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**Datasheet for the decision  
of 12 July 2006**

**Case Number:** T 0404/03 - 3.5.01

**Application Number:** 93913952.3

**Publication Number:** 0641468

**IPC:** G06K 9/00, G07D 7/00

**Language of the proceedings:** EN

**Title of invention:**

Method and apparatus for currency discrimination and counting

**Patentee:**

CUMMINS-ALLISON CORPORATION

**Opponent:**

GIESECKE & DEVRIENT GmbH

**Headword:**

Doubles detection/CUMMINS-ALLISON

**Relevant legal provisions:**

EPC Art. 123(2)

**Keyword:**

"Allowable generalisation - all requests (no)"  
"Deletion of features - essentiality test"

**Decisions cited:**

G 0003/89, G 0001/93, G 0002/98, T 0201/83, T 0331/87,  
T 0910/03, T 0073/88

**Catchword:**

In the present Board's view, the cases of deletion of features and addition of features should be distinguished with respect to allowability of amendments under Article 123(2) EPC since the former only removes elements that have been originally disclosed and hence may be judged by a skilled person to be inessential to the invention, whereas the latter adds new elements lacking any basis whatsoever in the original disclosure (see points 10 to 12 of the reasons).



Case Number: T 0404/03 - 3.5.01

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.01  
of 12 July 2006

**Appellant:** CUMMINS-ALLISON CORPORATION  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 28 January 2003  
revoking European patent No. 0641468 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** S. Steinbrener  
**Members:** W. Chandler  
P. Schmitz

## Summary of Facts and Submissions

I. This appeal is against the decision of the opposition division to revoke European patent No. 0 641 468.

II. The opposition division held at point 14 of the decision that the generalisation from two sensors in the embodiment to an unspecified number of sensors in claim 1 as granted did not violate Article 123(2) EPC. In particular, they agreed that the embodiment described only two sensors and that no alternative was suggested. However, they considered that it was directly and unambiguously derivable from the passage at page 44, lines 24 to 32, mentioning that each of the sensors S1 and S2 individually identify a doubling of bills, that each of the sensors constituted a separate functional sub-unit that was independently able to detect overlapping bills, which was the primary problem. The cooperation of the sensors in combination with the "doubles error" flag solved a different, additional problem.

The division also considered at point 14.5 that the amendment met the three-point test for deleting a feature from a claim, described in the Guidelines for Examination, C-VI, 5.8a (now 5.3.10) and based on decision T 331/87 (OJ EPO 1991, 22). In particular, the second criterion of this test, namely that the removed feature was not indispensable for the function of the invention was met in view of the previous argument. The third requirement was also met because the omission of the second sensor would not require any real modification.

- III. However, the claim was not allowable because various other amendments in claim 1 of the main request did violate Article 123(2) EPC. Claim 1 of the auxiliary request, which overcame these objections, did not involve an inventive step (Article 56 EPC) over the combination of US-A-4 237 378 (E1) and WO-A-91/11 778 (E2).
- IV. The proprietor lodged an appeal, maintaining the refused main request and adding a first to third auxiliary request.
- V. Following a communication from the Board accompanying the summons to oral proceedings summarising the issues of extension of subject-matter and inventive step, the appellant declared that he would not be attending the oral proceedings, but there were no further written submissions from either party.
- VI. At the oral proceedings, which the appellant did not attend, the respondent requested that the appeal be dismissed. The appellant had requested in writing that the decision to revoke the patent be set aside and that the patent be maintained on the basis of the main request, or one of the auxiliary requests 1 to 3, filed with the grounds of appeal. At the end of the oral proceedings, the Chairman announced the decision.
- VII. Claim 1 of the main request (claim 1 as granted) reads as follows:

"A currency evaluation device for receiving a stack of currency bills (228), rapidly evaluating all the bills

(228) in the stack, and then re-stacking the bills (228), said device comprising:

a feed mechanism (227, 246, 248) for receiving a stack of currency bills (228) and feeding said bills (228) in the direction of a predetermined dimension of the bills (228), one at a time, to a feed station (274, 296);

a bill transport mechanism (301 to 304) for transporting bills (228) in the direction of the predetermined dimension of bills (228), from said feed station (274, 296) to a stacking station output receptacle (242), said output receptacle (242) comprising a stacking mechanism (238, 240);

a stationary optical scanning head (296) located between said feed and stacking mechanisms (227, 246, 238, 240) for scanning at least a preselected segment of each bill (228) transported between said feed and stacking mechanisms (227, 246, 248, 238, 240) by said transport mechanism (301 to 304), and producing an output signal characteristic of the denomination of the bill;

signal processing means (30) for receiving said output signal and processing same; and

overlap detector means (S1, S2) for directing a light beam through each bill (228) transported to the scanning head (296) and for detecting the intensity of the light beam after it has passed through the bill (228);

characterised in that

said bill transport mechanism (301 to 304) transports said bills (228) at a rate in excess of about 800 bills (228) per minute;

said signal processing means (30) determines the denomination of each scanned bill (228); and that the device comprises:

means for comparing the detected light intensity with a predetermined intensity value corresponding to the bill denomination determined by said signal processing means, and determining from said comparison whether said light beam passed through more than one bill (228)."

In claim 1 of the first auxiliary request the "predetermined dimension of the bills" in the first and second features is replaced by "narrow dimension of the bills" and the term "scanning" in the third feature is replaced by "detecting light reflected from a plurality of predefined sample points within".

Claim 1 of the second and third auxiliary requests is the same as claim 1 of the main and first auxiliary requests, respectively, only claim 5 being affected.

VIII. The appellant argued *inter alia* as follows:

The opposition division's reasoning for allowing the generalisation of the two sensors in the embodiment to "overlap detection means" in claim 1, was correct.

IX. The respondent argued as follows:

The generalisation to "overlap detection means" was the most serious extension of subject-matter in granted claim 1. The original description stated at page 43, lines 1 to 3, "According to another feature of the present invention, the undersigned doubling or

overlapping of bills in the transport system is detected by the provision of a pair of optical sensors ...". Further, at page 44, line 6, a description of the function of the sensors was introduced as "a routine for using the outputs of the two sensors S1 and S2 to detect any doubling or overlapping of bills is illustrated in FIG. 21." An exact description of the function was given in the paragraph bridging pages 44 and 45, according to which the operation of the doubles detection circuit involved both sensors that worked together to set the doubles error flag. The design was this specific combination of features and it had a specific effect. For example, it would detect a doubled bill, which would trigger both sensors, but would not detect a dog-eared bill, which would only trigger one sensor. The description gave no hint that one sensor could be used to detect doubles. Thus the amendment did not meet the requirement of a clear and unambiguous disclosure as required by Article 123(2) EPC.

Neither did it pass the test for the removal of a feature from a claim given in the Guidelines for Examination, now C-VI, 5.3.10. This test required that the amendment was not essential to the invention, not indispensable for the function of the invention in the light of the problem solved by the invention, and required no real modification. Firstly, the introduction of the sensors as another aspect of the invention implied that it was an essential aspect and not merely another detail of the previously described machine. Moreover, the skilled person would have to think how to change the embodiment from two sensors to another number. In particular, the interaction of the sensors with the doubles error flag would need to be

redesigned. This was not immediately derivable from the disclosure and would require some thought, and was therefore a real modification, contrary to the third condition of the test.

It was not a question of obviousness; the question was what the skilled person would derive from the disclosure. Even if one sensor could detect doubles, the disclosure was to use two to avoid false detection due to dog-eared notes for example.

The effect of the amendment was relevant to the skilled person's considerations. For instance, if an amendment were to generalise the number of light sources, the skilled person might recognise the effect of providing more light to the sensors. However, the effect of generalising the number of sensors is not immediately apparent because the skilled person would have to process their outputs in some particular manner, in particular changing the interaction with the doubles error flag.

## **Reasons for the Decision**

1. The appeal complies with the requirements referred to in Rule 65 (1) EPC and is, therefore, admissible.

### *Background*

2. The originally filed application related to currency identification and counting by scanning and detecting the denomination of bank notes. On entry into the regional phase before the EPO, the applicant claimed



the aspect of detecting overlapping bills (doubles detection) for the first time in a new claim 1. This derives from the embodiment disclosed at the end of the description at page 43, line 1 to page 45, line 4. The embodiment states at page 43, lines 31 and 32 the object of detecting the presence of doubles (two or more overlaid or overlapping bills) during the currency recognition and counting process.

3. This is achieved by detecting the light passing through the bill using two sensors above the note (Figure 20) and comparing the detected light density with reference values for a note of the denomination being scanned (determined as in the main aspect of the invention). If both sensors determine a double, a "doubles error flag" is set (Figure 21: 412).

*Article 123(2) EPC*

4. The last feature of the pre-characterising part of claim 1 in all requests specifies "overlap detector means (S1, S2)", whereas the original application describes only a single embodiment using two sensors setting a doubles error flag as mentioned above. The appeal turns on the question of whether this generalisation is an extension of subject-matter (Article 123(2) EPC).
5. The underlying idea of Article 123(2) EPC is that an applicant is not allowed to improve his position by adding subject-matter not disclosed in the application as filed, which would give him an unwarranted advantage and could be damaging to the legal security of third parties relying on the content of the original

application (see G 1/93, OJ EPO 1994, 541, point 9 of the reasons). This is generally taken to mean that an amendment is regarded as introducing subject-matter which extends beyond the content of the application as filed, and therefore unallowable, if it is not within the limits of what a skilled person would derive directly and unambiguously using common general knowledge (see e.g. G 3/89, OJ EPO 1993, 117, headnote 1 and point 2 of the reasons).

6. In the present case, the question is thus whether the "overlap detection means" in general is directly and unambiguously derivable from the embodiment even when account is taken of matter which is implicit to a person skilled in the art. In the Board's judgement, it is not.
  
7. As pointed out by the respondent, only the single solution of using two sensors that work together to set the doubles error flag is explicitly disclosed. It is true that page 44, lines 24 to 32 states that each sensor "identifies a doubling of bills". However, this is within the context of the two-sensor solution. Thus, if the first sensor does not identify a multiple layer of bills, no overlapping bills are indicated, irrespective of whether or not the second sensor identifies a multiple layer. There is no suggestion that the system works with a single sensor. There is equally no indication that any other number of sensors could be used, let alone an indication of how they would operate together. It might be that each sensor must determine a double in order to set the doubles error flag in an extension of the disclosed two-sensor case. However, this would be the reader's own

- speculation since there are other possibilities, and it is thus not directly and unambiguously derivable.
8. The respondent argues (see point IX, above) *inter alia* that the amendment does not pass the three-point or essentiality test for deleting a feature from a claim, described in the Guidelines for Examination, C-VI, 5.3.10, which should also apply to the generalisation in the present case. In the proceedings before the opposition division, the respondent also referred to decision T 201/83 (OJ EPO 1984, 484) discussing a novelty test in connection with the judgement of Article 123(2) EPC (letter of 18 September 2002 at the end of point 1.1).
  9. The Board considers that the decisions describing and using the current palette of "tests" in connection with various types of amendments may lead to some confusion. The book "Case Law of the Boards of Appeal of the European Patent Office, 4<sup>th</sup> edition 2001", European Patent Office 2002, for example, describes tests in section III.A.3.2 in connection with the deletion of features, in section III.A.3.3 in connection with the generalisation of subject-matter, and in section III.A.1.1 in connection with the isolation of features from a combination, i.e. dependent claims or embodiments in the description.
  10. However, as far as the disclosure of a group of features is concerned as distinguished from their scope, the generalisation of a feature in a claim and the isolation of features from embodiments in the description essentially both involve a deletion of a feature, namely the specific feature and the remaining

features of the embodiment, respectively. The present Board therefore considers that these cases can be subject to the same criteria as a pure deletion, and hence, in principle, the three-point test. Rather than requiring a specific statement or suggestion in the original disclosure, the three-point test is more generous to the applicant because it essentially allows the deletion of a feature if the skilled person would realise from common general knowledge in that field that the feature has nothing to do with the invention.

11. However, this approach involves a distinction between features that are related to the function and effect of the invention and those that are not. This distinction in connection with the deletion of a feature from a claim was recently rejected in T 910/03 at point 3.4 in view of point 8.3 of G 2/98 (OJ EPO 2001, 413). However, the present Board has some doubts about this conclusion because the reasoning at point 8.3 of G 2/98 appears to relate only to the case where the distinction is used to justify the *addition* of an undisclosed feature as allowed in the "Snackfood" decision T 73/88 (OJ EPO 1992, 557), forming the basis of the referral. Moreover, the deletion of a feature that the skilled person would recognise has nothing to do with the invention does not appear to be at odds with the underlying idea of Article 123(2) EPC mentioned above, namely of not giving the applicant an unwarranted advantage and safeguarding the legal security of third parties. Thus, in the present Board's view, the cases of deletion of features and addition of features should be distinguished with respect to allowability of amendments under Article 123(2) EPC since the former only removes elements that have been originally

disclosed and hence may be judged by a skilled person to be inessential to the invention, whereas the latter adds new elements lacking any basis whatsoever in the original disclosure.

12. However, the Board does not consider it necessary to consider this point further because the amendment would not be allowable under the less stringent conditions of the three-point test either, in particular the requirement that the deleted feature must not be indispensable for the function of the invention and that no real modification of other features is required by its removal. Firstly, the deletion in the present case concerns features that reflect the core of the invention, namely the sensing of the doubles. It is therefore not immediately apparent that modifying these sensor means has nothing to do with the invention. Looking more closely at the function of the sensors, the only problem recognisable from the description is the above-mentioned one of detecting the overlapping of bills during the currency recognition and counting process. There is no general discussion of the strategy of how to solve this problem that would enable the skilled person to realise that the two-sensor solution is optional. In the absence of such information, considerations such as the respondent's example that the two-sensor solution would not count a partially folded, or dog-eared bill as an overlapping bill play a role because they show that the number of sensors could be relevant to the solution of the problem of detecting the overlapping of bills during the currency recognition and counting process. The only other potentially relevant piece of information is that each sensor is said to identify a doubling of bills. The

opposition division considered that this implied that each of the sensors constituted a separate functional sub-unit independently able to detect overlapping bills and thus essentially usable in any number. However, the Board disagrees with this because, as mentioned above, the function of an individual sensor within the two-sensor solution is not the same as the overall function of the embodiment. Therefore deleting the reliance on two sensors changes the overall function of the invention, so that two sensors must be viewed as indispensable.

13. Accordingly claim 1 of all requests is not allowable (Article 123(2) EPC).

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

P. Cremona

S. Steinbrener