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Bezeichnung der Erfindung: Authenticator device and related method and apparatus for production and use
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : G06K 5/00

ENTSCHEIDUNG / DECISION

vom / of / du 10 December 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent / Titulaire du brevet : LIGHT SIGNATURES INC.

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Articles 56, 69, 100(a), 123(2)

Schlagwort / Keyword / Mot clé : "Extension beyond content of application (no - in proper interpretation of claim)" - "Inventive step (no) - obvious selection of a known possible alternative"

Leitsatz / Headnote / Sommaire

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Case Number : T 164/90 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 10 December 1990

Appellant : (Proprietor of the patent)
LIGHT SIGNATURES, INC.
6171 West Century Boulevard
Los Angeles
California 90045
US

Representative :
Coles, Graham Frederick
Sommerville & Rushton
11 Holywell Hill
St Albans
Hertfordshire AL1 1EZ
GREAT BRITAIN

Respondent : (Opponent)

Representative :

Decision under appeal : Decision of the Opposition Division of the European Patent Office dated 3 January 1990 revoking European patent No. 0 054 071 pursuant to Article 102(1) EPC.

Composition of the Board :

Chairman : P.K.J. van den Berg
Members : W.B. Oettinger
F. Benussi

Summary of Facts and Submissions

I. The grant of European patent No. 54 071 on the subject-matter of European patent application 81 901 976.1, claiming a priority of 23 June 1980 and filed as international patent application PCT/US 81/00853 on 19 June 1981, was published on 4 December 1985.

Claim 1 as granted was directed to an authenticator device for verifying authenticity, and was followed by dependent Claims 2 to 7.

Claim 8 was directed to a method of producing an authenticator device according to Claims 1 to 5, and followed by dependent Claims 9 to 11.

Claim 12 was directed to a method for verification of an authenticator according to one of Claims 1 to 5.

Claim 13 was directed to an apparatus for producing authenticators according to Claims 1 to 5, and followed by dependent Claim 14.

Claim 15 was directed to an apparatus for verifying authenticators according to one of Claims 1 to 5, and followed by dependent Claims 16 to 18.

II. During the pre-grant procedure, the Examiner had cited, inter alia, the following prior art document:

DE-A-2 829 778 (hereinafter referred to as C3)

and a third party further cited, inter alia, the following prior art documents:

CH-A-529 398 (C1)
CH-A-569 333 (C2).

III. On 29 August 1986, an admissible opposition (I) was filed on the ground that the subject-matter of Claim 1 and of all other claims would lack an inventive step having regard, inter alia, to C1 and the following further prior art document:

Handbuch der Papier-und Pappenfabrikation (Papier-Lexikon) Zweite Auflage, Band II, Seite 2055 (1971) (hereinafter referred to as C4a).

On 2 September 1986, another admissible opposition (II) was filed on the ground that the subject-matter of Claims 1 and 2 would lack novelty and that of all the other claims would either be self-evident or at least obvious, having regard, inter alia, to C1 and C2.

During the opposition procedure, the patentee referred to:

Loc. cit. Handbuch ... but pages 2056/2057 (C4b).

IV. On 24 December 1986, the Opponent II withdrew his opposition.

V. By a decision announced in oral proceedings on 10 October 1989, with a full reasoning posted on 3 January 1990, the Opposition Division of the EPO revoked the patent for the reason that the subject-matter of Claim 1, although being novel, does not involve an inventive step

in view of the cited prior art, and that the same is true for the other claims of independent categories (8, 12, 13, 15) and for the dependent claims.

VI. On 26 February 1990, the proprietor of the patent lodged an appeal against that decision, impugning the said decision in respect of its findings in full.

The appeal fee had been paid a few days before.

VII. On 2 May 1990, the Opponent I withdrew his opposition.

VIII. On 3 May 1990, the Appellant filed a Statement of Grounds of Appeal, contesting the Opposition Division's finding, but included an auxiliary request based on independent Claims 8, 12, 13 and 15.

IX In response to a communication pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal, the Appellant filed, on 9 November 1990, an "Appendix A" with a first alternative version of Claim 1 (subsequently called Claim A) and an "Appendix B" with a second alternative version of Claim 1 (subsequently called Claim B) constituting the Appellant's first and second auxiliary requests respectively. In the accompanying letter he declared further that his former auxiliary request, with a minor amendment, should be treated as his third auxiliary request.

X. In the oral proceedings, requested subsidiarily by the Appellant and held on 10 December 1990, he filed, however, a further three versions of Claim 1, marked C, D and E (subsequently called Claims C, D and E), and requested that these be treated as his further auxiliary requests.

The Appellant's requests to be considered are therefore:

- That the impugned decision be set aside and
- the patent be maintained either:
  - unamended (main request) or
  - as amended (auxiliary requests), viz. on the basis of Claim A, Claim B, Claim C, Claim D or Claim E (first to fifth auxiliary requests to be considered in this order).

The various versions of Claim 1 read as follows:

Claim 1:

"An authenticator device for verifying authenticity, as of a specific product, document or person, and including a sheet of medium having a random characteristic over an area of said sheet, said authenticator device also including machine-readable indicia thereon that is decodable to specify said characteristic of said sheet at a specific location of said area characterised by the use of a sheet of medium having the random characteristic inherent in the form of varying degrees of translucency which are measurable and recordable in a manner to serve as the principal authentication feature."

Claim A:

"... (pre-characterising portion as Claim 1) ..., characterised by the use of a sheet of medium having the random characteristic inherent in the form of varying degrees of translucency which are measurable and recordable in a manner to serve as the principal authentication feature in that it is solely the degree of translucency inherent to the sheet material at the specific location, that is specified by the decoded indicia."

Claim B:

"An authenticator device for verifying authenticity, as of a specific product, document or person, and including a sheet of medium having a random characteristic over an area of said sheet, said authenticator device also including machine-readable indicia thereon that is decodable to specify a measurement of said characteristic of said sheet at a specific location of said area, characterised by the use of a sheet of medium having the random characteristic inherent in the form of varying degrees of translucency which are measurable and recordable in a manner to serve as the principal authentication feature of said area in that the specified measurement of said characteristic at said location is a measurement solely of the degree of inherent translucency of the sheet medium at that location."

Claim C:

"An authenticator device for verifying authenticity, as of a specific product, document or person, and including a sheet of medium having a random characteristic over an area of said sheet, said authenticator device also including machine-readable indicia recorded thereon that are decodable to specify measurements dependent on said characteristic at individual ones of a plurality of specific locations of said area, characterised by the use of a sheet of medium having the random characteristic inherent in the form of varying degrees of translucency which are measurable and recordable in a manner to serve as the principal authentication feature of said area to the extent that each measurement recorded in respect of that area is dependent on the degree of inherent translucency of the sheet medium at the respective

measurement-location, and that at least one of the recorded measurements is solely of the degree of inherent translucency of the sheet medium."

Claim D:

"An authenticator device for verifying authenticity, as of a specific product, document or person, and including a sheet of medium having a random characteristic over an area of said sheet, said authenticator device also including machine-readable indicia recorded thereon that are decodable to specify measurements dependent on said characteristic at individual ones of at least three specific locations of said area, characterised by the use of a sheet of medium having the random characteristic inherent in the form of varying degrees of translucency which are measurable and recordable in a manner to serve as the principal authentication feature of said area to the extent that each measurement recorded in respect of that area is dependent on the degree of inherent translucency of the sheet medium at the respective measurement-location, that at least one of the recorded measurements is solely of the degree of inherent translucency of the sheet medium at one of the three locations, and that the three locations are out of alignment with one another."

Claim E:

"... (pre-characterising portion as Claim C) ..., characterised by the use of a sheet of medium having the random characteristic inherent in the form of varying degrees of translucency which are measurable and recordable in a manner to serve as the principal

authentication feature of said area to the extent that each measurement recorded in respect of that area is solely of the degree of inherent translucency of the sheet medium."

XI. In essence, the Appellant's submissions made in support of his requests can be summarised as follows:

None of the prior art documents suggests to use the inherent random translucency variations as the principal authentication feature.

All the teaching in C1 is related very much to the finding (column 1, lines 31 to 36) that tolerances in printing and colour can be used as authentication features. The general reference to paper properties (column 2, lines 25 to 28) is, in this context, not an unambiguous teaching to consider translucency variations inherent in the material of the sheet of medium, in place of printing and colour tolerances.

The same applies to C2. The paper properties mentioned there generally (column 2, lines 22 to 24) are not directly related to the translucency measurement proposed for sensing the print, colour or similar tolerances (column 2, lines 15 to 22).

C4 does mention translucency as one kind of paper property but only of paper sheets as a whole.

C3 does mention translucency variations in the form of "cloudiness and watermarks" (page 20) as possible "random generators" for individualising credit cards or the like, but does not suggest to use cloudiness of its own. From the specific teaching of C3, dealing with the avoidance of a tracking problem with the help of a distinctive line strongly contrasting with its surroundings, e.g. by the

use of fluorescent particles, in combination with a slotted aperture of the sensor, it must be concluded that cloudiness cannot be used as the principal authentication feature, but only additionally, and this is confirmed by page 15/16. On page 19, C3 advocates the use of as many such features as possible.

In contrast, the claimed invention selects inherent translucency variations as the principal authentication feature and by relying on this, has the unexpected advantage of significant economy, due to the recognition that each sheet of medium has its own characteristic "thumb print" without anything of the kind proposed in the prior art being done.

Reasons for the Decision

1. The appeal is admissible (Articles 106 to 108 and Rule 64 EPC).

2. The impugned decision being a decision of revocation of the patent and the Appellant being the patentee and requesting its cancellation, the necessity of a decision on the case is not affected by the fact that meanwhile both oppositions have been withdrawn.

3. Formal matters of main request:

The oppositions were not based on the ground for opposition allowed by Article 100(c) EPC but in the course of the opposition procedure an equivalent objection was raised under Article 123(2) EPC.

The feature objected to under that provision is the feature that the characteristic serving as an authentication feature is measurable and recordable in a

manner to serve as the "principal" authentication feature. The expression "principal" had not been used in the original application documents.

However, the expression "principal" being interpretable, the Board chooses, for the purpose of avoiding any valid objection under Article 123(2) EPC, to interpret it in Claim 1 exclusively in a manner supported by the original application documents and in the sense submitted by the Appellant, namely as meaning that the inherent translucency variations are such as to enable the authentication to rely exclusively on this feature alone.

4. Formal matters of the amendments (auxiliary requests):

Claim A is intended to clarify the expression "principal".

This clarification is based on the absence of other than inherent translucency variations at point D3 in the Figure 11 embodiment or, moreover, at any measuring point in the Figure 1 embodiment. It does not exclude that the translucency variations at other points (D1, D2, D4) in the Figure 11 embodiment are predominantly non-inherent ones.

The same applies, in effect, to Claim B.

Claims C and D, mentioning more than one measuring point but defining the translucency variations of only one of them, are also based on the embodiments described with reference to Figures 1 and 11.

Claim E restricts the patent, in effect, to the embodiment shown in Figure 1 insofar as the space 14, and, thus, any measuring point inside it, is free of any other than

inherent translucency variations. The Board takes, in this context, the Appellant's fifth auxiliary request as including the deletion of the Figure 11 embodiment which would be inconsistent with this restriction.

For these reasons, no objection under Article 123(2) or Article 123(3) EPC arises against any of the amended Claims A to E and there is, furthermore, no reason for raising any other formal objection.

5. The issue left to be decided is the question of patentability within the meaning of Article 52 EPC.

More specifically, since the Opposition Division decided that the subject-matter claimed is novel and the Board sees no reason to take up the lack of novelty objection originally made by the Opponent II, the issue to be decided is only whether the subject-matter claimed in the independent claims as granted (main request) or, if not, in the amended claims (auxiliary requests), involves an inventive step.

6. Having heard the Appellant's arguments in support of an inventive step underlying the subject-matter of Claim 1, the Board is not convinced by these arguments and the Appellant's main request must, therefore, be rejected.

This conclusion is essentially based on the following considerations:

6.1 Of all the prior art documents relating to authenticator devices as defined in the pre-characterising portion of Claim 1, C1, C2 and C3 appear of increasing relevance insofar as C2 adds translucency measurements (albeit for non-inherent characteristics) to C1, and C3 adds measurement of inherent translucency variations to C2.

Other than the Opposition Division, the Board considers, therefore, C3 to be the closest prior art.

6.2 C3 deals specifically with the problem of "hitting", when verifying an authenticator device, the track in which the authentication feature had been measured for the purpose of recording it on the device (page 7).

It proposes, for solving this problem, to give the sensor a slotted aperture allowing for greater degrees of misalignment of the track. It is, for this reason, clear that the surroundings of the track must not contribute to the sensed translucency variations, and C3 stresses, therefore, the requirement that the track contrasts strongly with its surroundings (pages 10 to 11 and 19). In the embodiment described in detail (Figures 1 and 2), this is achieved by using a fluorescent line (pages 10 ff) but C3 is not restricted to this example (cf. page 20, last paragraph).

In its summarising paragraph (on page 19), C3 states, apart from the requirement of strong contrast, that the stripe constituting the track line must modulate the characteristic to be sensed by "at least one" random function, and in the following paragraph it mentions that the authenticity test is the better the more random functions are used. As examples, it mentions then a number of different characteristics, one of which are various degrees of dispersion in the paper due to "cloudiness and watermarks".

On page 16 it is stated that where the absorption of fluorescent emissions is tested by a translucency measurement, the result is influenced, or modulated additionally, by the cloudiness or watermarks.

However, from Claim 16 on page 4 it is clear that the random distribution of absorbing or dispersing areas are either "constituted or additionally influenced" by cloudiness and watermarks. The possibility of using only the inherent translucency variations as authentication feature can be derived from this statement as clearly as from the statement on page 19. The reference in Claim 16 to Claims 1 and 2 combines this statement only with the requirement that the random information must be readable "only" from a linear track and that the respective characteristic is randomly distributed therein.

6.3 It has been submitted by the Appellant that this latter condition could not be fulfilled with cloudiness. This submission is unconvincing.

It would not, in the opinion of the Board, be impossible for a skilled person to find a solution for the problem that even though cloudiness would normally extend over the whole sheet of medium, in the case of using it in the way C3 suggests (pages 19 and 4), only a small stripe of it must "show".

The Board is of the opinion that the skilled reader of C3 would well recognise that if any significant misalignment is avoided a priori by whatever means, the teaching of C3 to use the inherent cloudiness only within a linear track as the, or an, authentication feature can be put into reality directly, namely by reading the linear track (cf. Figure 1b) with a correspondingly small aperture of the sensor. Alternatively, if the misalignment is not negligible, the skilled reader of C3 would still recognise that its teaching can be put into reality by any suitable measure compensating for this misalignment.

6.4 Apart from that, when comparing the patent in suit with the disclosure of C3, it must be borne in mind what is disclosed and claimed in the patent.

It is clear that with the claimed authenticator device the same misalignment problem may arise as with any prior art authenticator, but Claim 1 leaves it completely to the reader how he wishes either to avoid any misalignment or to compensate for its effects.

Apparently, the embodiment described with reference to Figure 11 is based on the assumption that any misalignment is not significant and the Figure 1 embodiment uses the other alternative by means of corner indicia.

6.5 On this basis, the subject-matter of Claim 1 is regarded as an obvious selection of one of the alternative kinds, mentioned in C3, of implementing an authenticator device as defined in the preamble of Claim 1, such implementation appearing clearly feasible from C3 when being read with the skills of the person skilled in the art.

6.6 This finding is not rendered questionable by the Appellant's submission that the claimed invention has an unexpected advantage.

It is, in the opinion of the Board, a matter of course following directly from the teaching of C3 to consider using cloudiness and watermarks possibly alone as an authentication feature, that this would have the economical advantage that nothing needs to be done to add, subsequent to the making of the sheet of medium, any particular authentication feature.

6.7 In the circumstances, it is not necessary to refer to C2, or C1.

It may only be added to the above argumentation that it follows from these documents that, aside from print, colour and other artificial characteristics, any "paper properties" not further specified come into question as possible alternative authentication features.

The expression "paper properties" normally referring to properties inherent in the paper, and cloudiness, i.e. translucency variations, being generally known as one of these properties, C2 and C1 would appear to confirm that such an authentication feature as translucency variations can be exploited in a more general environment than in the specific context of the preferred embodiment of C3 with a slotted sensor aperture.

7. The Board interprets, in accordance with the Appellant, Claim A as adding no technical feature to Claim 1, its purpose only being to clarify the expression "principle".

The arguments developed above against Claim 1 in its proper interpretation (cf. paragraph 3) are, therefore, fully applicable to Claim A as well.

The Appellant's first auxiliary request must, therefore, be rejected.

8. The same applies, in effect, to Claim B and the Appellant's second auxiliary request.

9. The effective difference between Claim C and Claims 1, A and B is that it requires at least one additional measurement at a different location to be made without, however, requiring that this additional measurement is a measurement solely of the degree of inherent translucency.

Apparently, for this case, C3 is as relevant as it is for Claims 1, A and B.

In C3, cf. Figures 1 and 2, the measurement is made along a line including many points of measurement.

The Appellant's third auxiliary request must, therefore, be rejected.

10. Claim D adds to Claim C the feature that at least a third measurement at a third location is made and that the three locations are out of alignment with one another.

In effect, this means that if two locations define a particular line, the third does not lie on this line, as in the case for instance with D1, D2 and D3 in Figure 11.

In C3, it is proposed to choose the position of the track line on a credit card or the like either in a central region (Figure 1) or in a signature region nearer to the top of the card (Figure 2), depending on whether or not the measurement is desired to include features of this signature.

On this basis, a combination of two track lines lies clearly within the obvious possibilities and an incentive for such a combination can be found in the statement that the authenticity test will be the more reliable the more "generators" for random functions are used.

The Appellant's fourth auxiliary request must, therefore, be rejected.

11. Claim E is, in effect, a different kind of restriction of Claim C.

It differs therefrom by prescribing that all measurements are measurements of the degree of inherent translucency.

In the opinion of the Board, this is also a case included in what is obvious from C3. If the track line is not positioned in the signature stripe (Figure 2) but elsewhere (Figure 1) and only cloudiness and watermarks are measured as suggested by the statements on page 19/20 and on page 4 (Claim 16), all points of measurement along the track line are points where solely the inherent translucency variations are measured.

The Appellant's fifth auxiliary request must, therefore, be rejected as well.

12. It is noted that none of the various versions of Claim 1 is restricted by further features of the embodiments described. For instance, no feature concerning the selection and recording of the locations of measurement is claimed in any of these versions of Claim 1.

However, it was felt that the Appellant's fifth auxiliary request was made only reluctantly and constituted the ultimate restriction of the patent which would still be of interest to the Appellant. Moreover, the Board could not recognise, in the embodiments described, any particularity which would clearly appear to go beyond what is obvious to a person skilled in the art. Referring to the aforementioned recording of the localities of measurement, such is known, for instance, from C1 (column 2, lines 29 to 32), rendering its application in the context of C3 obvious.

For this reason, the Board considered that the multiple opportunity to present subsidiary submissions, given to the Appellant by a communication and the oral proceedings

in which the Board admitted a multiplicity of auxiliary requests, was sufficient.

It was, for instance, not found necessary to refer to the Appellant's earlier request based on deletion of Claims 1 to 7. Claim 8 could clearly not be regarded as a basis for a different decision. It contains merely the same restrictions as Claim 1 with the only additional specification that the sheet of medium is selected to suit the purpose which is, however, an obvious step to do for the skilled person when envisaging producing an authenticator device according to Claim 1.

In this situation, no comment is further necessary on the subsequent claims of independent categories, or on the dependent claims.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar: **The Chairman:**

M. Kiehl P.K.J. van den Berg