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**D E C I S I O N**  
**of 20 October 2005**

**Case Number:** T 1005/02 - 3.5.01  
**Application Number:** 94914101.4  
**Publication Number:**  
**IPC:** G06K 7/00, G06K 19/12,  
G07F 7/08  
**Language of the proceedings:** EN

**Title of invention:**

Method and apparatus for fingerprinting and authenticating  
magnetic media

**Applicant:**

Washington University

**Opponent:**

-

**Headword:**

Fingerprinting magnetic media/WASHINGTON UNIVERSITY

**Relevant legal provisions:**

EPC Art. 54, 56, 123(2)

**Keyword:**

"Novelty (no: main request and auxiliary requests 1 to 4)"

"Amendments - added subject-matter (yes: main request and  
auxiliary requests 2, 2A, 2B and 5)"

"Inventive step (yes: auxiliary request 6)"

**Decisions cited:**

T 0967/97, T 0170/02

**Catchword:**

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Case Number: T 1005/02 - 3.5.01

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.01  
of 20 October 2005

**Appellant:** Washington University  
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**Representative:** Parkinson, Neil Scott  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 15 May 2002  
refusing European application No. 94914101.4  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** S. Steinbrener  
**Members:** R. Zimmermann  
G. Weiss

## Summary of Facts and Submissions

- I. European patent application number 94 914 101.4 (publication No. WO-A-94/24638, international filing date 8 April 1994) concerns a method and device for fingerprinting and authenticating magnetic media. The application claims a priority date of 9 April 1993 from US patent application serial No. 08/046 040.
- II. The examining division refused the application on 15 May 2002. The reasons given in the decision for the refusal were added subject-matter and lack of novelty in the light of document US-A-4 985 614 (published in 1991).
- III. The applicant lodged an appeal against the decision. The notice of appeal and the statement setting out the grounds of appeal were filed on 12 July 2002 and 24 September 2002, respectively. The appeal fee was paid on 15 July 2002.
- IV. In oral proceedings held on 20 October 2005, the Board discussed the issues in question with the appellant's representative. The representative was accompanied by Professor Ronald S. Indeck, one of the inventors designated in the application.

The Board introduced as (intermediate) prior art, the article IEEE Transactions on Magnetics, vol. 29, No. 6, November 1993, pages 4095 to 4097, Ronald S. Indeck et al. "Fingerprinting Magnetic Media" (cited below as document D5).

- V. The representative submitted the following requests at the oral proceedings: The decision under appeal should be set aside and the patent should be granted on the basis of the claims as filed with letter of 24 September 2002 in accordance with the main request or alternatively in accordance with one of auxiliary requests 1 to 3 or alternatively on the basis of the claims as filed with letter of 12 October 2005 in accordance with auxiliary request 4 or alternatively on the basis of the claims filed at the oral proceedings in accordance with auxiliary requests 2A, 2B, 5, and 6.
- VI. The claims expressly considered at the oral proceedings read as follows:

Claim 1 of the main request and of auxiliary request 1:  
"A device for fingerprinting an object for the later determination of its identity, said object including at least in part, a magnetic medium portion (40, 54), said device having means (106, 108, 110) for determining a remanent noise for said medium portion, said remanent noise comprising the fingerprint for said object, and means (101, 112) for recording said remanent noise for later comparison with the later determination of said remanent noise to thereby identify said object."

Claim 9 of the main request and of auxiliary requests 2, 2A, and 2B, and claim 12 of auxiliary request 5:  
"An object according to claim 2 wherein said fingerprint comprising the remanent noise for said magnetic medium portion is determined by a first read of said magnetic medium portion, and a speed of said read is recorded in association with said fingerprint for later use in compensating for differences between a

speed of a subsequent read and the speed of said first read."

Claim 1 of auxiliary requests 2 and 3:

"A device for fingerprinting an object for the later determination of its identity, said object including at least in part, a magnetic medium portion (40, 54), said magnetic medium portion having a microstructure, said device having means (106, 108, 110) for determining a remanent noise for said medium portion, said remanent noise corresponding to said microstructure and comprising the fingerprint for said object, and means (101, 112) for recording said remanent noise for later comparison with the later determination of said remanent noise to thereby identify said object."

Claim 1 of auxiliary request 2A:

"A device for fingerprinting an object for the later determination of its identity, said object including at least in part, a magnetic medium portion (40, 54), said magnetic medium portion having a microstructure comprising particles or grains being thousands of Angstroms or less in dimension, said device having means (106, 108, 110) for determining a remanent noise for said medium portion, said remanent noise corresponding to said microstructure comprising particles or grains being thousands of Angstroms or less in dimension and comprising the fingerprint for said object, and means (101, 112) for recording said remanent noise for later comparison with the later determination of said remanent noise to thereby identify said object."

Claim 1 of auxiliary request 2B:

"A device for fingerprinting an object for the later determination of its identity, said object including at least in part, a magnetic medium portion (40, 54), said magnetic medium portion having a microstructure comprising particles or grains being hundreds to thousands of Angstroms in dimension, said device having means (106, 108, 110) for determining a remanent noise for said medium portion, said remanent noise corresponding to said microstructure comprising particles or grains being hundreds to thousands of Angstroms in dimension and comprising the fingerprint for said object, and means (101, 112) for recording said remanent noise for later comparison with the later determination of said remanent noise to thereby identify said object."

Claim 1 of auxiliary request 4:

" 1. A device for fingerprinting an object for the later determination of its identity, said object including at least in part, a magnetic medium portion (20, 42, 50), said magnetic medium portion comprising a plurality of microcrystalline structures (22) that are arranged in a random pattern, said device having: means (100, 106, 108, 110, 114) for determining, from a region (40, 54) of said magnetic medium portion that is substantially uniformly magnetized, a remanent noise arising from said pattern of microcrystalline structures within said region, said remanent noise comprising a fingerprint for said object, and means (101, 112) for recording said remanent noise for a later comparison with a later determination of said remanent noise to thereby identify said object."

The claims of auxiliary request 6:

"1. A device for fingerprinting an object for the later determination of its identity, said object including at least in part, a magnetic medium portion (20, 42, 50) having data recorded thereon in the form of a plurality of magnetic transitions, said magnetic medium portion comprising a plurality of microcrystalline structures (22) that are arranged in a random pattern, said device having:

means (100, 106, 108, 110, 114) for determining, from a region (40,54) of said magnetic medium portion that is located between two successive ones of said magnetic transitions, a remanent noise arising from said pattern of microcrystalline structures within said region, said remanent noise forming a fingerprint for said object, and

means (101, 112) for recording said remanent noise for a later comparison with a later determination of said remanent noise to thereby identify said object.

2. An object having its fingerprint recorded thereon for the later verification of its identity, said object having a magnetic medium portion (20, 42, 50) having data recorded thereon in the form of a plurality of magnetic transitions, said magnetic medium portion comprising a plurality of microcrystalline structures (22) that are arranged in a random pattern, said fingerprint resulting from a remanent noise arising from said pattern of microcrystalline structures, in a region (40, 54) of said magnetic medium portion that is located between two successive ones of said magnetic transitions.

3. The object of Claim 2 wherein said object is a magnetic data card (48), and said magnetic medium portion is a magnetic stripe (50) on said magnetic data card.

4. A device for authenticating an object having a fingerprint recorded therefor, said object having a magnetic medium portion (20, 42, 50) having data recorded thereon in the form of a plurality of magnetic transitions, said magnetic medium portion comprising a plurality of microcrystalline structures (22) that are arranged in a random pattern, said recorded fingerprint resulting from a previously determined remanent noise arising from said pattern of microcrystalline structures in a region (40, 54) of said magnetic medium portion that is located between two successive ones of said magnetic transitions, said device including:  
means (100) for reading said recorded fingerprint,  
means (106, 108, 110) for translating said previously determined remanent noise from said recorded fingerprint,  
means (100, 106, 108, 110) for determining, directly from the same region of said magnetic medium portion, a remanent noise arising from said pattern of microcrystalline structures, and  
means (114) for comparing said translated remanent noise with said directly determined remanent noise to determine whether they match, thereby authenticating said object.

5. A method for authenticating an object, said object including at least in part a magnetic medium portion (20, 42, 50) having data recorded thereon in the form of a plurality of magnetic transitions, said magnetic



medium portion comprising a plurality of microcrystalline structures (22) that are arranged in a random pattern, said object having a fingerprint recorded, said fingerprint resulting from a previously determined remanent noise arising from said pattern of microcrystalline structures, and wherein said previously determined remanent noise was determined from a region (40, 54) of said magnetic medium portion that is located between two successive ones of said magnetic transitions, said method comprising the steps of:

determining a remanent noise arising from said pattern of microcrystalline structures directly from the same region of said magnetic medium portion, reading said recorded fingerprint, and comparing said directly determined remanent noise with said fingerprint to determine whether said object is authentic.

6. A method for fingerprinting an object for the later determination of its identity, said object including at least in part a magnetic medium portion (20, 42, 50) having data recorded thereon in the form of a plurality of magnetic transitions, said magnetic medium portion comprising a plurality of microcrystalline structures (22) that are arranged in a random pattern, said method comprising the steps of:

determining, from a region (40, 54) of the magnetic medium portion that is located between two successive ones of said magnetic transitions, a remanent noise arising from said pattern of microcrystalline structures within said region, said remanent noise forming a fingerprint, and

recording said fingerprint for a later comparison thereof with a later determination of said remanent noise from said region.

7. The device of claim 4 wherein said recorded fingerprint comprises a signal corresponding to a first read of said remanent noise wherein said means for determining includes means for determining said remanent noise directly from said same region of said magnetic medium portion by a second read thereof and wherein said means for comparing includes means for compensating for differences between said first read and said second read due to different speeds of reading said same region of said magnetic medium portion.

8. The method of claim 5 wherein said fingerprint results from the remanent noise for said magnetic medium portion previously determined by a first read thereof, wherein said remanent noise determining step comprises determining a remanent noise directly from said magnetic medium portion by a second read thereof, and wherein said method further comprises:  
compensating for differences between said first read and said second read due to different speeds of reading said region of said magnetic medium portion.

9. The method of claim 5 wherein said remanent noise determining step comprises:  
dc saturating said region; and  
determining said remanent noise from said dc saturated region.

10. The method of claim 6 wherein said remanent noise determining step comprises:  
do saturating said region; and  
determining said remanent noise from said dc saturated region."

VII. In support of the appeal the appellant essentially submitted the following arguments:

The amendments of the claims were supported by the application as originally filed. In particular, recording the speed as defined in claim 9 of the main request and the auxiliary requests 2, 2A, and 2B, and in claim 12 of auxiliary request 5 was disclosed since the invention involved at least two readings of the magnetic medium for authentication, which were effected by different reading devices producing variations in the reading speed. As indicated in the description, page 23, lines 30 to page 25, line 5, the variance could be compensated for by measuring the velocity and adjusting the sampling rate to match the velocity. This implied that the velocity measured must be stored in association with the fingerprint for later use since otherwise a reliable authentication would be impossible under realistic circumstances.

The invention was also clearly patentable over the prior art. The invention was based on findings from experimental research, as reported by the inventor and others, which showed that a uniformly magnetized medium exhibited invariant magnetic features associated with the medium's physical microstructure. These features resulted from the spatial variations and magnetic properties of the individual grains being only few

thousands of Angstroms or less in dimension. At remanence, in particular after dc saturation, the microstructure of the medium produced a noise component ("remanent noise") in the read-back signal, which could be sensed by a conventional recording head. This noise component was spatially varying but reproducible and deterministic in the sense that it was only determined by the permanent microstructure of the magnetic material. Because of the very fine dimensions of the grains which made up the microstructure, only some tens to hundreds of micrometers were sufficient to obtain a fingerprint of the medium. As magnetic medium portion for taking the fingerprint, a minimal region could be chosen, like the one between two successive magnetic transitions of a recorded data signal as shown in figures 24 and 25 of the present application.

Exploiting the microstructure clearly distinguished the invention from the prior art of document D1, where the fingerprint was determined from long range variations of the magnetic medium extending over more than two inch length of the magnetic medium. Such macroscopic variations of the magnetic characteristics were achieved by physical manipulations like embossing, scratching, spraying etc. Moreover, the method of document D1 required the application of a signal to the medium as shown in figures 3C or 3E, enhancing the magnetic characteristics only at positions of the material where the signal peaks had been recorded. This method, therefore, did not allow to detect and exploit submicron features of the magnetic medium since reproducing the peak positions with the required precision was not feasible for technical reasons at the time. Actually, document D1, figure 3C and description,

column 10, lines 25 to 34 pointed away from the invention by using the low values 52, 53 in-between peaks 51 only as "reference values on the order of zero volts". According to the present invention, however, precisely these regions of "zero volts" were used for taking the fingerprint.

### **Reasons for the Decision**

1. The appeal complies with the requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC and is thus admissible.
2. The appeal is allowable on the basis of auxiliary request 6 only. The higher-ranking requests do not meet the requirements of the EPC.

#### *Novelty concerning main request and auxiliary requests 1 to 4*

3. The subject-matters of the respective claims 1 of the main request and auxiliary requests 1 to 4 do not meet the requirement of novelty (Articles 52(1) and 54 EPC).
- 3.1 The generic subject-matter of these claims is a "device for fingerprinting an object for the later determination of its identity", which essentially means that the device is suitable for "labelling" the object with a kind of "fingerprint", i.e. a signature unique to the object (see the WO-application, page 8, lines 17 to 20 and page 9, lines 13 to 24). This function of the device includes the detection of the fingerprint on the object and the recording of the characteristics of the

detected fingerprint for later verification, authentication, etc.

- 3.2 The claims, however, also refer expressly and in considerable detail, to features of the object which becomes labelled with its fingerprint using the device. These in-use features may define a potentially new use of a possibly old device and may thus camouflage lack of novelty regarding the device itself.

Abstracting, for a moment, from the properties of the object when in use with the device, a "common denominator" of the subject-matters of the claims under consideration can be formulated as follows:

The device has:

- (A) means for determining a noise signal from the object comprising the fingerprint for said object and
- (B) means for recording the noise signal for later comparison with the later determination of said noise signal to thereby identify said object.

To this common subject-matter, the individual requests add the following features:

Claims 1 of the main and auxiliary requests 1 to 4:

- (C) the noise signal is a remanent noise for a medium portion of the object.

Claims 1 of auxiliary requests 2 and 3, in addition:

- (D) said magnetic medium portion has a microstructure

- (E) said remanent noise corresponds to said microstructure.

Claim 1 of auxiliary request 2A, in addition to claim 1 of auxiliary request 2:

- (F) the microstructure comprises particles or grains being thousands of Angstroms or less in dimension.

Claim 1 of auxiliary request 2B, in addition to claim 1 of auxiliary request 2:

- (G) the microstructure comprises particles or grains being hundreds to thousands of Angstroms in dimension.

Claim 1 of auxiliary requests 4, in addition to claim 1 of auxiliary request 3:

- (H) said magnetic medium portion comprising a plurality of microcrystalline structures that are arranged in a random pattern
- (I) the remanent noise is determined from a region of said magnetic medium portion which is substantially uniformly magnetized.

3.3 The prior art document D1 anticipates a device for fingerprinting an object for the later determination of its identity having features (A) and (B) (see above):

Figure 2 shows "a sensor or read head 28 of a standard variety", moved relative to a section 24 of a region 20 of a magnetic material such as the region 12 or the region 16 in figure 1 (see document D1, column 8, lines 55 to 62 and column 9, lines 23 to 28). Regions 12 and 16 contain a fingerprint ("a detectable randomly

- varying magnetic characteristic unique to the object", see document D1, column 7, line 61 to column 8, line 28) which can be used for authenticating and identifying the object.
- 3.4 Claim features (C), (D), (E), (F), (G), and (H) (see above) merely define the object and the remanent noise produced when the device is in use. They do not define a functionality of the device which allows to distinguish it from possibly other devices. These claim features have thus no direct relevance to novelty of the device itself.
- 3.5 The microstructure of the magnetic medium as defined in feature (F) might only contribute to the patentability of the device if it imposes a particular functionality on the device, for example, if it requires, as it was argued by the appellant, a novel and inventive design of the device enabling it to detect the noise signal from such a magnetic medium. However, the Board rejects this line of argument for the following reasons:

The fingerprint signal is the detected, so-called "remanent noise", which arises from the permanent microstructure of the magnetic medium and which is "characteristic of that permanent microstructure after practically any magnetic history" (see the WO-publication, page 2, lines 25 to 28). Thus, the "remanent noise" itself is related only to intrinsic features of the object and the magnetic history of the medium.



Moreover, the invention can be implemented by conventional recording heads as used in prior art read or read/write devices (see the WO-publication, for example page 8, line 33 to page 9, line 10). The fact that the detection of the remanent noise does not require any recording head or read device specially adapted in this respect was confirmed by the appellant's representative and by Prof. Indeck at the oral proceedings before the Board. The microstructure of the object and the characteristics of the remanent noise do thus not define any relevant difference between the claimed device and the prior art of document D1.

- 3.6 Finally, document D1 also anticipates feature (I) as defined in point 3.2 above. Column 8, lines 17 to 27 specifically indicates that magnetic material even in an erased state can be used for identification and authentication. Plot B of figure 3D (see also the corresponding text in document D1, column 10, lines 45 to 58) gives an example of such a fingerprint. It shows a continuously but randomly varying waveform of residual noise which is sensed when no signal is recorded (see plot A), and which "can be recorded and used in subsequent verification of the medium" (loc.cit.). Plot A clearly shows that the region from which the fingerprint is taken is uniformly magnetized.
- 3.7 In the appellant's view document D1 diverted the skilled person from the present concept of using the magnetic microstructure for fingerprinting by recording a discontinuous signal along the magnetic medium portion for enhancing the magnetic fingerprint characteristics. Such an enhancing signal hid and

masked the remanent noise produced by the microscopic structure of magnetic medium and made detection impossible.

The Board does not share this view: recording an enhancing signal, although a preferred embodiment, is not essential to the technique of document D1. A recordable magnetic material in an erased state may be used for identification and authentication (*loc.cit.*). Plot B of figure 3D shows an unenhanced randomly varying waveform, which can be sensed and recorded for subsequent verification of the medium (see also document D1, column 10, lines 45 to 58).

- 3.8 The circumstance that the micro- or even submicrostructure of the magnetic material should expressly be exploited for fingerprinting does not justify a different assessment, even if the appellant's argument is accepted that the "enhancing signal" in document D1 extends over a macroscopic region of the magnetic medium.

The enhancing signal amplifies and fixes the detectability of the randomly varying characteristic of the magnetic medium and is thus a kind of spatial noise filter sensitive only at the signal peaks (see document D1, column 8, line 55 to column 9, line 2). Although the enhancing signal may extend over a macroscopic distance of a couple of inches this filter probes the magnetic material with a resolution in the order of the peak width, i.e. about 100 micrometers for example (see column 12, line 58 to column 13, line 4).

3.9 In summary, the subject-matters of claims 1 of the main request and auxiliary requests 1 to 4 are anticipated by document D1 and do thus not meet the requirement of novelty (Articles 52(1) and 54 EPC).

*Added subject-matter in claims of the main request and auxiliary requests 2, 2A, 2B, and 5*

4. Article 123(2) EPC prohibits amendments of the application which add new subject-matter to the application as filed. The main request and auxiliary requests 2, 2A, 2B, with respect to claim 9, and auxiliary request 5, with respect to claim 12, add the new feature that the speed of a first read of the magnetic medium portion is recorded in association with the fingerprint for later compensating for differences between speeds in subsequent reads. The main support for this feature can be found, according to the appellant, in the embodiment disclosed in the WO-application on page 23, line 30 to page 25, line 5.

According to this text portion, the speed at which a credit card moves past the read head can be measured and used for adjusting the sampling rate to match that speed of the magnetic medium. However, this does not mean that the speed should be recorded on the magnetic medium in association with the fingerprint.

The text in the cited portion also indicates that two transitions or fiduciary marks are placed on the card which are a fixed distance  $D$  apart. The time it takes for the card to be pulled from the first to the second transition "defines the velocity that the card is being pulled through the reader" (loc.cit.). Even when it is

assumed that this distance D and the time are recorded on the card it still makes a difference to recording the "speed (...) in association with said fingerprint".

It might be an absolutely obvious next step to record the speed itself or to calculate the speed from the distance and the time used, but obvious does not mean the direct and unambiguous disclosure of the feature.

For these reasons, the main request and auxiliary requests 2, 2A, 2B, and 5, in respect of claim 9 and claim 12, respectively, are considered not to comply with Article 123(2) EPC.

It follows that none of the main request and auxiliary requests 1 to 5 is allowable.

*Auxiliary request 6*

5. The claims of auxiliary request 6 and the invention related thereto meet the requirements of the EPC.
- 5.1 The amendments of the claims do not add new subject-matter to the application as filed. In particular, the features added in connection with the definition of the fingerprint as taken from "a region () of said magnetic medium portion () located between two successive ones of said magnetic transitions" forming a data signal recorded on the magnetic medium are supported by figures 24 to 26 and the accompanying text.
- 5.2 The amended claims comply with the requirements of Article 84 and Rule 29 EPC, except for a number of inconsistencies relative to the present content of the

description. The description has still to be amended in order to assure full conformance with the claims.

5.3 Moreover, taking into account the experimental results reported on in the research paper cited on page 2, lines 28 ff. of the WO-publication, the Board sees no reasons for doubts that the invention to which the amended claims relate is disclosed in manner sufficiently clear and complete to be carried out by the skilled person (Article 83 EPC).

5.4 Turning next to patentability of the invention, it is first to be noted that the priority does not fully cover the subject-matter of the new claims: Although the priority document indicates as an alternative that "the fingerprint can be obtained from the region between two recorded magnetic transitions" (see priority document page 7, lines 23 to 25), it does neither contain a text portion nor a figure from which the precise location for the fingerprint, namely "between two successive ones of magnetic transitions" of the data signal, can be derived.

Therefore, the Board considers document D5 as prior art in respect of the subject-matter of the auxiliary request 6.

5.5 Auxiliary request 6 seeks protection for a device and a method for fingerprinting an object (independent claims 1 and 6), for a device and a method for authenticating an object (independent claims 4 and 5), and for an object having its fingerprint recorded thereon for the later verification of its identity (independent claim 2), all these claims refer to the

precise location from which the fingerprint is derived. This common feature defines directly the structure of the object and steps of the methods, which are the subject-matters of independent claims 2, 5 and 6. But it also defines, although implicitly, the functionality to be implemented in the devices of claims 1 and 4.

This functionality is distinguished from a mere suitability for detecting the noise signal from the microstructure of the magnetic medium (see point 3.5 supra) since the respective means of the claimed devices must be arranged to detect the two successive ones of the magnetic transitions, to locate the magnetic media portion between said transitions, to determine the remanent noise resulting from this small intermediate region with a resolution sufficient for a significant identification signal and to record said signal for fingerprinting and authenticating (in this context see also decision T 170/02-Controlling access/NEWS DATACOM, not published in OJ EPO; points 8 to 10 of the reasons).

In order to assess novelty and inventive step with regard to all of the claimed categories of the invention, it is sufficient to consider said common feature concerning the precise location from which the fingerprint is derived.

- 5.6 None of the prior art documents discloses the detection and processing of a fingerprint from a location between successive ones of magnetic transitions of the recorded data signal.

The closest prior art, document D1, clearly indicates the importance of the precise location from which the fingerprint is taken (see for example column 11, line 52 to column 12, line 6) and suggests as an alternative to use a start mark or indicia on the object at which the signal recording can be started. However, this indicia is not part of the data signal recorded on the magnetic medium. Neither does the document mention a stop mark, nor a recording length which fits between two successive ones of the magnetic transitions of the recorded data signal.

Even if the enhancing signal in document D1, which is indeed formed of magnetic signal transitions (see signal S in figure 3C), is considered as a data signal recorded on the object, the difference remains in respect of the claimed invention that the fingerprint is taken at the peak positions (51). The signal portions (52, 53) in-between are not used for fingerprinting.

Document D5 clearly discloses the use of the remanent noise from the microstructure of the magnetic medium for fingerprinting but does not address the question from which location, relative to a data signal recorded on the magnetic medium, the fingerprint should be taken.

The document US-A-4 837 426 (published in 1989), although closely related to document D1, does not go beyond what is disclosed in document D1. The rest of the prior art documents cited against the application are even more remote from the claimed invention.

Therefore, novelty is acknowledged with respect to all claims of auxiliary request 6.

5.7 According to the practice of the boards of appeal the examination of inventive step follows the so-called problem-solution approach. The Board considers documents D1 and D5 as equally appropriate starting points for assessing inventive step in the light of the prior art. It follows from decision T 967/97 - Chipkarte/OVD KINEGRAM AG (not published in OJ EPO), that in case of a positive judgement regarding inventive step all fairly promising possibilities should be explored in applying the approach.

5.8 Regarding first document D1 as the closest prior art:

The substantial difference between the claimed invention and document D1 resides in the precise location from which the fingerprint is taken, i.e. the region between two successive ones of the magnetic transitions of the recorded data signal, as already pointed out above.

According to document D1, this location can be determined in a variety of ways: physically, or electronically, e.g. by writing the enhancing signal in a predetermined frame (see column 19, lines 3 to 14).

The claimed invention uses a region between successive magnetic transitions of a data signal recorded on the magnetic medium. In substance, therefore, the problem solved by invention is merely to provide an alternative location of the region from which the fingerprint is to be taken.



There is however no hint given in the prior art to the alternative proposed by the invention.

Document D1 itself rather discourages the skilled person to think of the recorded data signal as the right place for locating the fingerprint since it uses, as a preferred embodiment, an enhancing signal consuming a considerable length of the magnetic medium and which is thus too long as to fit into a bit cell or between two successive magnetic transitions of the recorded data signal.

5.9 Starting from document D5 as closest prior art, the situation is similar.

Document D5 expressly indicates that the remanent noise resulting from the magnetic microstructure is reproducible and can be used as fingerprint information. It points to the only small size of the region required for taking the fingerprint (see for example page 4095, left-hand column, "Magnetic Fingerprinting", second paragraph).

Nevertheless, the document does not give any concrete information regarding the placement of the fingerprint in relation to the data signal recorded. It rather reports results for waveforms having lengths between 85 micrometers and 4300 micrometers and proposes as optimum a length between 430 and 4300 micrometers. Waveforms of such a length would certainly not fit into a bit cell of a standard data signal as normally recorded on a disk.

5.10 The rest of the prior art documents cited against the application is even more remote than documents D1 and D5. It is not necessary, therefore, to go in any further detail regarding those documents.

5.11 The Board concludes that the invention to which the claims of auxiliary request 6 relate meets the requirement of inventive step (Article 52(1) and 56 EPC).

## **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 with the order to grant a patent with the following claims and a description and drawings to be adapted:

Claims 1 to 10 filed at the oral proceedings in accordance with auxiliary request 6.

The Registrar:

The Chairman:

M. Kiehl

S. V. Steinbrener