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of 11 September 2014**

**Case Number:** T 0144/10 - 3.4.03

**Application Number:** 03768359.6

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**Language of the proceedings:** EN

**Title of invention:**

OPTICAL SENSING DEVICE FOR DETECTING OPTICAL FEATURES OF  
VALUABLE PAPERS

**Patent Proprietor:**

JAPAN CASH MACHINE CO., LTD.

**Opponent:**

MEI, Inc.

**Headword:**

**Relevant legal provisions:**

EPC Art. 69(1), 123(2), 123(3)  
EPC 1973 Art. 111(1)  
EPC Prot. Interpretation Article 69

**Keyword:**

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G 0002/88

**Catchword:**



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Case Number: T 0144/10 - 3.4.03

**D E C I S I O N  
of Technical Board of Appeal 3.4.03  
of 11 September 2014**

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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 23 November  
2009 revoking European patent No. 1576549  
pursuant to Article 101(3)(b) EPC.**

**Composition of the Board:**

**Chairman** G. Eliasson  
**Members:** S. Ward  
P. Mühlens

## Summary of Facts and Submissions

- I. This is an appeal by the patent proprietor against the decision of the Opposition Division to revoke the European patent EP 1 576 549 on the grounds that the main request did not comply with the requirements of Article 123(2) EPC and the first auxiliary request did not comply with the requirements of Article 123(3) EPC. The second and third auxiliary requests were considered *prima facie* not to overcome the objections under Articles 123(2) and 123(3) EPC respectively, and hence were "not admitted into the proceedings following the provision of Article 114(2) EPC."

The opposition had been filed against the patent as a whole. Grounds for the opposition were lack of novelty, lack of inventive step, insufficient disclosure and unallowable extension of subject-matter (Articles 100(a), (b) and (c), 52(1), 54 and 56 EPC).

- II. During the oral proceedings held before the Board, the appellant/proprietor (hereinafter referred to as the proprietor) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request filed during the oral proceedings, or alternatively on the basis of the first auxiliary request filed with the statement of grounds of appeal.

The respondent/opponent (hereinafter referred to as the opponent) requested that the appeal be dismissed.

- III. Claim 1 of the main request reads as follows :

*An optical sensing device for detecting optical features of valuable papers, comprising first and second photocouplers (5, 9, 6, 10) positioned in the vicinity of and on the opposite sides of a passageway (13) for guiding the transported valuable paper (64); said first photocoupler (5, 9) comprising a first light emitting element (20, 30) for emitting a first light of a first wavelength, and a first light receiving element (21, 31) adjacent to said first light emitting element (20, 30);*

*said second photocoupler (6,10) comprising a second light emitting element (22,32) for emitting a second light of a second wavelength different from the first wavelength, and a second light receiving element (23, 33) adjacent to said second light emitting element (22, 32);*

*the first light receiving element (21,31) **selectively** receiving the first light reflected on the valuable paper (64) from the first light emitting element (20, 30) and the second light that penetrates the valuable paper (64) from the second light emitting element (22, 32); and*

*the second light receiving element (23,33) **selectively** receiving the second light reflected on the valuable paper (64) from the second light emitting element (22, 32) and the first light that penetrates the valuable paper (64) from the first light emitting element (20, 30);*

*said device being characterized in that:*

*the first light emitting element (20, 30) is apposed to the first light receiving element (21,31) transversely to the transported direction of the valuable paper (64) and in alignment with the second light receiving element (23, 33) across the passageway (13);*

*the second light emitting element (22, 32) is apposed to the second light receiving element (23, 33)*

*transversely to the transported direction of the valuable paper (64) in alignment with the first light receiving element (21, 31) across the passageway (13); one of the first and second lights is an infrared ray **wherein the infrared ray penetrating the valuable paper (64) is** received by the receiving element for providing reference or basic light data for detecting a light amount level of light other than infrared ray, and the other of the first and second lights has a wavelength other than wavelength of infrared ray.*

The emphasis has been added by the Board: the unemphasized text corresponds to claim 1 as granted, the bold (non-underlined) text shows the additions made to the main request filed with the statement of grounds of appeal, and the bold underlined text shows the further addition made during oral proceedings before the Board.

IV. The Opposition Division found essentially as follows:

The description (in particular, lines 14-21 of page 18) only disclosed the use of the *penetrating* IR ray for providing reference or basic light data, a feature which was absent from claim 1 of the main request on file.

The feature of "selective reception of light" was "an essential one for the definition of the invention, because it is necessary to achieve the overall purpose of the invention. The removal of such a feature [from claim 1] is therefore unallowable."

Hence, claim 1 according to the main request (which corresponded to claim 1 as granted) did not meet the requirements of Article 123(2) EPC.

In relation to the first auxiliary request, "without any further definition or limitation, the apparatus defined by claim 1 as granted can only be interpreted as an apparatus wherein the various LEE [light emitting elements] and LRE [light receiving elements] are working simultaneously and permanently. On the other hand, in the apparatus defined by claim 1 according to the auxiliary request the first and second LRE are working selectively, ... wherein the only possible interpretation of this 'selective reception of light' is on a time basis."

As a result, the subject-matter of claim 1 according to the first auxiliary request extended outside the scope of protection of claim 1 as granted contrary to Article 123(3) EPC.

V. The proprietor argued essentially as follows:

In relation to Article 123(3) EPC, the finding of the Opposition Division that claim 1 as granted could only be interpreted as defining an apparatus in which the various light emitting elements and light receiving elements work "simultaneously and permanently" was not correct. The introduction of the word "selectively" did not represent a shift but a limitation of the scope of protection.

Moreover, the "claim wording as granted refers to infrared ray in general, the amended claim wording refers to a specific part of that infrared ray, namely the penetrating part." Consequently, the introduction into claim 1 of the amended feature: "wherein infrared ray penetrating the valuable paper (64) is ...", represented a limitation of the scope of protection.

The amendments therefore complied with the requirements of Article 123(3) EPC.

In relation to Article 123(2) EPC, the objections of the Opposition Division had been overcome by incorporating the term "selectively" and the feature "wherein infrared ray penetrating the valuable paper (64) is ..." into claim 1.

The passage on page 18, lines 14 to 18 represented a general teaching which applied to all embodiments of the invention. Hence, incorporation of this teaching into claim 1 did not give rise to any inadmissible extension of subject-matter.

VI. The opponent argued essentially as follows:

On the question of compliance with Article 123(3) EPC, granted claim 1 requires that "the first light receiving element is 'receiving the first light reflected on the valuable paper (64) from the first light emitting element **and** the second light that penetrates the valuable paper (64) from the second light emitting element'" (emphasis in original).

If these method aspects were regarded as limiting features, then the Opposition Division had correctly construed granted claim 1 such that the various light emitting elements and light receiving elements were working simultaneously and permanently. By adding the word "selectively", the proprietor intended "to get protection on the idea to switch on the two light emitting elements at different points in time, whereas granted claim 1 only covered embodiments where the two light emitting elements are switched on at the same



time". This represented a violation of Article 123(3) EPC.

Furthermore, granted claim 1 comprised the feature:

*"one of the first and second lights is an infrared ray received by the receiving element for providing reference or basic light data..."*

Claim 1 of the main request filed with the statement of grounds of appeal defined that:

*"one of the first and second lights is an infrared ray wherein infrared ray penetrating the valuable paper (64) is received by the receiving element for providing reference or basic light data..."*

As a result, "the limitation that the (penetrating) infrared ray is one of the first and second lights, is no longer present. Instead, the (penetrating) infrared ray may now come from other light emitting elements, or from the ambient light conditions." The scope of protection was thereby extended, contrary to Article 123(3) EPC.

On the other hand, "if the Proprietor should construe the above feature such that the penetrating infrared light is identical to the 'one of the first and second lights'", then objections under Art 123 (2) EPC would apply as this feature had not been originally disclosed in such a specific manner, but only in the general sense set out on page 18, lines 14 to 18:

*"When infrared ray penetrates bill 64. it can be received by a light receiving element with less impact by colored ink printed on bill 64 but with impact by*

*paper quality of bill 64, and therefore, received infrared ray can provide reference or basic light data for detecting a light amount level of light other than infrared ray, such as red, green, yellow, blue or ultraviolet light."*

Consequently, "it has not been specified at all in the above-cited passage which light emitting element generates the penetrating infrared light which is then used to provide 'basic light data', i.e. the infrared light emitting element of claim 1 may indeed not be used for this purpose". Other infrared light emitting elements e.g. of the embodiment shown in Fig. 5 might be used, (the lines immediately preceding the cited passage referred to a plurality of "light emitting elements 20, 22, 24, 26, 30, 32, 34, 36, 40, 42, 46, 48, 50, 53, 56 and 58"). Indeed the disclosed penetrating infrared ray did not require a light source at all, as ambient light could serve to provide the basic light data.

Furthermore, it was not "disclosed that just one 'of the first and second lights' is used to provide 'basic light data'", and this was "now (inadmissibly) also covered by granted claim 1." Moreover, "it is completely unclear which element serves as 'the' light receiving element".

Even if the passage on page 18, lines 14 to 18 represented a general teaching which applied to all embodiments, the embodiments actually disclosed in the application (e.g. the embodiment of figures 5 and 6) were all more complex than the claimed invention (in which only two light emitting elements and two light receiving elements were defined). Incorporating this

teaching into claim 1 therefore represented an intermediate generalization.

Claim 1 recited "selectively" twice, once in relation to the first light receiving element and once in relation to the second light receiving element, and hence four separate selective measurements would be provided. This also represented a level of generality not disclosed in either the claims or description as filed.

Claim 1 as originally filed included the phrase "in the proximity to" which was now omitted from claim 1 of the main request, and claim 1 as originally filed did not include the word "transported" which was now included in claim 1 of the main request. Both amendments were contrary to the requirements of Article 123(2) EPC.

VII. The opponent also cited "the decision of the Opposition Division in the parallel opposition case against the divisional patent EP 1 752 932", and asserted that the findings of the Opposition Division in that case in relation to claim 5 supported its arguments in relation to Article 123(2) EPC in the present case.

VIII. With the summons to oral proceedings, the Board sent the parties a communication under Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) setting out the provisional view of the Board that claim 1 of the main request appeared to meet the requirements of Articles 123(2) and 123(3) EPC. The parties were advised that if this view were to be maintained in the final decision, it was likely that the Board would exercise its discretion under Article 111(1) EPC 1973 to remit the case to the department of first instance for further prosecution.

## Reasons for the Decision

1. The appeal is admissible.
2. *Claim 1 of the main request: Article 123(3) EPC*
  - 2.1 In claim 1 of the main request filed in oral proceedings before the Board, the proprietor amended one of the features objected to by the opponent under Article 123(3) EPC by including the definite article as follows:

*"one of the first and second lights is an infrared ray wherein **the** infrared ray penetrating the valuable paper (64) is received by the receiving element for providing reference or basic light data..."* (emphasis added).

Following the filing of this request and a subsequent invitation from the Chairman to comment, the proprietor declined to make any further remarks about this feature in relation to Article 123(3) EPC.

In the opinion of the Board, the inclusion of the definite article removes any possible doubt that the infrared ray received by the receiving element for providing reference or basic light data is one of the first and second lights, as defined also in granted claim 1. This feature does not, therefore, extend the scope of protection of claim 1 of the main request beyond that of granted patent.

2.2 The word "selectively" did not appear in claim 1 as granted, but appears in claim 1 of the present main request giving rise to an objection from the opponent under Article 123(3) EPC.

Granted claim 1 defines the first light receiving element "receiving" the (reflected) first light and the (penetrating) second light and the second light receiving element "receiving" the (reflected) second light and the (penetrating) first light. The Board takes the view that these features - referred to by the opponent as "method aspects" - impose a functional limitation on the claimed subject-matter in the sense that an optical sensing device is defined in which, in operation (i.e. during the detection of optical features of valuable papers), the first and second light receiving elements each receive both the first light and second light as set out in the claim.

The Board cannot, however, see why this formulation should be considered to impose any further limitation on the *manner* in which the light is received. In particular, no restriction to receiving light "simultaneously and permanently" is stated, nor can any such limitation be considered implicit.

Hence, purely on the basis of the wording of granted claim 1, receiving light simultaneously, non-simultaneously, permanently, non-permanently, selectively, non-selectively or in any other manner would fall within the scope of the claim. The amendment to "selectively receiving" in claim 1 of the main request would therefore represent a limitation, and not an extension or shift, of the scope.

However, in deciding whether an amendment extends the protection conferred, it is not only the literal wording of the claims in isolation which is to be considered; the extent of protection must be determined in accordance with Article 69(1) EPC and its Protocol (G2/88, OJ 1990, 93, Reasons, point 4). The description and drawings of the patent may therefore be used to interpret the scope of the granted claims.

It must therefore be asked whether, in the light of the description and drawings, the term "receiving" in claim 1 as granted should be interpreted in a special sense, in particular referring only to receiving light "simultaneously and permanently" or non-selectively. Clearly, any such interpretation is immediately ruled out by, for example, paragraphs [0016] and [0017] of the granted patent (see especially column 5, lines 8-28).

For the above reasons the Board concludes that the subject-matter of claim 1 of the main request meets the requirements of Article 123(3) EPC.

3. *Claim 1 of the main request: Article 123(2) EPC*

3.1 Claim 1 of the main request is constructed essentially from a combination of the subject-matter of claims 1, 2, 3 and 5 as originally filed, together with the feature disclosed on page 18, lines 14-18.

3.2 In relation to the subject-matter based on the passage on page 18, by including the word "penetrating" in claim 1 of the main request the objection of the Opposition Division to its omission has been overcome. The Opponent maintains, however, that other objections remain in relation to this feature.

3.3 The argument that incorporating this subject-matter into claim 1 results in an intermediate generalization does not persuade the Board. There is nothing to suggest that the idea disclosed in this passage - the use of the received penetrating infrared ray to provide reference or basic light data - is intended to be linked only to the specific embodiments described and depicted in the figures, and hence the Board regards this passage as providing a general technical teaching which could be advantageously applied to any optical sensing device according to the invention. The incorporation of this feature into claim 1 is not, therefore, seen as an intermediate generalization.

3.4 As mentioned above, claim 1 of the main request unambiguously defines that the penetrating infrared ray is one of the first and second lights. The opponent argues that this is not stated in the relevant passage (page 18, lines 14-18) nor elsewhere in the application. Furthermore, it is not implicit as there is no disclosure in the application that the light receiving elements receive *only* the first and second lights, and so the infrared ray could be emitted by any other infrared source in the system or could even be ambient radiation.

The Board does not agree with this analysis. Claim 1 defines a device comprising first and second photocouplers (5,6). The manner in which the photocouplers operate is disclosed in relation to the embodiment of figures 5 and 6. According to the passage of the originally filed description bridging pages 7 and 8, the light received by the first and second light receiving elements is that emitted by the first and second light emitting elements (i.e. the first and

second lights). This is also apparent from claim 2 as originally filed and clearly shown in the ray paths depicted in figures 5 and 6.

The Opponent cites passages such as that on page 18, lines 10-12 ("*light receiving element 21, 23, 25, 27, 31, 33, 35, 37, 41, 43, 47, 49, 51, 54, 57 and 59 that receive any light emitted from light emitting elements 20, 22, 24, 26, 30, 32, 34, 36, 40, 42, 46, 48, 50, 53, 56 and 58*") to support the assertion that the application as filed discloses that the light receiving elements receive light emitted by any of the light emitting elements. However, reading the passage in this way would imply, for example, that light receiving element 21 (depicted in figure 5) receives any light emitted from light emitting elements 40, 42, 46, 48, 50, 53, 56 and 58 (depicted in figures 9 and 10 as originally filed), which is clearly not the case as these features belong to two entirely separate embodiments (the second of which was in fact deleted from the granted patent).

In the opinion of the Board, the only sensible interpretation of this passage is that the light receiving elements receive any light emitted from the *respective* light emitting elements with which they are in optical communication, as depicted in figures 5, 6, 9 and 10 of the application as originally filed.

Finally, the contention of the Opponent that the skilled person would be aware of optical sensing devices of the prior art light in which light receiving elements receive light from any of the light emitting elements is - even if true - not relevant to the assessment of compliance with Article 123(2) EPC.



The Board therefore judges that the application as filed discloses that the light received by the light receiving elements of the first and second photocouplers is that emitted by the light emitting elements of the first and second photocouplers (i.e. the first and second lights), and that the reception of any other light by these light receiving elements is not disclosed.

Consequently, in claim 1 it is implicit that the penetrating infrared ray received by the receiving element is one of the first and second lights, and hence including this feature does not constitute an extension of subject-matter.

- 3.5 Concerning the Opponent's other objections in relation to this feature, it follows from the discussion above that it is disclosed that just one of the first and second lights (namely, the infrared ray) is used to provide basic light data.

Whether the objection that "it is completely unclear which element serves as 'the' light receiving element" actually relates to Article 123(2) EPC is debatable, but in any event "the receiving element" of claim 1 is that element receiving the penetrating infrared ray.

- 3.6 Claim 1 of the main request includes the term "selectively", thereby overcoming the objection of the Opposition Division under Article 123(2) EPC in this respect.

The opponent's additional objection that the manner in which the term "selectively receiving" has been incorporated (twice) into claim 1 contravenes the requirements of Article 123(2) EPC is not convincing.

In claim 1 as originally filed each of first and second photocouplers has a light emitting element and a light receiving element, hence two light emitting elements and two light receiving elements are defined. Each light receiving element is "for selectively receiving the light from the light emitting element". Claim 2 as originally filed is dependent on claim 1 and defines first and second light emitting elements and first and second light receiving elements.

Claim 2 as originally filed does not explicitly define that the first and second light emitting elements are the same as the two light emitting elements of claim 1, and neither does it explicitly define that the first and second light receiving elements are the same as the two light receiving elements of claim 1. Nevertheless, in the light of the wording and dependency relationship of these claims, and in view of the disclosure of the application as a whole, the Board judges that the only reasonable interpretation is that these identifications are indeed intended. In other words, in order to further define and specify the functions of the two light emitting elements and the two light receiving elements of claim 1 as originally filed, these same elements are referred to in claim 2 as the first and second light emitting elements and the first and second light receiving elements.

Hence by virtue of the dependency of original claim 2, the limitation to "selectively receiving" of claim 1 applies to the first and second light receiving elements, as in claim 1 of the present main request.

For this reason, and in view of the essentially similar wording of the passage on page 7, lines 20-27 of the

description, the Board sees nothing in the occurrence of the phrase "selectively receiving" twice in claim 1 of the main request that is not unambiguously derivable from the application as originally filed.

3.7 The omission in claim 1 of the main request of the feature "in the proximity to..." of claim 1 as filed also does not give rise to an inadmissible extension of subject-matter. Claim 1 of the main request uses the formulation "apposed to" (derived from original claim 5), and the online edition of the Oxford English Dictionary defines the verb "to appose" as: "To place in apposition or juxtaposition; to range side by side". The word "apposition" is defined as: "The placing of things in close superficial contact; the putting of distinct things side by side in close proximity" or "The fact or condition of being in close contact, juxtaposition, parallelism". Being in proximity to something is therefore an inherent aspect of being apposed to it, and hence no violation of the requirements of Article 123(2) EPC results from this amendment.

3.8 Claim 1 of the main request comprises the feature: "a passageway for guiding the transported valuable paper", whereas the word "transported" was not in claim 1 as originally filed. The opponent argues that the amendment "suggests that the guiding effect of the bill takes place after the bill has been transported. However, it follows from the original application documents that the bill is guided during its movement during (sic) the passageway".

The Board entirely agrees that there can be no doubt that the bill is guided during its movement, i.e. as it is transported through the passageway. The passageway

is defined in claim 1 as originally filed as "a passageway (13) for guiding the valuable paper" and in claims 8 and 11 as "a passageway (13) for guiding the *transported* valuable paper" (emphasis added). This minor variation in terminology does not represent any difference of substance, as guiding the valuable paper necessarily implies simultaneous transportation of the valuable paper. Hence no inadmissible extension of subject-matter is seen in this amendment.

3.9 Finally, it is not considered that the opponent has provided any convincing explanation why "the decision of the Opposition Division in the parallel opposition case against the divisional patent EP 1 752 932" has any bearing on the present case, and the Board does not consider it relevant.

3.10 Consequently the Board judges that the subject-matter of claim 1 according to the main request meets the requirements of Article 123(2) EPC.

#### 4. *Further procedure*

4.1 The patent was revoked on the grounds that the requests on file failed to meet either the requirements of Article 123(2) EPC or those of Article 123(3) EPC. Consequently the decision of the Opposition Division did not consider the other grounds raised by the opponent in the notice of opposition.

4.2 For the reasons stated above, claim 1 of the present main request is judged to meet the requirements of Articles 123(2) and 123(3) EPC. The Board therefore exercises its discretion under Article 111(1) EPC 1973 to remit the case to the first instance for further prosecution, thereby allowing both parties to have the

other matters referred to above considered before two instances.

For the avoidance of any doubt, the Board wishes to stress that it has decided only that claim 1 of the main request filed during oral proceedings before the Board meets the requirements of Articles 123(2) and 123(3) EPC. All other matters remain to be decided by the Opposition Division in the remitted procedure.

## 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 for further prosecution.

The Registrar:

The Chairman:



S. Sánchez Chiquero

G. Eliasson

Decision electronically authenticated