluation result data and the unique data, in addition to the encrypted data; and

a customer server (31) is adapted to:

receive the bank note count data, the unique data and the encrypted data from the bank note evaluation apparatus (1-N); encrypt the received bank note evaluation result data and the received unique data by the encryption key to newly generate encrypted data; and

compare the newly generated encrypted data with the received encrypted data to confirm that the output bank note evaluation result data has been correctly received without tampering.

6. *A bank note evaluation data processing method of processing a bank note evaluation result, comprising:*

in a bank note evaluation apparatus (1-N), encrypting bank note evaluation result data and unique data by an encryption key to generate encrypted data (ST3); and

outputting the encrypted data (ST4) from the bank note evaluation apparatus, characterized by:

outputting the bank note evaluation result data and the unique data, in addition to the encrypted data (ST4), from the bank note evaluation apparatus (1-N);

in a customer server (31), receiving the outputted bank note evaluation result data, the outputted unique data, and the outputted encrypted data (ST6); encrypting the received bank note evaluation result data and the received unique data by the encryption key to newly generate encrypted data (ST7); and comparing the newly generated encrypted data with the received encrypted data to confirm that the output bank note evaluation result data has been correctly received without tampering (ST7).

VII. The arguments of the parties regarding novelty, as far as they are relevant for the present decision, may be summarized as follows.

(a) The *appellant* argued that claim 8 of document D1 disclosed an automatic recalculation of the authentication code and its comparison (*automatisch ...die Nachberechnung und den Vergleich durchführt*) to the (original) authentication code by the terminal (*über die Schnittstelle ... verbundenen Einheit*). The fact that claim 8 referred back to claim 6, according to which the authentication code was printed on the log, had only relevance to the scope of protection of the claims, but was not of relevance for the technical disclosure of document D1.

The technical teaching conveyed by claim 8 was also consistent with the rest of the disclosure of document D1: Column 4, lines 9 to 15 further defined that the data necessary for doing so (*die notwendigen Daten*) were transmitted to the terminal. Furthermore, column 2, lines 10 to 15

described the authentication or verification process in general without any reference to a printed code. These two passages implied that the authentication code also had to be transmitted to the terminal to make the comparison by the terminal possible.

In conclusion, document D1 disclosed the transmission of the authentication code to the terminal as well as its verification by means of a recalculation of the authentication code and comparison with the transmitted authentication code by that terminal.

- (b) The *respondent* argued that in document D1, the verification of the authentication code with the help of the terminal (*mit Hilfe eines Terminals*), as described in column 4, lines 9 to 15, did not imply that the whole verification process was performed by the terminal. Instead, the role of the terminal was confined to the recalculation of the authentication code, while the comparison of that recalculated code with the printed code was always performed by the user. Whilst document D1 suggested providing technical means for assisting a user in checking the authenticity of data printed on a document against fraud, there was no suggestion to replace the user by technical means.

The last feature of claim 8 of document D1 had to be read using this interpretation, even more so since claim 8 depended on claim 6 which explicitly defined the comparison of a recalculated code with a printed code.

Hence, document D1 neither disclosed the transmission of the authentication code to the terminal, nor a comparison of two authentication codes by the terminal.

VIII. The arguments of the parties with respect to inventive step, as far as they are relevant for the present decision, may be summarized as follows.

(a) The *appellant* argued that discussions about paperless offices and administrations had been generally ongoing well before 2001, the priority year of the patent. This general trend would have incited the skilled person to consider paperless alternatives for systems and methods as the ones disclosed in document D1.

In particular, document D1 itself contained various hints for the skilled person suggesting to dispense with the paper shift log: The authentication code was available electronically, since it could be stored for later verifications (column 2, lines 37 to 43 and column 4, lines 16-21). Furthermore, the authentication process as described in general in column 2, lines 10 to 15 did not require the use of a printed authentication code. Moreover, column 2, lines 16-28 of document D1 mentioned that in the area of telecommunications, it had been known since a long time to authenticate transmitted data automatically by means of a transmitted authentication code. Finally, claim 8 of D1 at least suggested to perform the comparison between the recalculated and the original authentication codes automatically by means of the terminal.

The skilled person starting from D1 and generally looking for alternatives, would as a matter of course try to solve the objective technical problem of "finding a paperless alternative to the use of the printed log of D1". The claimed solution would be achieved without the exercise of an inventive step.

- (b) The *respondent* agreed that document D1 was suitable to be used as representing the closest prior art in the problem solution approach. Document D1, however, was exclusively directed at verifying the authenticity of a printed shift log, as explained in column 1, line 67 to column 2, line 3. In the area of banknote handling, security was an important issue and in 2001 (priority date of the contested patent), even less in 1990 (filing date of document D1), nobody would have relied on verifications by electronic means only, and nobody working in that area would have dispensed with a verifiable paper documentation.

Hence the objective technical problem proposed by the appellant ("providing a paperless alternative to the use of the printed log") contained elements of the solution and was thus based on hindsight.

A proper objective technical problem not based on the knowledge of the invention should rather be formulated as "improving the security of the system disclosed in D1".

Document D1 referred to the field of telecommunications only for presenting the authentication code as a tool for authenticating data. This could not be interpreted as an incentive

or hint to get rid of paper documentation in the field of banknote handling.

Reasons for the Decision

1. Amendments (Article 100(c) EPC)

The opposition division raised the ground of opposition under Article 100(c) EPC on its own motion and came to the conclusion that the amendments to claim 1 carried out during the examination procedure complied with Article 123(2) EPC. Neither the appellant nor the respondent made any submissions on this issue. Since the board concurs with the conclusion of the opposition division, it is not necessary to further discuss this ground of opposition.

2. Novelty

2.1 Both parties agreed that most features of the independent claims 1 and 6 of the contested patent as granted are disclosed in D1. The contested issue is whether document D1 also discloses that:

- a customer server is provided which
 - receives the bank note count data, the unique data and the encrypted data from the bank note evaluation apparatus (1-N);
 - encrypts the received bank note evaluation result data and the received unique data by the encryption key to newly generate encrypted data; and

- compares the newly generated encrypted data with the received encrypted data to confirm that the output bank note evaluation result data has been correctly received without tampering.

2.2 Document D1 discloses a bank note evaluation of the same type as that of the contested patent. The bank notes are processed in an automatic bank note sorting machine for sorting bank notes into different categories according to given criteria, whereby partial amounts of bank notes are destroyed if necessary. A printed shift log is produced by the sorting machine to record information about the processed bank notes. In order to ensure that the printed shift log has not been tampered with, it additionally contains an authentication code which is produced by encrypting the bank note evaluation result together with the date and time of the log. Verification is carried out by inputting the bank note evaluation result, date and time printed on the log on a terminal which carries out the same encryption algorithm used to produce the authentication code on the log. The result is displayed and compared by the user with the authentication code printed on the shift log. The data from the sorting machine can also be sent automatically to the terminal for verification (column 4, lines 9 to 15).

2.3 The appellant argued that claim 8 of document D1 disclosed that both the recalculation of the authentication code and the comparison with the authentication code of the shift log could be carried out automatically (see item VII(a) above).

2.4 Claim 8 of D1 reads:

Verfahren nach Anspruch 6, dadurch gekennzeichnet, dass zur Prüfung des Protokolls die Daten über die Schnittstelle einer mit der Sortiervorrichtung verbundenen Einheit zugeführt werden, die automatisch anhand der Daten die Nachberechnung und den Vergleich durchführt.

- 2.5 The board concurs with the appellant that the wording of claim 8 of document D1 lends itself to an interpretation that the terminal, which would correspond to the "customer server" as defined in the independent claims, would automatically perform both a recalculation of the authentication code and a subsequent comparison with the originally calculated authentication code. Such an automatic comparison by the terminal, however, implies that the terminal must have received the authentication code from the sorting machine.

The above argument, however, overlooks that claim 8 depends on claim 6, as pointed out by the respondent (see item VII(b) above). Claim 6, on the other hand, requires a comparison of the recalculated code with the original code printed on the log (*Vergleich mit dem auf dem Protokoll ausgedruckten Echtheitskennzeichen durchgeführt wird*). Such a comparison has to be carried out by a user at the terminal. This is in line with the rest of document D1 which consistently discloses that the comparison of the authentication codes is performed by a user (see e.g. column 3, lines 57 to 61).

The board was also unable to find any suggestion in document D1, including the passages cited by the appellant, that explicitly indicates that the authentication code itself would be transmitted or made available by electronic means to the terminal. The

passages cited by the appellant rather relate to the transmission of the data necessary for recalculating the authentication code. There is no disclosure that the authentication code itself is transmitted to the terminal (column 4, lines 12-15, *Die Daten ... woraus ... der Echtheitscode ... errechnet wird.*).

Thus, the interpretation of claim 8 as suggested by the appellant is only possible when the claim is read in isolation, disregarding the fact that it is referring back to claim 6.

When interpreting a document to determine its disclosure, its parts should not be construed in isolation from each other but in the context of the document as a whole (see T312/94, catchword).

In the present case, the context of document D1 as a whole is exclusively directed at the verification of an original authentication code as printed on a log and not any automatic comparison of codes at a terminal.

In view of the above, the board comes to the conclusion that document D1 neither discloses a transmission of the authentication code to a terminal, nor an automatic comparison at the terminal of such a transmitted authentication code with an automatically recalculated authentication code.

For the above reasons, the subject-matter of independent claims 1 and 6 of the contested patent is new within the meaning of Article 54(1) and (2) EPC.

3. Inventive step

- 3.1 The parties agreed that document D1 is considered closest prior art and the board concurs.

As discussed above the subject-matter of independent claims 1 and 6 of the contested patent differs from the disclosure of document D1 in that

- the encrypted data (authentication code) is received by the customer server (terminal), which further compares the newly generated encrypted data with the received encrypted data.

- 3.2 The appellant proposed that the objective technical problem to be solved related to finding a paperless alternative to the printed log of document D1 (see item VIII(a) above).

- 3.3 The board in principle concurs with the appellant that discussions relating to paperless offices were widespread before 2001, and therefore, it was considered a general trend to replace paper documents by corresponding electronic documents.

As the respondent pointed out (see item VIII(b) above), however, the very purpose of document D1 is to verify the authenticity of a printed shift log (column 1, line 43 to column 2, line 9). These shift logs are handed over together with the sorted banknotes and thus play an important role in the overall banknote handling process (column 3, lines 6 to 11). Thus, replacing the printed shift log of D1 by a corresponding electronic log would amount to redesigning the whole banknote handling process. It is difficult for the board to believe that the skilled person would consider replacing the printed shift log of document D1 due to general considerations alone, taking into account that

security issues are of outmost importance in the field of banknote handling.

The board was not able to find any disclosure in document D1 that would suggest dispensing with the printed shift log. On the contrary, the only explicit example of the verification process is the (manual) verification of a printed shift log by a user (column 3, lines 49 to 62).

Although document D1 discloses that the authentication codes may be stored electronically (column 3, lines 6 to 11) in a memory of the sorting machine (column 4, lines 16 to 21), the purpose of storing the authentication codes electronically is to enable a later (re-)verification of older logs (column 2, lines 41 to 43 and column 4, line 19 to 21). Thus, the electronic storage of the authentication codes is performed in addition to their printing on the shift logs. There is however no hint that these stored authentication codes would be sent to the terminal.

As pointed out by the appellant, document D1 acknowledges that authentication codes were widely used in the field of telecommunications (column 2, lines 16 to 18). However, the board concurs with the respondent that the cited passage is directed at the use of the authentication codes as a tool to ensure the authenticity of the (printed) logs. This passage can not be seen as a suggestion to replace the printed logs, the authenticity of which is to be ensured, by an electronic log.

As pointed out before on novelty, the skilled person would interpret the wording of claim 8 in the context of the other parts of document D1, and therefore, claim

8 would also not provide the skilled person with a specific suggestion to dispense with the printed shift log.

- 3.4 Thus, the board holds that starting from document D1, the skilled person would not consider dispensing with the printed (paper) shift log due to the general considerations to move to a more paperless administration. Document D1 itself also fails to give the skilled person any specific suggestion to do so.

The skilled person would thus have no reason to make the terminal receive, in addition to the banknote evaluation result data and the unique data, also the authentication code, because this would not serve any purpose in verifying the authenticity of the printed shift log.

The board therefore concurs with the conclusion of the opposition division that the independent claims of the contested patent as granted involves an inventive step within the meaning of Article 56 EPC 1973.

4. As the grounds for opposition raised by the appellant opponent do not prejudice the maintenance of the patent as granted, the appeal must fail.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



P. Martorana

G. Eliasson

Decision electronically authenticated