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D E C I S I O N
of 27 April 2006

Case Number: T 0377/04 - 3.2.05

Application Number: 91918702.1

Publication Number: 0552251

IPC: B41M 5/24

Language of the proceedings: EN

Title of invention:
Improved ablation-transfer imaging/recording

Patentee:
PGI Graphics Imaging LLC

Opponent:
E.I. du Pont de Nemours and Company

Headword:
-

Relevant legal provisions:
EPC Art. 54, 84, 123

Keyword:
"Novelty; main request, first auxiliary request (no)"
"Extension beyond the content of the application as filed; second, fourth and fifth auxiliary requests (yes)"
"Clarity; third auxiliary request (no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0377/04 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 27 April 2006

Appellant: (Patent Proprietor)
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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 9 January 2004 concerning maintenance of European patent No. 0552251 in amended form.

Composition of the Board:

Chairman: W. Moser
Members: W. Zellhuber
W. Widmeier

Summary of Facts and Submissions

I. The appellant (patent proprietor) lodged an appeal against the interlocutory decision of the Opposition Division maintaining the European patent No. 0 552 251 in amended form.

II. An opposition was filed against the patent as a whole and based on Articles 100(a) (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC), 100(b) and 100(c) EPC.

The Opposition Division held that the patent in suit as granted had been amended in such a way that it contained subject-matter which extended beyond the content of the application as filed, and that the subject-matter of claim 19 filed on 15 September 2003 as auxiliary request, which is identical to claim 26 of the patent in suit as granted, was not novel. The grounds for opposition submitted by the respondent did however not prejudice the maintenance of the patent in suit as amended in accordance with a second auxiliary request.

III. Oral proceedings were held before the Board of Appeal on 27 April 2006.

IV. The appellant requested as main request that the decision under appeal be set aside and that the European patent No. 0 552 251 be maintained as granted. As an auxiliary measure, the appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the following documents:

(i) first auxiliary request: claims 1 to 32 filed as auxiliary request on 15 September 2003, or

(ii) second through fifth auxiliary requests: claims 1 to 32 presented respectively as second, third, fourth, and fifth auxiliary requests during oral proceedings.

The respondent (opponent) requested that the appeal be dismissed.

V. Claim 26 of the patent in suit as granted (main request) reads as follows:

"26. An ablation-transfer imaging medium (1, 2, 3; 2, 3, 7) comprising:

(i) a support substrate (1; 7),

(ii) at least one intermediate dynamic release layer (2) essentially coextensive with the substrate (1; 7); and

(iii) a radiation-ablative topcoat (3), also essentially coextensive with the substrate (1; 7),

the dynamic release layer and/or the topcoat containing at least one radiation-ablative binder, the dynamic release layer (2) being capable of absorbing radiation (6) at a rate sufficient to effect the imagewise ablation mass transfer of the topcoat (3) to the receptor element (4), characterized in that the dynamic release layer (2) comprises a non-black body radiation absorber but is free from black body radiation absorber, and in that the topcoat (3) comprises an imaging amount of a non-black body sensitizing contrast imaging material."

Claim 19 of the first auxiliary request is identical to claim 26 of the main request.

Claim 19 of the second auxiliary request reads as follows:

"19. An ablation-transfer imaging medium (1, 2, 3; 2, 3, 7) comprising:
(i) a support substrate (1; 7),
(ii) at least one intermediate dynamic release layer (2) essentially coextensive with the substrate (1; 7); and
(iii) a radiation-ablative topcoat (3), also essentially coextensive with the substrate (1; 7),
the dynamic release layer and/or the topcoat containing at least one radiation-ablative binder, the dynamic release layer (2) being configured of a thickness to absorb radiation (6) at a rate sufficient to effect the imagewise ablation mass transfer of the topcoat (3) to the receptor element (4),
characterized in that the dynamic release layer (2) consists of materials that respond to imaging radiation on a nanosecond time scale and includes a non-black body radiation absorber but is free from black body radiation absorber, and in that the topcoat (3) comprises an imaging amount of a non-black body sensitizing contrast imaging material."

Claim 19 of the third auxiliary request reads as follows:

"19. A laser ablation-transfer imaging medium (1, 2, 3; 2, 3, 7) comprising:
(i) a support substrate (1; 7),
(ii) at least one intermediate dynamic release layer (2) essentially coextensive with the substrate (1; 7); and
(iii) a radiation-ablative topcoat (3), also essentially coextensive with the substrate (1; 7),
the dynamic release layer and/or the topcoat containing at least one radiation-ablative binder, the dynamic release layer (2) being configured of a thickness up to 50 nm and capable of absorbing radiation (6) at a rate sufficient to effect the imagewise ablation mass transfer of the topcoat (3) to the receptor element (4),
characterized in that the dynamic release layer (2) consists of materials that respond to imaging radiation on a nanosecond time scale and includes a non-black body radiation absorber but is free from black body radiation absorber, and in that the topcoat (3) comprises an imaging amount of a non-black body sensitizing contrast imaging material."

Claim 19 of the fourth auxiliary request reads as follows:

"19. An ablation-transfer imaging medium (1, 2, 3; 2, 3, 7) comprising:
(i) a support substrate (1; 7),

(ii) at least one intermediate dynamic release layer (2) essentially coextensive with the substrate (1; 7); and

(iii) a radiation-ablative topcoat (3), also essentially coextensive with the substrate (1; 7),

the dynamic release layer and/or the topcoat containing at least one radiation-ablative binder, the dynamic release layer (2) being configured of at least one metal of a thickness up to 50 nm and capable of absorbing radiation (6) at a rate sufficient to effect the imagewise ablation mass transfer of the topcoat (3) to the receptor element (4),

characterized in that the dynamic release layer (2) comprises a non-black body radiation absorber but is free from black body radiation absorber, and in that the topcoat (3) comprises an imaging amount of a non-black body sensitizing contrast imaging material."

Claim 19 of the fifth auxiliary request differs from claim 19 of the fourth auxiliary request in that the beginning of the claim reads "A laser ablation-transfer imaging medium …".

VI. The following documents are referred to in the present decision:

AP: WO-A 92/06410, published version of the application as filed, which matured into the patent in suit;

A2: JP-A 62-140884 with English translation;

A12: Rita G. Lerner, George L. Trigg, "Encyclopedia of Physics", second edition, VCH Publishers, Inc., pages 104 and 105.

VII. In the written procedure and during oral proceedings, the appellant argued essentially as follows:

Main request (claim 26), first auxiliary request (claim 19)

Whilst document A2 (English translation) was related to a thermotransfer process, cf. terms "thermofusible" and "thermofusion" on page 2, lines 12 and 17, respectively, which was a relatively slow process, claim 26 of the main request as well as claim 19 of the first auxiliary request concerned an ablation-transfer imaging medium. The ablation transfer was a process based on the rapid and transient accumulation of pressure beneath or within the mass transfer layer, and that pressure caused the mass transfer of the imaging layer (topcoat) toward the receptor element.

It thus followed that the structure of a medium suitable for ablation transfer differed from a medium suitable for thermal melt transfer.

Moreover, in a thermal melt transfer process, only the transfer layer was transferred, which could only be effected by using a thick light-to-heat conversion layer. Although document A2 mentioned a thickness of 10 nm to 5 µm (cf. page 5, line 7), a person skilled in the art would not really consider working at the lower end of that range.

Therefore, the subject-matter of claim 26 according to the main request and claim 19 according to the first auxiliary request was novel.

Second auxiliary request (claim 19)

As regards the functioning of the dynamic release layer, document AP disclosed that its thickness played a significant role, cf. page 11, lines 20 to 25, page 12, lines 13 to 18, page 14, lines 19 to 24, and page 23, lines 25 to 29. It thus was directly and unambiguously derivable from document AP that the thickness of that layer had to be appropriately selected. Consequently, the feature "the dynamic release layer (2) being configured of a thickness to absorb radiation (6) at a rate sufficient to effect the imagewise ablation mass transfer of the topcoat (3) to the receptor element (4)" was based on the disclosure of document AP, and claim 19 thus met the requirements of Article 123(2) EPC.

Third auxiliary request (claim 19)

The subject-matter of claim 19 was clear, in particular, the feature "… materials that respond to imaging radiation on a nanosecond time scale…" was a clear teaching supported by the description, cf. page 4, lines 32 and 33 of the patent in suit as granted.

Fourth and fifth auxiliary requests (claim 19)

According to page 12, lines 3 to 5 of document AP, the dynamic release layer was at least one layer of any organic or inorganic material, and, according to

page 14, lines 19 to 24 of document AP, it comprised a metal layer having a thickness of up to 50 nm. The subject-matter of claim 19 of these requests, in particular the feature "the dynamic release layer (2) being configured of at least one metal of a thickness up to 50 nm", was thus disclosed in document AP.

VIII. In the written procedure and during oral proceedings, the respondent argued essentially as follows:

Main request (claim 26), first auxiliary request (claim 19)

Claim 26 of the main request as well as claim 19 of the first auxiliary request were product claims. The novelty of such a product claim should therefore be correctly based only upon the distinctive characteristics of the claim, whilst non-distinctive characteristics relating to a particular intended use should not be considered.

Document A2 (cf. the English translation) disclosed a medium as claimed in claim 26 of the main request and claim 19 of the first auxiliary request. In particular, the medium according to Example 2 of document A2, cf. page 15, comprised a support substrate (polyester film), a dynamic release layer, i.e. vacuum deposited aluminium and tin sulphide, which according to paragraph [0021], cf. in particular page 4, lines 40 and 41, of the patent in suit was a suitable, and thus non-black body radiation absorbing material, and a top layer comprising ethyl cellulose as binder, which according to paragraph [0037], line 50, of the patent in suit was an ablative binder material, and a non-

black body imaging material, namely a soluble dye (Kyasetto black K-R). It had to be taken into account that no clear definition of the term non-black body existed in the patent in suit, and that a black body was a theoretical object that absorbed all the electromagnetic radiation falling on it.

Furthermore, the thickness of dynamic release layer was not subject-matter of claim 26 of the main request, and a medium having a structure as claimed in claim 26 of the main request was necessarily suitable for ablation-transfer. The same applied to claim 19 of the first auxiliary request. The subject-matter of these claims thus was not novel.

Second auxiliary request (claim 19)

There was no disclosure in document AP that the thickness of the dynamic release layer determined the rate of absorption of the imaging radiation, and consequently, that the thickness of that layer had to be configured appropriately. Claim 19 of the second auxiliary request thus did not meet the requirements of Article 123(2) EPC.

Third auxiliary request (claim 19)

The feature "… materials that respond to imaging radiation on a nanosecond time scale …" in claim 19 was a process feature in a product claim and as such unclear. Moreover, the term "respond to imaging radiation" was unclear, because, firstly, it did not define the kind of reaction, and, secondly, the response time was dependent on the imaging parameters.

Claim 19 of the third auxiliary request thus did not meet the requirements of Article 84 EPC.

Fourth and fifth auxiliary requests (claim 19)

Claim 19 of these requests encompass embodiments which were not disclosed in document AP. There was no basis for a generic disclosure of a dynamic release layer comprising a mixture of at least a metal having a thickness of up to 50 nm and other layers.

The requirements of Article 123(2) EPC were thus not met.

Reasons for the Decision

1. *Main request, claim 26 (novelty, Article 54 EPC)*

1.1 The terms "ablation-transfer", "radiation-ablative", and "being capable of absorbing radiation (6) at a rate sufficient to effect the imagewise ablation mass transfer" used in claim 26 of the main request describe the intended use of the medium rather than structural features of the medium.

In order to effect a process of imagewise ablation upon radiation, the material and the imaging parameters have to be properly selected, cf. paragraph [0035] of the patent in suit. Consequently, whilst a medium might be ablatable under a first set of imaging parameters (e.g. laser radiation, specific wavelength, power density, pulse length, exposure time etc.) in connection with a specific receptor in a specific constellation (in

contact with or distant from the medium), the same medium might not be ablatable under a second set of imaging parameters partly or fully deviating from the first set (e.g. radiation source other than a laser, different wavelength etc.) and/or in connection with a different receptor in a different constellation. Therefore, the above-mentioned terms do not constitute distinctive features of the medium per se.

Since claim 26 is silent about the nature of the radiation and the imaging parameters under which the radiation process is intended to be carried out and ablation to be effected, the above-mentioned features cannot be taken into consideration when assessing the novelty of the medium for which protection is sought as such.

1.2 Furthermore, the following terms are used in claim 26:

(i) "black body radiation absorber"
(ii) "non-black body radiation absorber"
(iii) "non-black body sensitizing contrast imaging material"

According to generally known definitions (cf. document A12, page 104, right column, lines 5 to 10), a "blackbody" is an ideal body (perfect absorber, perfect emitter). However, no true blackbody exists, cf. document A12, page 104, right column, line 10. Consequently, in general practice, any existing radiation absorbing material actually is a non-blackbody radiation absorber, and any existing sensitizing contrast imaging material is a non-black body sensitizing contrast imaging material.

Nevertheless, in the patent in suit, cf. paragraph [0012], carbon black and graphite are mentioned as only examples of "black body absorbers". These materials thus have to be regarded as forming "black body absorbers" within the meaning of the patent in suit. The patent in suit, however, does not comprise definitions as regards the terms "non-black body radiation absorber" and "non-black body sensitizing contrast imaging material". Consequently, in accordance with the general understanding, and in the absence of any definitions, radiation absorbing materials and sensitizing contrast imaging materials other than carbon black and graphite have to be regarded as constituting non-black body radiation absorbing materials and non-black body sensitizing contrast imaging materials, respectively.

1.3 Document A2, cf. example 2 on page 15 of the English translation, discloses an imaging medium comprising

- a polyester film forming a support substrate,

- a layer of aluminium and tin sulphide, thus forming an intermediate dynamic release layer comprising a non-black body radiation absorber and being free from black body radiation absorber, and

- an ink layer forming a topcoat containing ethyl cellulose as binder, and a colouring agent in form of a soluble dye (Kyasetto black K-R), see also page 5, lines 14 to 19, and page 7, line 18, of document A2 (English translation), rather than an absorber in form of carbon black or graphite, which

are used as substances capable of converting light to heat, cf. page 5, lines 1 and 2 of document A2.

1.4 A medium having a structure as claimed in claim 26 of the main request was thus known. The subject-matter of claim 26 is thus not novel within the meaning of Article 54 EPC. Hence, the main request of the appellant is not allowable.

2. *First auxiliary request*

Claim 19 of the first auxiliary request is identical to claim 26 of the main request. Consequently, the first auxiliary request of the appellant also is not allowable.

3. *Second auxiliary request*

Claim 19 comprises the feature "the dynamic release layer (2) being configured of a thickness to absorb radiation (6) at a rate sufficient to effect the imagewise ablation mass transfer of the topcoat (3) to the receptor element (4)".

Document AP does not explicitly disclose that feature. It merely mentions that, if dynamic release layers were highly absorbent, very thin layers can be employed, cf. page 12, lines 13 to 18, and that the "thickness of the at least one dynamic release layer depends upon the material(s) selected therefor", cf. page 14, lines 19 to 21. The passage on page 23, lines 25 to 29 teaches that the thickness being optimized to provide for the total transfer of the carrier topcoat to the receptor element with a minimum energy requirement.

It however is not directly and unambiguously derivable from the disclosure of document AP that the thickness is configured in order to define the rate sufficient to effect the imagewise ablation mass transfer of the topcoat (3) to the receptor element.

Claim 19 of the second auxiliary request thus does not meet the requirements of Article 123(2) EPC. Consequently, the second auxiliary request is not allowable either.

4. *Third auxiliary request*

Claim 19 comprises the feature "the dynamic release layer (2) consists of materials that respond to imaging radiation on a nanosecond time scale".

In the Board's view, the technical meaning of the expression "respond to imaging radiation" is vague, because neither the kind of reaction nor the imaging parameters are defined. Furthermore, the indication of time "on a nanosecond time scale" is equally vague and open to interpretation. Finally, the fact that a material may "respond" in one or another form to "imaging radiation" substantially is a question of an appropriate selection of imaging parameters, but it does not describe the medium per se.

Therefore, the subject-matter of claim 19 of the third auxiliary request does not meet the requirements of Article 84 EPC; thus, the third auxiliary request is not allowable either.

5. *Fourth and fifth auxiliary requests*

Claims 19 of the fourth and fifth auxiliary requests comprise the feature "the dynamic release layer (2) being configured of at least one metal of a thickness up to 50 nm". Due to the insertion "at least", these claims also concern embodiments, wherein the dynamic release layer comprises further materials (metals or other materials) of thicknesses not necessarily inferior or equal to 50 nm.

The passage on page 14, lines 19 to 24, of document AP, however, relates to the thickness of the at least one dynamic release layer and indicates that, if a metal is employed for that layer, the thickness of the layer is preferably in the range of one monolayer of the metal to about 50 nm. This is confirmed by the passages on page 24, line 34 to page 25, line 7, and page 25, lines 23 to 26, of document AP. According to these passages, the dynamic release layer is a metal film having a thickness up to 50 nm.

There is thus no disclosure that the dynamic release layer may comprise only one metal of that thickness whilst other materials (e.g. metals) having other thicknesses may also be present.

The subject-matter of claims 19 of the fourth and fifth auxiliary requests thus does not meet the requirements of Article 123(2) EPC. Therefore, these requests are not allowable either.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Dainese W. Moser