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Datasheet for the decision of 10 April 2008

Case Number: T 1067/05 - 3.4.02

Application Number: 95919219.6

Publication Number: 0770222

IPC: G02B 5/20

Language of the proceedings: EN

Title of invention:
Methods for preparing color filter elements using laser induced transfer of colorants

Patentee:
MINNESOTA MINING AND MANUFACTURING COMPANY

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

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
Inventive step - all requests (no)"

Decisions cited:
-

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-

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Case Number: T 1067/05 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 10 April 2008

Appellant: (Patent Proprietor)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 9 June 2005 revoking European patent No. 0770222 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: A. Klein
Members: M. Rayner
M. J. Vogel

Summary of Facts and Submissions

I. The patent proprietor has appealed against the decision of the opposition division revoking European patent 770 222 (application number 95 919 219.6, published international application WO96/02010), which concerns colour filter element manufacture. In the opposition and/or appeal proceedings, reference was made to documents including the following:

A1 EP-A-0 529 362
A7 GB-A-2 130 781
A10 WO-92/06410
A11 US-A-5 089 372
A16 US-A-5 308 737

Documents A1 and A7 were referred to as evidence presented in the notice of opposition. Document A10 was filed one month and document A11 two days before oral proceedings held before the opposition division. Document A16 was filed four days before oral proceedings before the board of appeal. The opposition division admitted documents A10 and A11 into the procedure.

II. In the decision under appeal, the division reasoned as follows in relation to the requests presented to it.

Main Request

The division construed the term "mass transfer" to include any transfer process in which, compared with a dye sublimation, a significant amount of mass is transferred onto a receiving substrate. The division

considered the subject matter of claim 1 not novel, as, for each feature of claim 1, a counterpart is to be found in document A1.

In relation to subject matter in the auxiliary requests, the division considered covering a receiver substrate first with a black matrix and the filling of the openings to appear to be the best mode of carrying out the method taught by document A1. Moreover, the practitioner of document A1 is guided by the teaching of the prior art in document A10 towards using an ablative transfer process with a light to heat conversion layer comprising a metal oxide or sulphide. While not relying on document A11 for its decision, the division remarked that this document was particularly relevant since the basic construction of the donor sheet exactly corresponds to that of document A1 and also to that of the patent in suit. Furthermore, a skilled person would not hesitate to aid adhesion of transfer material by applying an adhesive layer to the receptor substrate.

III. In its appeal, the patent proprietor requested that the patent be maintained in unamended form or, in the alternative, on the basis of one of the five auxiliary requests filed with the statement of grounds for appeal. Oral proceedings were requested on an auxiliary basis. Moreover, remittal of the case to the first instance was requested, should the board consider documents including documents A11 and A16 relevant. Document A16 should not be admitted into the proceedings because of its very late filing before the oral proceedings.

IV. The respondent (=opponent) requested that the appeal be dismissed and the patent revoked. Oral proceedings were requested on an auxiliary basis.

V. Consequent to the auxiliary requests of the parties, the board appointed oral proceedings. At the end of the oral proceedings, the board gave its decision.

VI. The case of the appellant in support of the requests it presented, the wording of the independent claims thereof being given in section VIII below, can be summarised as follows.

(a) Main Request

There is nothing in document A1 which clearly describes that the undefined "wax transfer system" is a "melt stick" transfer as disclosed in the patent. Moreover, document A1 does not provide a direct and unambiguous disclosure of transferring a colorant transfer layer from a thermal mass transfer colorant donor directly to a substrate and then associating said substrate with a liquid crystal device.

The subject matter of claim 1 is therefore novel over document A1.

The appellant stressed during the oral proceedings, that document A1 indicated a use, disclosing neither specific dye or wax systems nor how an element is prepared or used. Therefore essential information is missing from its teaching. It may indeed be that the dye in the wax is vaporised consequent to heating. In any case, the specific example in document A1 does not

disclose wax transfer, but mentions a gap, i.e. it is for a sublimable system. There is no reason apart from hindsight to consult document A10. Nor is there any reason to refer to document A11, which was late filed, as this document concerns printing, where the requirements, such as resolution, in relation to paper not involving transmission through a substrate, are lower.

(b) Auxiliary Request 1

There is nothing in document A1 which indicates that use of a substrate comprising a black matrix is within any embodiments disclosed, on the contrary black grid lines are formed by the dye overlap method. The subject matter of claim 1 of this auxiliary request thus involves an inventive step.

(c) Auxiliary Request 2 and 3

Printing a colour filter necessitates arrangement of colour pixels in a pattern corresponding to the pattern of liquid crystal elements in a display whereas printing of a colour image necessitates arrangement corresponding to the image scene, requiring less definition. A combination of the teachings of documents A1 and A10 can therefore only be made in the knowledge of the invention. Document A16 is not relevant because it is not concerned with high resolution LCD filters, but with large format digital halftone proofs. Document A16 does not describe a layer consisting of dye and a gas forming composition.

(d) Auxiliary Requests 4 and 5

Document A1 neither teaches nor suggests an adhesive layer coated to as the outermost layer on the colorant donor or the substrate nor a laser induced ablative thermal transfer process.

(e) Remittal

Documents A11 and A16 were filed late, which means that the appellant did not have a proper chance to consider them, in particular document A16 was filed only just before the oral proceedings before the board.

VII. The case of the respondent can be summarised as follows.

(a) Main Request

According to page 5, lines 56-57 of document A1, there is a clear and unambiguous disclosure of a thermal mass transfer system according with the appellant's own definition in paragraph [34] of the patent under appeal, "transferred mass material carries its own binder". Paragraph [26] of the patent states that a "melt-stick" transfer process is one type of laser induced mass transfer process, in which a donor sheet having the colours thereon is used to transfer colours onto the substrate. Document A1 discloses, moreover, that the colour filter element is for use in colour LCD devices. The subject matter of claim 1 therefore lacks novelty over document A1.

(a) Auxiliary Requests

The alleged invention appears to be use of melt-stick and ablative donors in methods of forming colour filters and their subsequent association with LCD devices. There can be no invention in use of a conventional donor in a method for which it is either known or obvious. Therefore the claims of the auxiliary requests cannot be considered to involve an inventive step.

(b) Auxiliary Request 1

As the formation of a black frame on the substrate of an LCD device was known, as evidenced by document A7, and document A1 additionally teaches forming a black grid in a separate step, the independent claims of the first request represent obvious modifications of the processes taught in document A1.

(c) Auxiliary Request 2 and 3

A mass transfer colorant donor comprising a metal oxide or sulphide, and a colorant layer was well known before the priority date of the patent under appeal for both laser ablative and melt transfer as taught in document A11 or A16.

(d) Auxiliary Request 4

Transfer assist layers such as a layer of adhesive are obvious modifications of ablative-transfer and melt-transfer donor elements as taught in document A11, so

that the independent claims of the fourth auxiliary request are obvious.

(e) Auxiliary Request 5

Document A10 teaches advantages of laser-ablation mass transfer of colorant and binder from a donor element to a substrate, it would have been obvious to apply the method to manufacture of a colour filter and LCD device.

(f) Remittal

Concerning documents A11 and A16, the respondent drew attention to the fact that the opposition division had admitted document A11 into the proceedings and to the similarity of description of the patent proprietor's own document, document A16, which is also mentioned in the patent in dispute.

VIII. The independent claims according to the requests submitted by the patent proprietor are worded as follows.

Main Request

"1. A method for the manufacture of a color filter element on a substrate comprising thermally mass transferring a color transfer layer comprising a colorant disposed in a binder from a thermal mass transfer colorant donor directly to the substrate to form a pattern of at least one color on said substrate, and then associating a liquid crystal display device with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal

display device, at least a portion of said pattern of at least one color becomes visible.

6. A method for the manufacture of a color filter element on a substrate comprising the laser induced thermal transfer of a color transfer layer comprising a colorant disposed in a binder from a colorant donor directly to the substrate, said substrate comprising a black matrix on at least one surface of said substrate, said black matrix having window areas on portions thereof, to form a pattern of at least one color on said substrate within said matrix, and then associating a liquid crystal display device with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal display device, at least a portion of said pattern of at least one color becomes visible.

9. A method for the manufacture of a color filter element on a non-birefringent substrate comprising the steps of:
a) laser induced thermal transfer of black colorant from a colorant donor directly to the substrate to form a black matrix on said substrate, said black matrix having window areas on portions thereof, and
b) laser induced thermal transfer of a color transfer layer comprising a colorant disposed in a binder to the substrate where the colorant is deposed to cover window areas of said black matrix."

Auxiliary Request 1

"1. A method for the manufacture of a color filter element on a substrate comprising the laser induced

thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder from a colorant donor directly to the substrate, said substrate comprising a black matrix on at least one surface of said substrate, said black matrix having window areas on portions thereof, to form a pattern of at least one color on said substrate within said matrix, and then associating a liquid crystal display device with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal display device, at least a portion of said pattern of at least one color becomes visible.

4. A method for the manufacture of a color filter element on a non-birefringent substrate comprising the steps of:
a) laser induced thermal transfer of black colorant from a colorant donor directly to the substrate to form a black matrix on said substrate, said black matrix having window areas on portions thereof, and
b) laser induced thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder to the substrate where the colorant is deposed to cover window areas of said black matrix."

Auxiliary Request 2

"1. A method for the manufacture of a color filter element on a substrate comprising thermally mass transferring a color transfer layer comprising a colorant disposed in a binder from a thermal mass transfer colorant donor directly to the substrate to form a pattern of at least one color on said substrate, and then associating a liquid crystal display device

with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal display device, at least a portion of said pattern of at least one color becomes visible, wherein said thermal mass transfer colorant donor comprises a substrate layer, a light-to-heat conversion layer and said colorant layer, and wherein said light-to-heat conversion layer comprises metal oxide or metal sulphide.

6. A method for the manufacture of a color filter element on a substrate comprising the laser induced thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder from a colorant donor directly to the substrate, said substrate comprising a black matrix on at least one surface of said substrate, said black matrix having window areas on portions thereof, to form a pattern of at least one color on said substrate within said matrix, and then associating a liquid crystal display device with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal display device, at least a portion of said pattern of at least one color becomes visible, wherein said thermal mass transfer colorant donor comprises a substrate layer, a light-to-heat conversion layer and said colorant layer, and wherein said light-to-heat conversion layer comprises metal oxide or metal sulphide.

9. A method for the manufacture of a color filter element on a non-birefringent substrate comprising the steps of:
a) laser induced thermal transfer of black colorant

from a co1orant donor directly to the substrate to form a black matrix on said substrate, said black matrix having window areas on portions thereof, and
b) laser induced thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder to the substrate where the colorant is deposited to cover window areas of said black matrix, wherein said thermal mass transfer colorant donor comprises a substrate layer, a light-to-heat conversion layer and said colorant layer, and wherein said light-to-heat conversion layer comprises metal oxide or metal sulphide."

Auxiliary Request 3

"1. A method for the manufacture of a color filter element on a substrate comprising the laser induced thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder from a colorant donor directly to the substrate, said substrate comprising a black matrix on at least one surface of said substrate, said black matrix having window areas on portions thereof, to form a pattern of at least one color on said substrate within said matrix, and then associating a liquid crystal display device with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal display device, at least a portion of said pattern of at least one color becomes visible, wherein said thermal mass transfer colorant donor comprises a substrate layer, a light-to-heat conversion layer and said colorant layer, and wherein said light-to-heat conversion layer comprises metal oxide or metal sulphide.

4. A method for the manufacture of a color filter element on a non-birefringent substrate comprising the steps of:
a) laser induced thermal transfer of black colorant from a co1orant donor directly to the substrate to form a black matrix on said substrate, said black matrix having window areas on portions thereof, and
b) laser induced thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder to the substrate where the colorant is deposited to cover window areas of said black matrix, wherein said thermal mass transfer colorant donor comprises a substrate layer, a light-to-heat conversion layer and said colorant layer, and wherein said light-to-heat conversion layer comprises metal oxide or metal sulphide."

Auxiliary Request 4

"1. A method for the manufacture of a color filter element on a substrate comprising thermally mass transferring a color transfer layer comprising a colorant disposed in a binder from a thermal mass transfer colorant donor directly to the substrate to form a pattern of at least one color on said substrate, and then associating a liquid crystal display device with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal display device, at least a portion of said pattern of at least one color becomes visible, wherein the donor or the substrate comprises a transfer assist layer as the outermost layer of the donor or the substrate.

6. A method for the manufacture of a color filter element on a substrate comprising the laser induced thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder from a colorant donor directly to the substrate, said substrate comprising a black matrix on at least one surface of said substrate, said black matrix having window areas on portions thereof, to form a pattern of at least one color on said substrate within said matrix, and then associating a liquid crystal display device with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal display device, at least a portion of said pattern of at least one color becomes visible, wherein the donor or the substrate comprises a transfer assist layer as the outermost layer of the donor or the substrate.

9. A method for the manufacture of a color filter element on a non-birefringent substrate comprising the steps of:
a) laser induced thermal transfer of black colorant from a colorant donor directly to the substrate to form a black matrix on said substrate, said black matrix having window areas on portions thereof, and
b) laser induced thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder to the substrate where the colorant is deposed to cover window areas of said black matrix, wherein the donor or the substrate comprises a transfer assist layer as the outermost layer of the donor or the substrate."

Auxiliary Request 5

"1. A method for the manufacture of a color filter element on a substrate comprising thermally mass transferring a color transfer layer comprising a colorant disposed in a binder from a thermal mass transfer colorant donor directly to the substrate to form a pattern of at least one color on said substrate, and then associating a liquid crystal display device with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal display device, at least a portion of said pattern of at least one color becomes visible, wherein said thermal mass transfer is a laser induced ablative transfer.

6. A method for the manufacture of a color filter element on a substrate comprising the laser ablative induced thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder from a colorant donor directly to the substrate, said substrate comprising a black matrix on at least one surface of said substrate, said black matrix having window areas on portions thereof, to form a pattern of at least one color on said substrate within said matrix, and then associating a liquid crystal display device with said substrate so that upon electronically addressing of liquid crystal within said liquid crystal display device, at least a portion of said pattern of at least one color becomes visible.

9. A method for the manufacture of a color filter element on a non-birefringent substrate comprising the steps of:

a) laser induced ablative thermal transfer of black colorant from a colorant donor directly to the substrate to form a black matrix on said substrate, said black matrix having window areas on portions thereof, and
b) laser induced ablative thermal mass transfer of a color transfer layer comprising a colorant disposed in a binder to the substrate where the colorant is deposed to cover window areas of said black matrix."

Reasons for the Decision

1. The appeal is admissible.

2. *Overview*

The present case involves a wealth of detail, at the heart of which lies the question of combining teachings about donor sheets known from the image forming and printing field with those relating to manufacture of colour filters for liquid crystal displays. Unfortunately for the appellant, document A1 discloses this concept, as such, which means that the appeal fails, all the rather disparate standard features pulled from the two fields according to the various requests and thus solution to any disparate problems involved being available in the prior art documents.

3. *Prior Art*

3.1 Document A1

The following passage of document A1 (page 5, line 56 to page 6, line 1) has attracted attention during the proceedings,

"The present invention is suitable for use in wax transfer systems in which dye is contained in a wax matrix. When the wax is heated, it melts and an image pixel is transferred to the receiver. However, sublimable dyes are preferable."

Important to note is that this passage requires that an image pixel be transferred and that the wax transfer system is, by virtue of use of the word "However", contrasted with sublimable dyes. In other words, the skilled person is taught that sublimable dyes are not used in the wax transfer system. The appellant's argument that the passage may relate to sublimable transfer is not therefore credible. The board is thus satisfied that the reference to melting wax and transfer mean a thermal mass transfer within the meaning of claim 1 of the main request.

Other passages of interest concern a black matrix, for example page 2, lines 54-55, reciting "Opaque grid lines are normally used in these color filter arrays to separate the mosaic elements (pixels) or color patches from each other, and to prevent color contamination or light flare" or page 4, lines 30 to 35, reciting "Disclosed are three mask designs, which when used in any of three preferred embodiments will produce a color

filter array pattern including black grid lines created by dye-overlap of various combinations of the additive primaries red, green and blue. By utilizing the dye-overlap method, the need for a separate negative grid-pattern mask to thermally transfer black dye to form the black grid lines is eliminated, as well as the additional alignment and flash steps."

3.2 Document A7

Document A7 concerns the construction of colour filters of a liquid crystal display device. Page 2, lines 121 to 127 recite that "The colouring materials are arranged in predetermined patterns to form red, blue and green coloured filters 22, 23, 24. A black border or frame 21 is provided by colouring the boundary of each colour filter with black pigment. This is to avoid blurring of colour at the boundary of each colour filter". Moreover page 4, lines 104 to 122 recite "There is a problem of light shielding because of the existence of gaps between the colour filters or between the electrodes 97, light entering these gaps causing deterioration of the colour display. For instance, when light is passed through the glass substrate 91 some light leaks through the gaps between the colour filters and between the electrodes 97 even if the active matrix elements are not energised. There are two possible measures to counter this problem. One measure is to use negative-type liquid crystal material where light is not transmitted without a voltage being applied. Thus the transmittance of light is always shielded through the gaps between the electrodes 97. Another measure is to form a black frame between the colour filters as shown in Figure 2".

3.3 Document A10

Document A10 recites in the passage in line 1-27 on page 5, "Briefly, the present invention features improved method for transferring a contrasting pattern of intelligence from a composite ablation-transfer imaging medium to a receptor element in contiguous registration therewith, said composite ablation-transfer imaging medium comprising a support substrate (i), at least one intermediate dynamic release layer (ii) essentially coextensive therewith and an imaging radiation-ablative carrier topcoat (iii) also essentially coextensive therewith, especially a photo- and more preferably a laser-ablative carrier topcoat, said imaging radiation-ablative carrier topcoat (iii) including an imaging amount of a contrast imaging material contained therein, and said dynamic release layer (ii) absorbing such imaging radiation, e.g., laser energy, at a rate sufficient to effect the imagewise ablation mass transfer of at least said carrier topcoat (iii)".

3.4 Document A11

Document A11 discloses, for example in Figures 5 and 8 and associated description, a transfer recording medium with a donor sheet comprising a light transmitting support 1, a light to heat converting layer 3, which can include metal oxides or sulphides (see column 7, lines 44-45), and an ink layer 4 selectably in a wax matrix and including a binder. In addition to the above-described layer structure, a releasing layer may be provided between the heat transfer solid ink layer

and the interlayer or the light-heat converting layer, or an adhesive layer comprising a polymer may be provided on the heat transfer solid ink layer in order to improve the contact with the image-receiving sheet (see column 10, lines 58-64).

3.5 Document A16

Document A16 discloses in the passage in lines 60 to 66 of column 1 that a thermal transfer donor sheet comprises a backing layer (which should be transparent if backside irradiation is used), a layer comprising black metal (preferably aluminium or tin oxide) as a radiation absorbing material, a gas forming composition which decomposes into gas when irradiated, and a colorant material over the gas forming composition or in the same layer as the gas forming material

4. *Patentability - Main Request*

4.1 The patent in dispute is concerned with transferring colorant by mass transfer for manufacturing colour filters in the field of liquid crystal technology. There is no dispute that mass transfer processes were known before the priority date of the patent in dispute in the image forming field. Examples can be seen, for example, in documents A11 and A16 named in the patent in dispute.

4.2 With respect to claim 1, there are only two features where a dispute as to novelty exists, namely whether document A1 discloses (a) a thermal mass transfer and (b) association of a liquid crystal display with the substrate.

4.3 The disclosure of the wax transfer in document A1 being only mentioned in the passage in section page 5, line 56 to page 6, line 1, whereas the detailed description concerns a sublimable dye, does not mean that document A1 teaches away from wax transfer because the specific remark "The present invention is suitable for use in a wax transfer system" affirms that the wax transfer system, which is a thermal mass transfer system, can be used according to the document. Moreover, claim 1 of the patent in dispute is not very detailed about the transfer, nor indeed is this necessary in document A1 as the mechanics of thermal mass transfers are well known, albeit in the field of imaging or printing. The board can accept that, in some situations, the difference between image forming as in printing and filter manufacture may preclude use of some aspects of the one with the other. The appellant has pointed to differing resolutions in this context. The link between colour filters and mass transfer systems is nonetheless made by document A1. Moreover, the introduction of document A1 discusses both thermal transfer for printing pictures obtained from a colour video camera (page 2, lines 3-4) and liquid crystal devices (page 2, line 27). The board is thus convinced that document A1 leads the skilled person to consider that teachings from the imaging or printing field relating to mass transfer are generally applicable to colour filters. Accordingly, the board does not accept the view of the appellant that this link can only be made using hindsight. In other words, the skilled person knows a mass transfer is not precluded by the differing fields. Accordingly, any problem solved by the subject matter claimed can only amount to providing the details of the

transfer process. Any specific details missing from document A1 for effecting a mass transfer are thus readily available in the imaging or printing field in documents like A10, A11 and 16. In the subject matter of claim 1, there is no feature specific to, for example, problems of resolution. Moreover, document A1 indicates quite clearly that the process claimed is for preparing a color filter pixel array element for use in making a color liquid crystal display (see claim 1). Therefore, even if the explicit wording of claim 1 is not present in document A1 alone, the two features, the novelty of which is in dispute must be considered obvious.

4.4 The board therefore reached the view that the subject matter of claim 1 of the main request accordingly cannot be considered to involve an inventive step. The request fails accordingly.

5. *Patentability - Auxiliary Request 1 - Black Matrix*

The feature of claim 1 of this request not dealt with above in relation to the main request pertains to the "substrate comprising a black matrix on at least one surface of said substrate, said black matrix having window areas on portions thereof". Provision of a black matrix was well known in the LCD field long before the priority date of the patent in dispute as convincingly argued by the respondent with respect to document A7 and as can be seen in the passages cited above. Line 33 on page 6 of document A1 also confirms that it was known to thermally transfer black dye to form black grid lines. Thus, while the appellant is correct to say that document A1 teaches in the direction of

overlapping colours to form the matrix, this does not help with its case because what is claimed in the request is no more than the well known starting point of providing a black grid. In other words, the subject matter claimed amounts to no more than solving a problem of providing a well known alternative way to the specific example of document A1 of using black grid to mitigate the problems of colour contamination and flare. As such the solution must be considered obvious.

Consequently, this request also fails for lack of inventive step of the subject matter of claim 1.

6. *Patentability - Auxiliary Request 2 - Conversion Layer*

At issue here compared with claim 1 of the main request is not a standard LCD feature as in auxiliary request 1, but standard features pertaining to the donor in the thermal mass transfer, especially the light to heat conversion layer as follows "said thermal mass transfer colorant donor comprises a substrate layer, a light-to-heat conversion layer and said colorant layer, and wherein said light-to-heat conversion layer comprises metal oxide or metal sulphide.". The board considers the link between the imaging and LCD filter arts to have been established by document A1. Consequently, the submissions of the appellant that the teachings would not have been combined by the skilled person did not persuade the board. The features added to claim 1 of the main request can be found in document A11 or A16, relating to known transfer processes as referred to above (see especially the layer comprising black metal). Any problem solved by the light to heat conversion layer is therefore known and addressed in the prior art

documents and therefore obvious subject matter. On the question of whether document A16 discloses a layer consisting of dye an a gas forming composition, the point is moot, as the board observes that this feature is not claimed and so is not relevant. Thus, the features added to the independent claim 1 according to this request do not contribute any inventive step to the subject matter concerned.

Consequently, this request also fails for lack of inventive step of the subject matter of claim 1.

7. *Patentability - Auxiliary Request 3*

This request corresponds to auxiliary request 1 (LCD grid) with addition of features discussed with respect to auxiliary request 2 (donor layer). The claim does not therefore contain any subject matter which has not already been dealt with and is thus likewise obvious.

Consequently, claim 1 of this request also fails lack of inventive step.

8. *Patentability - Auxiliary Request 4 - Transfer Assist*

At issue here compared with claim 1 of the main request is again a standard feature pertaining to the donor in the thermal mass transfer, namely "a transfer assist layer as the outermost layer of the donor or the substrate." Such a standard feature is an obvious component in a mass transfer system as is disclosed in document A11 (see the last sentence of section 3.4 above), which does do not contribute any inventive step to the subject matter of claim 1.

Consequently, this request also fails for lack of inventive step of the subject matter of claim 1.

9. *Patentability - Auxiliary Request 5 - Ablative Transfer*

A laser induced ablative transfer, which is the feature differing from what has already been dealt with in respect of claim 1 of the main request is another standard procedure in a mass transfer process as can be seen from document A10 (see section 3.3 above) and is therefore obvious and so does do not contribute any inventive step to the subject matter of claim 1.

Consequently, this request also fails for lack of inventive step of the subject matter of claim 1.

10. *Request for remittal*

10.1 Both documents A11 and A16, concerning which remittal to the first instance was requested, were filed after the expiration of the opposition period.

10.2 While document A11 was not relied on by the opposition division in reaching its decision, it was, nevertheless, admitted to the proceedings by the opposition division on account of its relevance. In fact, the division remarked that document A11 was particularly relevant since the basic construction of the donor sheet exactly corresponds to that of document A1 and also to that of the patent in suit. Since the position of the opposition division was therefore known to the parties and the board at the start of the appeal proceedings, the board cannot see that any new situation meriting

remittal of the case for consideration of document A11 by the first instance exists. Moreover, the division had already reached a negative view on inventive step of the subject matter concerned in the claims with respect to document A10, without even relying on document A11. Consequently, the board considers a remittal pointless in relation to document A11 and was thus not in a position to comply with the request of the appellant in this sense.

10.3 The opponent made reference to document A16 filed by facsimile transmission four days before oral proceedings before the board. Here, the appellant is not only named as assignee in document A16, but the document is also discussed in the description, and moreover has, in a pertinent part relating to black metal, a passage in column 6, line 8 to column 7, line 43, which is substantially similar to paragraphs [0028] to [0033] of the patent in dispute. Three of the persons named as inventor in document D16 are also named as such in the patent in dispute. Even the specific reference in the patent in dispute to document D16 discloses the key feature as follows "…the use of black metal layers on polymeric substrates with gas-producing polymer layers which generate relatively large volumes of gas when irradiated. The black aluminium absorbs the radiation efficiently and converts it into heat for the gas generating materials…" It is not therefore really credible that there is any surprise for the appellant in dealing with this document in the appeal proceedings. Moreover, the appellant has to expect that if it digs features out of the description used in the same terms in named prior art in post grant proceedings, then the other side will

refer to that art in responding to the subject matter concerned. Furthermore, the division had already reached a negative view on inventive step of the subject matter concerned in the claims with respect to document A10, without even relying on document A16. Thus there is again no new situation meriting remittal of the case for consideration of document A16 by the first instance.

10.4 The board therefore did not accede to the request for remittal.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar The Chairman

N. Maslin A. G. Klein