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**Datasheet for the decision
of 12 January 2016**

Case Number: T 1629/13 - 3.2.05

Application Number: 10179367.7

Publication Number: 2263806

IPC: B05D5/06, B05D3/14, B42D15/00,
B42D15/10

Language of the proceedings: EN

Title of invention:

Method and apparatus for orienting magnetic flakes and image
obtained by said method

Applicant:

Viavi Solutions Inc.

Relevant legal provisions:

EPC 1973 Art. 54(1)
RPBA Art. 13(1)

Keyword:

Novelty (no; main request)
Admissibility (no; auxiliary request)



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Case Number: T 1629/13 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 12 January 2016

Appellant: Viavi Solutions Inc.
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Representative: Keith William Jones
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 23 January 2013
refusing European patent application
No. 10179367.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman M. Poock
Members: O. Randl
G. Weiss

Summary of Facts and Submissions

- I. This appeal lies against the decision of the examining division to refuse the application No. 10 179 367.7.

The division had reached the conclusion that the subject-matter of claim 1 extended beyond the content of the parent application as originally filed (Article 76(1) EPC) and lacked novelty over the disclosure of document D2 (EP 0 556 449).

- II. Oral proceedings before the board took place on 12 January 2016.

- III. The appellant (applicant) requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 8 (main request) filed as further auxiliary request with letter dated 11 December 2015 or on the basis of claims 1 to 7 filed as auxiliary request at the oral proceedings before the board.

- IV. Claim 1 of the main request reads:

"A substrate comprising an image printed thereon, the image comprising: a first image portion having magnetic flakes and a second image portion having magnetic flakes, adjacent to the first image portion, having a border therebetween; wherein the magnetic flakes in the first image portion are tilted in a first direction, parallel to each other, and the magnetic flakes in the second image are tilted in a second direction, parallel to each other, and wherein the two directions form a "V"-shape in a cross-section of the image, so as to provide the first image portion appearing lighter than the second image portion when viewed from a first

viewing direction and the first image portion appearing darker than the second image portion when viewed from a second viewing direction, wherein the magnetic flakes in the first and second image portions are surrounded by a carrier."

Claim 1 of the auxiliary request differs from claim 1 of the main request in that:

- the word "portion" was added after the expression "in the second image" ;
- the feature "wherein the first image portion and the second image portion form a "flip-flop" so that when the image is tilted back and forth along a line through the first and second image or the direction of a light source incident upon the image is changed from a non-normal direction incident upon the first image portion to a non-normal direction incident upon the second image portion the first image portion and the second image portion appear to have a switching optical effect" was added after the expression "of the image";
- the feature "so as to provide the first image portion appearing lighter than the second image portion when viewed from a first viewing direction and the first image portion appearing darker than the second image portion when viewed from a second viewing direction," was replaced by the word "and".

V. The appellant argued as follows:

- a) Main request

The subject-matter of claim 1 is novel. The figures of document D2 are technical illustrations and have to be considered together with the description of the document (*cf.* decision T 896/92). The description of document D2 makes clear that the flakes are "substantially perpendicular" to the surface of the paint layer in region A depicted in Fig. 1, "substantially parallel" to that surface in region B, and "uniformly oblique" in region C (see in particular page 7, lines 23-24, 28, 47-48, 50-51, as well as page 8, lines 9-12 and the entire fourth paragraph). The skilled person would understand that in region A the flakes are standing upright so that the light passes through and that the area as viewed from above appears dark, as distinct from the region C, where the flakes are oblique. This is in contrast to the claimed invention, where the flakes are tilted in two regions so as to form a V-shape. The overall effect sought is not to have the light pass through, but that the flakes appear dark when viewed perpendicular to the tilt angle, and light when viewed parallel to that angle, so that a different effect is obtained from each region. The overall effects sought are quite different.

In the embodiment of Fig. 1 of document D2, there is a clear transition (see in particular page 7, line 25) from region A (substantially perpendicular; Fig. 2A) to region B (substantially parallel; Fig. 2B), corresponding to the edge of the magnet. If there was a gradual transition, the purported effect (maximum contrast between regions A and B) would not be obtained. Thus document D2 actually teaches away from the invention.

Moreover, in document D2 there is no change from light to dark when viewed from different viewing directions because there is substantially no tilt.

b) Auxiliary request

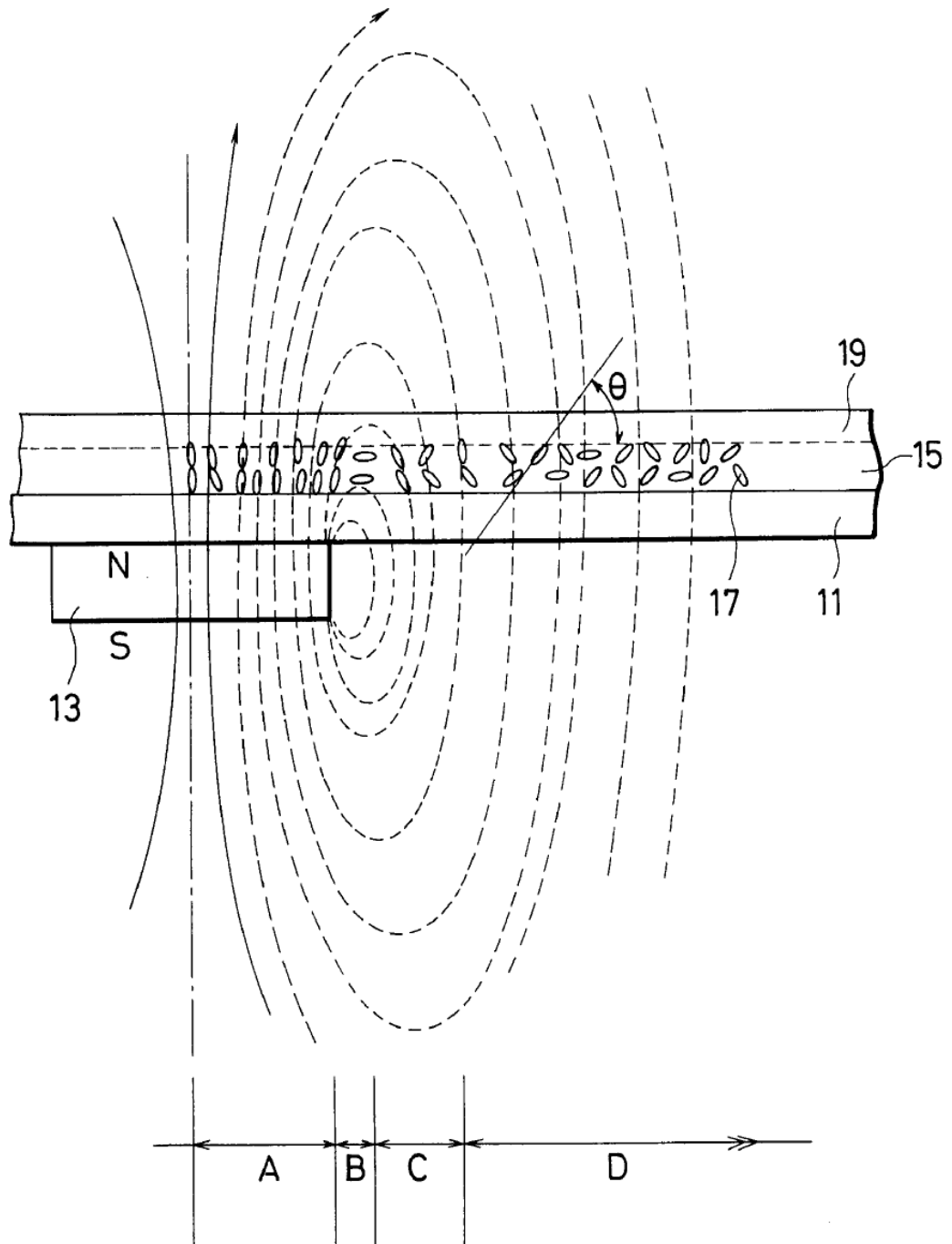
The request should be admitted because the appellant has been taken aback by the board finding claim 1 to lack novelty. The request does not raise any new issues and can be dealt with efficiently and quickly.

Claim 1 is novel because document D2 does not show a "flip-flop" image, i.e. an image that has two states or conditions, two regions which, depending on the tilt, are oppositely coloured, so that e.g. one region is black and the other white and after tilting the colours are inverted. Document D2 discloses a gradually changing inclination of flakes, which would entail a "rolling bar" effect rather than a "flip-flop" effect, even considering the abrupt transition mentioned in document D2.

Reasons for the Decision

1. The application under consideration is a divisional application, the parent application of which was filed on 1 July 2003; therefore, according to Article 7 of the Act revising the EPC of 29 November 2000 (Special edition No. 4 OJ EPO, 217) and the Decision of the Administrative Council of 28 June 2001 on the transitional provisions under Article 7 of the Act revising the EPC of 29 November 2000 (Special edition No. 4 OJ EPO, 219), Articles 54(1) and (2) EPC 1973 apply in the present case.
2. Main request: novelty

Document D2 discloses a substrate ("product") 11 comprising an image printed thereon (e.g. Fig. 1). The image comprises magnetic flakes 17 surrounded by a carrier ("paint layer") 15.

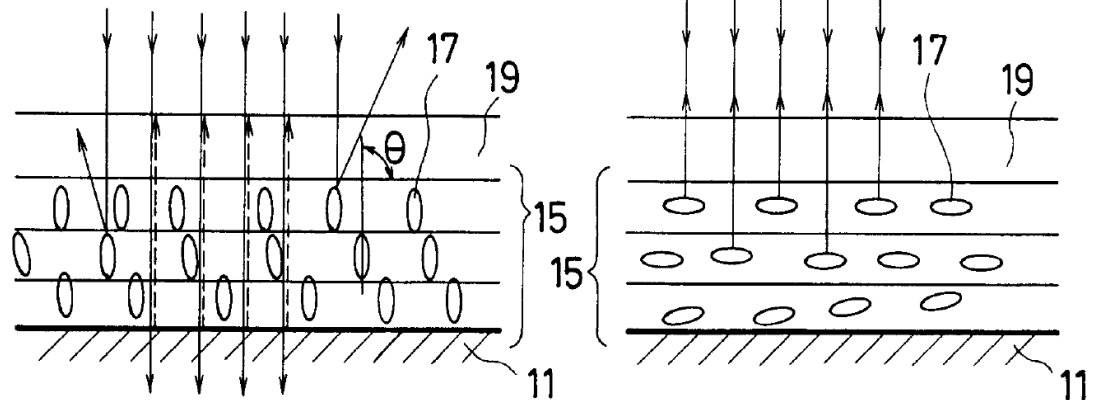


The magnetic flakes are tilted with respect to each other such that they form a particular pattern. The alignment of the flakes corresponds to the field lines of a magnetic field that is applied during the production process. In Fig. 1 of document D2 the tilt angle varies continuously from a vertical alignment close to the centre of the magnet 13 to the right. The flakes are aligned horizontally close to the end of the magnet; at greater distances from the magnet 13, where the magnetic field becomes weaker, the alignment is more and more erratic.

Document D2 discloses that "As shown in Fig. 1, in a region A directly above the magnet 13, the magnetic field lines are directed to be substantially perpendicular to the surface of a paint layer 15 to be formed on the surface of the product 11, while in a region B adjacent to the region A, the magnetic field lines changes their directions abruptly, such that they are directed to be substantially parallel to the surface of the paint layer 15 to be formed on the surface of the product 11 in a middle of the region B." (page 7, lines 23-27), and this is indeed what is shown in Figs. 2A and 2B:

FIG. 2A

FIG. 2B



Based on this information, the skilled person would reach the understanding that the magnetic field lines are substantially perpendicular to the surface of the paint layer in region A and substantially parallel to the surface in the middle of region B, and that there is a rather sharp transition from region A to B. The skilled person would, however, realise that real magnetic fields do not change instantly and that there has to be a zone of transition between region A and the middle of region B, in which the orientation of the magnetic flakes continuously changes from perpendicular to parallel.

There have to be narrow image portions within this zone of transition - both on the left and on the right hand side of the centre of the magnet in Fig. 1 - in which the magnetic flakes are substantially parallel to each other and inclined with respect to the surface of the paint layer at an angle that is different from 0° or 90° . The two corresponding directions of alignment

form a V-shape in a cross section of the image. Region A forms the border between those two image portions.

Considering the physical laws governing light reflection, the skilled person would also expect that a first and a second viewing direction can be found such that the first image portion appears lighter than the second image portion when viewed from the first viewing direction and the first image portion appears darker than the second image portion when viewed from the second viewing direction. Therefore, the board remains unpersuaded by the argument that there is no change in light or dark when the product depicted in Fig. 1 of document D2 is viewed from different viewing directions.

Therefore, the subject-matter of claim 1 lacks novelty.

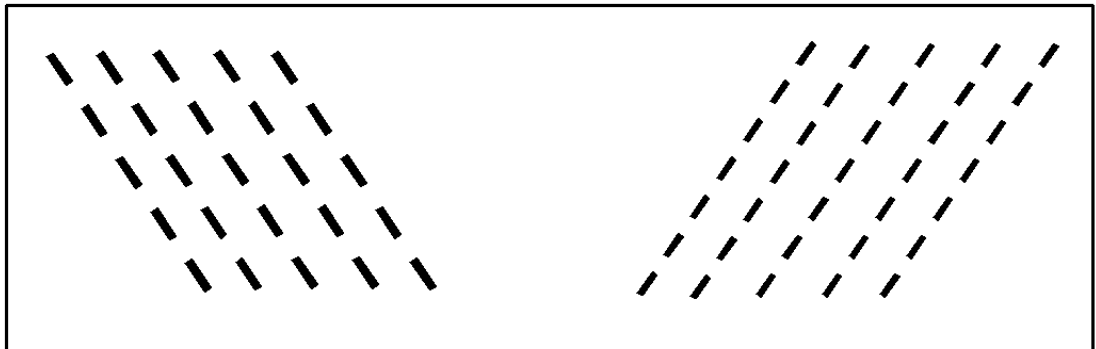
The appellant has argued that the regions should be large enough to "appear" to a human eye. However, this argument has to fail because claim 1 is silent on the size of the regions as well as the nature of the observer (human or machine).

Moreover, even if the zone of transition were considered to be too narrow to constitute image portions, claim 1 could still be read on the embodiment of Fig. 1 of document D2 as follows:

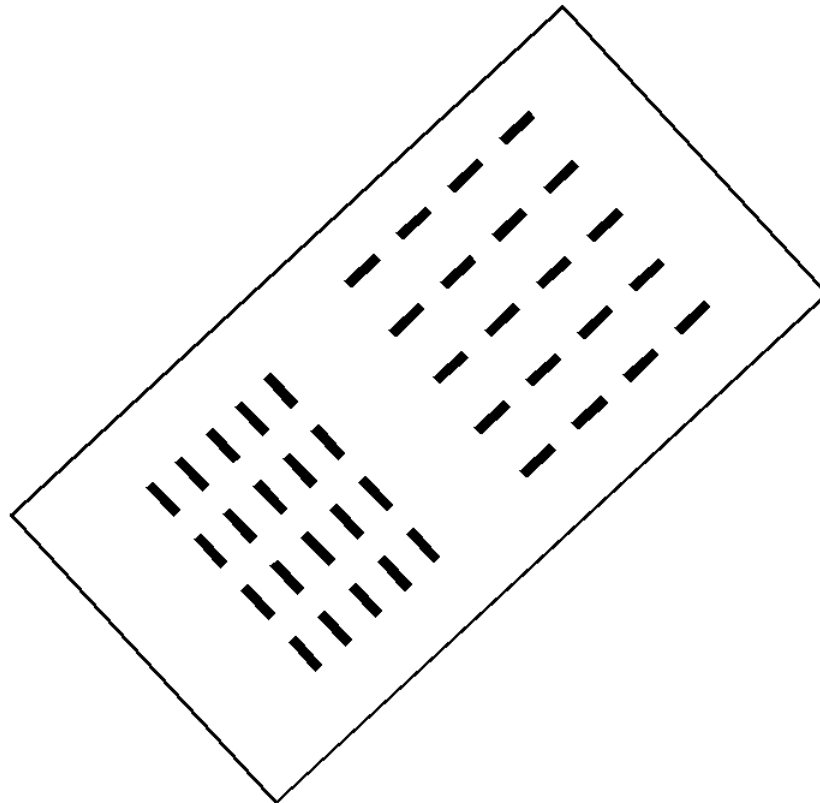
Region A constitutes a first image portion having magnetic flakes and the centre of region B a second image portion; the part of region B in which the above mentioned sharp transition occurs defines the border between the first and second image portion. The magnetic flakes in the first portion are tilted in a first direction (perpendicular to the surface of the paint layer) and substantially parallel to each other; the

flakes of the second portion are tilted in a second direction (parallel to the surface of the paint layer) and also substantially parallel to each other. The two directions are perpendicular to each other and, therefore, form a V-shape in a cross-section of the image (the V having an opening angle of 90°). There is no doubt that there are lighting conditions and viewing directions for which the first image portion appears lighter than the second image portion when viewed from a first viewing direction and darker when viewed from a second viewing direction, very much as for the embodiment of Fig. 1A of the application.

The product of Fig. 1A of the application in suit can be schematically depicted as follows:



If the product of Fig. 1 of document D2 is depicted analogously and tilted, the following representation is obtained:



When the product is viewed in this way, it is apparent that the alignment of the flakes of regions A and B with respect to each other is quite similar to the alignment of the flakes in the product of Fig. 1A.

As a consequence, it is easy to construe situations where the appearance of the product has the same effect, i.e. where the first image portion appears lighter than the second image portion when viewed from a first viewing direction and the first image portion appears darker than the second image portion when viewed from a second viewing direction.

Thus the subject-matter of claim 1 is not new within the meaning of Article 54(1) EPC 1973 over the embodiment depicted in Figs. 1 and 2A to 2D of document D2.

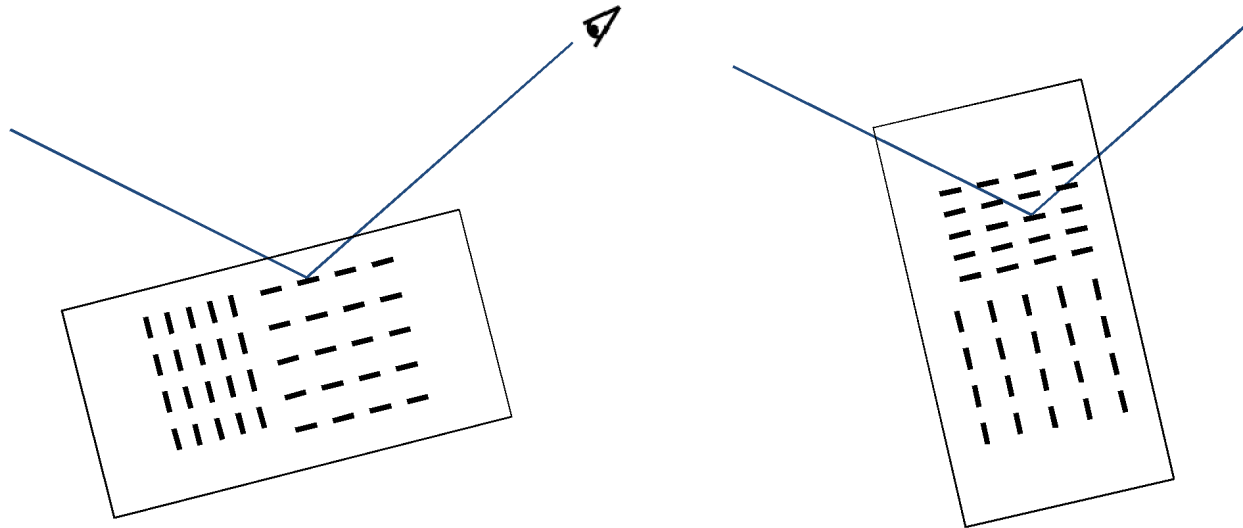
3. Auxiliary request: admissibility

This request has been filed at a very late stage of the proceedings (at the end of the oral proceedings before the board) although the application had been refused for lack of novelty and the board had expressed in the communication under Article 15(1) RPBA that it was of the provisional opinion that the claimed subject-matter lacked novelty.

According to Article 13(1) of the Rules of Proceedings of the Boards of Appeal (RPBA), any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion. According to the established jurisprudence of the boards of appeal, clear allowability of the claimed subject-matter is one of the relevant criteria for exercising this discretion (see "Case Law of the Boards of Appeal of the EPO", 7th edition, 2013, IV.E. 4.4.2).

The board has reached the conclusion that the auxiliary request is not clearly allowable because claim 1 does not clearly establish novelty. This is because the structural similarity of the product of Fig. 1A of the application and the product of Fig. 1 of document D2 entails a similar appearance to an observer under similar light conditions. It is very likely that the product of Fig. 1 of document D2 would also allow for a "flip-flop" effect when the product is tilted.

The following (very schematic) figure shows an example:



Here the directions of illumination and observation are kept constant but the product is tilted. In the situation depicted on the left hand side, region B would appear lighter than region A, whereas in the situation shown on the right hand side, where the product has been tilted by 90° , region A would appear lighter to the observer than region B. This qualifies as a "switching optical effect" within the meaning of claim 1.

As the auxiliary request is not clearly allowable, the board has exercised its power under Article 13(1) RPBA not to admit the request.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Meyfarth

M. Poock

Decision electronically authenticated