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D E C I S I O N
of 9 April 2002

Case Number: T 0784/99 - 3.5.2

Application Number: 90111385.2

Publication Number: 0405262

IPC: H01J 31/12

Language of the proceedings: EN

Title of invention:
Flat panel display device

Patentee:
MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

Opponent:
Canon Kabushiki Kaisha

Headword:

-

Relevant legal provisions:
EPC Art. 123(2) and (3), 83, 84, 54, 56

Keyword:
"Amendments - generalisation of a feature derived from a drawing supported by the original description and original independent claim"

Decisions cited:

-

Catchword:

-



Case Number: T 0784/99 - 3.5.2

D E C I S I O N
of the Technical Board of Appeal 3.5.2
of 9 April 2002

Appellant:
(Opponent)

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Respondent:
(Proprietor of the patent)

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Decision under appeal:

Interlocutory decision of the Opposition Division
of the European Patent Office posted 18 May 1999
concerning maintenance of European patent
No. 0 405 262 in amended form.

Composition of the Board:

Chairman: W. J. L. Wheeler
Members: M. Ruggiu
B. J. Schachenmann

Summary of Facts and Submissions

I. The opponent appealed the interlocutory decision of the opposition division concerning the maintenance of European patent No. 0 405 262 in amended form.

II. The appellant referred to the following prior art documents during the appeal:

D5: US-A-4 451 759;

D6: JP-A-57 118 355;

D7: article by T. S. Sudarshan and J. D. Cross "The effect of chromium oxide coatings on surface flashover of alumina spacers in vacuum" published in IEEE Transactions on Electrical Insulation, vol. EI-11, No. 1, March 1976, pages 32 to 35;

D8: article by H. C. Miller "Improving the voltage holdoff performance of alumina insulators in vacuum through quasimetallizing" published in IEEE Transactions on Electrical Insulation, vol. EI-15, No. 5, October 1980, pages 419 to 428;

D9: article by H. C. Miller and E. J. Furno "The effect of Mn/Ti surface treatment on voltage-holdoff performance of alumina insulators in vacuum" published in Journal of Applied Physics, vol. 49, No. 11, November 1978, pages 5416 to 5420;

D10: article by H. C. Miller "Improving the voltage holdoff performance of alumina insulators in vacuum by quasimetallizing or doping" published in Physica, vol. 104c, 1981, pages 183 to 188;

D13: JP-A-63 006 735;

D17: EP-B-0 048 839; and

D18: JP-A-57 88 656.

All these documents were cited by the opponent after expiry of the nine months period for filing an opposition. The opposition division introduced D5, D6 and D13 into the proceedings and disregarded D7 to D10. Documents D17 and D18 were mentioned for the first time at the appeal stage. Translations in English of Japanese documents D6, D13 and D18 were provided by the appellant.

III. Oral proceedings were held before the board on 20 March 2002.

The appellant (opponent) requested that the decision under appeal be set aside and that the European patent No. 0 405 262 be revoked.

The respondent (patentee) requested that the patent be maintained in amended form in the following version:

Main request:

- claims 1 to 33 as filed during the oral proceedings,
- description columns 1 to 10 with one sheet of inserts to columns 1 and 2, as filed in the oral proceedings,
- figures 1A, 1B and 2 to 11 of the patent specification;

1st auxiliary request:

- claims 1, 10 and 23 as filed in the oral proceedings with claims 2 to 9, 11 to 22 and 24 to 33 of the main request,
- description and drawings of the main request;

2nd auxiliary request:

- claim 1 as filed in the oral proceedings with claims 2 to 33 of the first auxiliary request,
- description and drawings of the main request.

IV. The main request of the respondent comprises independent claims 1, 10 and 23 which read as follows (differences with respect to the respective independent claims 1, 10 and 25 as granted underlined by the board):

"1. A flat panel display device comprising:
a face plate (1) made of transparent material;
a back plate (11) positioned parallel to said face plate (1);
a wall member (13) extending between said face plate (1) and back plate (11) around the perimeter thereof to define an airtight housing:
an anode (3) provided on an inner surface of said face plate (1);
a fluorescent layer (5) provided in association with said anode (3);
a cathode (9) provided in association with an inner surface of said back plate (11); and
a plurality of struts (S) tightly held between said back plate (11) and face plate (1),
characterized in that
said struts (S) being made of electrically conductive material having a predetermined specific resistance and electrically connecting said anode (3) and cathode (9).

whereby an electric charge accumulated between said anode (3) and cathode (9) is discharged by a leakage current flowing through said struts (S)."

"10. A flat panel display device comprising:
a face plate (1) made of transparent material;
a back plate (11) positioned parallel to said face plate (1);
a wall member (13) extending between said face plate (1) and back plate (11) around the perimeter thereof to define an airtight housing;
a beam control layer (G) inserted between said face plate (1) and back plate (11);
an anode (3) provided on an inner surface of said face plate (1);
a fluorescent layer (5) provided in association with said anode (3);
a cathode (9) provided in association with an inner surface of said back plate (11); and
a plurality of struts (S4', Sf) tightly held between said beam control layer (G) and face plate (1), said struts (S4', Sf) include first struts (S4') provided on said beam control layer (G) extending parallel to each other in a first direction, wherein said first struts (S4') are electrically conductive;
characterized in that those struts (Sf'), that are adjacent to said face plate (1), are rigidly mounted on said face plate (1) and that said struts further include second struts (Sf) provided on said face plate (1) extending parallel to each other in a second direction, perpendicular to said first direction so that the struts (S4', Sf) are held in contact crossingly with each other, said plurality of struts (S4', Sf) being made of electrically conductive material,
whereby an electric charge accumulated between said anode (3) and beam control layer (G) is discharged by a leakage current flowing through said struts."

"23. A flat panel display device comprising:
a face plate (1) made of transparent material;
a back plate (11) positioned parallel to said face plate (1);
a wall member (13) extending between said face plate (1) and back plate (11) around the perimeter thereof to define an airtight housing:
first and second beam control layers (G1, G2) placed one over the other and inserted between said face plate (1) and back plate (11);
an anode (3) provided on an inner surface of said face plate (1);
a fluorescent layer (5) provided in association with said anode (3);
a cathode (9) provided in association with said back plate (11); and
a plurality of struts (S1', S2) made of electrically conductive material tightly held between said first and second beam control layers (G1, G2),
whereby an electric charge accumulated between said first and second beam control layers (G) is discharged by a leakage current flowing through said struts (S1', S2);
wherein said struts (S1', S2) include fifth struts (S1') provided on said first beam control layer (G1) extending parallel to each other in a first direction; characterized in that said struts (S1', S2) include sixth struts (S2) provided on said second beam control layer (G2) extending parallel to each other in second direction, perpendicular to said first direction, so that struts (S1', S2) are held in contact crossingly with each other."

Claims 2 to 9 of the main request are dependent on claim 1, claims 11 to 22 on claim 10 and claims 24 to 33 on claim 23.

Each of the two auxiliary requests also comprises three independent claims 1, 10 and 23, including further features with respect to the independent claims of the main request.

- V. Regarding the proprietor's main request, the appellant opponent essentially argued as follows:

Claim 1

Claim 1 had been amended to recite "a predetermined specific resistance" for the electrically conductive material of the struts, whereas the application as originally filed provided support only for a specific resistance between 10^6 and 10^{10} Ω .cm.

The amendment to claim 1 that the struts electrically connected the anode and the cathode of the display device was based on Figure 5. However this figure provided support only for the struts contacting the anode at exposed portions thereof, between strips of the fluorescent layer provided over the anode.

These features of claim 1 thus constituted intermediate generalisations which were not supported by what had been disclosed originally, so that claim 1 contravened Article 123(2) EPC.

Claim 1 covered embodiments in which the fluorescent layer covered the anode entirely and the patent did not teach how it was possible to provide a conduction path to the anode through the fluorescent layer. The claim therefore contravened Article 83 or 84 EPC.

The boundaries of claim 1 were unclear as the leakage current specified therein was in no way quantified or quantifiable and thus was indistinct from an undesirable short-circuit. Furthermore claim 1 recited

"a fluorescent layer (5) provided in association with said anode (3)". The term "in association with" was vague and was not sufficient to define the features providing electrical connection between the struts and the anode. Thus, claim 1 was not clear and contravened Article 84 EPC.

Document D5 disclosed a flat panel display device having the features specified in the pre-characterising portion of claim 1. The struts described in D5 were formed by mutually engaging pins and hollow cylinders. Furthermore D5 taught the provision of a resistive coating on at least one of said pins and hollow cylinders to discharge wall charges that could occur at the spacers formed by the pins and hollow cylinders. It was implicit in D5 that both the pins and the cylinders could be provided with the resistive coating and in any case this was explicitly disclosed in documents D17 and D18 which were members of the same patent family as D5. Furthermore, it was obvious to dip the pins and hollow cylinders in a solution containing the conductive material and thereby coat their whole surface. Document D5 also indicated that the spacers were short-circuit proof due to a long leakage path and that, due to the use of pins and hollow cylinders to form the spacers, a relatively long path was brought about between the control matrix, i.e. the cathode, and the anode strips of the flat panel display device. Thus, it would be apparent to a skilled person that the struts of D5, formed by the pins and hollow cylinders, were made of electrically conductive material, that they electrically connected the anode and cathode of the flat panel display device and that, consequently, a leakage current flowed through them to discharge electric charge that otherwise could accumulate between the anode and cathode.

Thus, the subject-matter of claim 1 lacked novelty over the disclosure of D5, or alternatively D17 or D18.

Claim 1 covered embodiments with an intermediate element inserted in the path between the cathode and the anode, in particular in which the fluorescent layer was disposed between the struts and the anode. Thus, the subject-matter of claim 1 was not new, even if it was considered D5 and D6 did not disclose a direct connection between the cathode and the anode.

In any case, the subject-matter of claim 1 did not involve an inventive step or even was not new in view of D6, because this document taught in general that electric charges that could accumulate between electrodes of a flat panel display device could be removed by electrically connecting the electrodes through the spacing struts, which were made of electrically conductive material such that a leakage current flowed between the electrodes.

Furthermore, documents D7 to D10 gave an outline of common general knowledge in the field and suggested the suppression of flash-overs by applying a resistive coating to insulators arranged in a vacuum, so that a leakage current flowed. Thus, the subject-matter of claim 1 was also obvious in view of D7 to D10.

Claim 10

The expression "those struts" in the characterising part of the claim had no proper antecedent, so that the wording of the claim lacked clarity and contravened Article 84 EPC.

The subject-matter of claim 10 was obvious in view of the disclosure in documents D6 and D13 together with common general knowledge as evidenced by documents D7 to D10.

In particular, D13 disclosed a flat panel display device using crossed rod-shaped insulators as struts between electrodes. It was obvious to use this structure in the flat panel display of D6 and thereby arrive at the subject-matter of claim 10.

Starting from D13, it was also obvious in view of the disclosure of D6 to make the struts conductive to remove charge that would accumulate on the struts because, although D13 stated that no charge up would occur on the struts, it was apparent that some stray electrons would impinge thereon, causing a build-up of charge.

The feature of claim 10 that some struts were rigidly mounted on the face plate was itself devoid of inventive merit and was in a mere collocation relationship to the other features of the characterising portion of claim 10.

Claim 23

Document D13 disclosed all the features of claim 23 except for the struts being made of electrically conductive material to provide a leakage current between the beam control layers. D13 stated that the electron beam did not strike the insulating supporting structure. However, the skilled person would realise that such a statement was an over-simplification and that it was not possible to prevent some stray electrons from impinging on the supporting structure. Thus, a person of ordinary skill using common general knowledge would use the technique commonly available in

the art of making the insulative material conductive on the surface in order to remove or prevent the build-up of charge. Therefore, starting from document D13, the subject-matter of claim 23 was obvious in view of the disclosure in document D6 and common general knowledge as evidenced by documents D7 to D10.

VI. The arguments of the respondent proprietor in respect of his main request can be summarised as follows:

Documents D7 to D10 should not be introduced into the proceedings because they were directed to a different technical area and of no relevance for panel displays.

Documents D17 and D18 claimed the same priority as D5 and largely corresponded to D5. The fact that the wording of claim 4 of D17 or D18 differed from that of claim 5 of D5 did not mean that the disclosure of D17 or D18 was different from that of D5. D5, D17 and D18 all proposed coating the surfaces of the pins and/or hollow cylinders that faced the electron rays with a slightly conductive coating. However, this teaching did not imply that an electrical connection between the cathode and the anode was provided. Furthermore, it was not permissible to consider that claims having a general wording would disclose such a specific teaching. On the contrary, D5, D17 and D18 stressed that a short-circuit had to be avoided. Thus, there was no reason to introduce documents D17 and D18 into the proceedings.

Claim 1

The amendments made to claim 1 were clarifications of the originally filed claim 1, and therefore the invention defined by present claim had been disclosed originally at the same level of generality as in

present claim 1. Furthermore, the EPC did not include any provision prohibiting the subject-matter of a claim from being more general than a particular embodiment.

It was apparent to a skilled person that no insulating section, such as the fluorescent layer, should be interposed between the struts and the anode if a conductive path was to be obtained between the anode and the cathode. Thus, since claim 1 specified such a conductive path between anode and cathode, it implied that no insulating section was interposed therebetween.

A person skilled in the art had no difficulty in distinguishing a leakage current from a short-circuit, so that claim 1 was clear in this respect.

The opposition division considered that document D6 disclosed the closest prior art. In all embodiments of D6, an insulator was always present in the path between the cathode and the anode. Hence, no direct electrical connection was present between the cathode and the anode of D6.

D5 aimed at obtaining a high voltage insulation between the anode and the cathode. D5 taught that this could be achieved by means of a folded surface formed by mutually engaging pins and hollow cylinders. D5 suggested coating those surfaces of the pins or hollow cylinders facing the electron rays with a slightly conductive coating to remove wall charges that could occur on them. It did not suggest both the pins and hollow cylinders should be completely coated.

Furthermore, creating an electrical connection between the cathode and the anode would be contrary to the aim of D5.

Claim 10

Document D6 disclosed the prior art closest to the subject-matter of claim 10. In D6 rod-like spacers disposed between the anode and a beam control layer were made slightly conductive. The disadvantage of the arrangement disclosed in D6 was that the rod-like spacers had to be accurately aligned. Additionally, different thermal expansion coefficients of the metal-backed layer constituting the anode, the beam control layer and the spacers could lead to relative movement of these elements, which would lead to damage and misalignment.

The subject-matter of claim 10 avoided these disadvantages by a combination of different features:

- first struts were provided on the beam control layer extending parallel to each other in a first direction;
- second struts were provided on the face plate extending parallel to each other in a second direction perpendicular to the first direction, so that the second struts were held in contact crossingly with the first struts;
- those struts that were adjacent to the face plate were rigidly mounted on the face plate;
- all struts were made of conductive material.

Rigidly mounting the second struts on the face plate prevented any relative movement between these two parts and thus any consequent damage of the fluorescent layer. Furthermore, a slight misalignment of the first and second struts would not change the distance between the face plate and the back plate.

Document D13 was directed to the same problem as D6, namely the prevention of charging of the spacer elements in a flat panel display device. This problem was solved in D13 by providing crossing glass rods as spacer elements between electrodes, which rods were disposed such that almost no charging occurred.

Therefore, there was no reason to combine the teachings of D13 and D6. Even a combination of D6 and D13 would not lead to the subject-matter of claim 10, because the crossing rods were not made of electrically conductive material.

Claim 23

The difference between claim 23 and claim 10 was that the crossing struts of claim 23 were held between first and second beam control layers. Thus, the arguments brought forward in respect of claim 10 also applied to the subject-matter of claim 23.

Reasons for the Decision

1. The appeal is admissible.

Proprietor's main request

2. *Article 123(3) EPC*

Claim 1 contains all the features of claim 1 as granted as well as further limiting features. The same is true of claim 10 with respect to claim 10 as granted and claim 23 with respect to claim 25 as granted.

Thus, the claims have not been amended in such a way as to extend the protection conferred and Article 123(3) EPC has not been contravened.

Claim 1

3. *Article 123(2) EPC*

- 3.1 Claim 1 as originally filed specified struts of electrically conductive material tightly held between the back and face plates, whereby an electric charge accumulated between the anode and cathode is discharged by a leakage current flowing through said struts.

Furthermore, the description of the original application at page 10, lines 11 to 17 (which is identical to the passage at column 5, lines 15 to 22 of the printed patent specification) indicates that, as the electric potential between the anode and the cathode increases, a small leakage current, such as 1 μA in total, flows through all the struts, so that the electric potential accumulated between anode and cathode is maintained within a predetermined level and no spark discharge occurs.

Another passage at page 10, lines 2 to 8 of the application as originally filed (which is identical to the passage at column 5, lines 5 to 11 of the printed patent specification) indicates that, according to the invention, each strut has such an electric conductive characteristic that the specific resistance is set between 10^6 and 10^{10} $\Omega\cdot\text{cm}$.

The board considers that the skilled person, in view of the general wording used in originally filed claim 1 and in the first cited of the above passages of the description, would understand that the material of the struts can have any specific resistance such that electric charge accumulated between the anode and the cathode is discharged by a leakage current flowing through the struts (as distinct from an undesirably large "short-circuit" current).

3.2 The feature of claim 1 that the struts electrically connect the anode and the cathode has been derived at least in part from Figure 5 which illustrates a specific embodiment of the invention. In the view of the board, deriving features from a figure showing a specific embodiment to insert them in a claim practically inevitably entails some generalisation of what is shown in the figure. The generalisation should however be apparent to a skilled person in view of the whole content of the application as filed, i.e. also taking into account the description and the claims.

In the present case, neither the originally filed claim 1, nor the description, mentions that the struts contact the anode at exposed portions thereof between strips of the fluorescent layer provided over the anode. On the contrary, as shown in point 3.1 above, they express in general terms that a leakage current should flow through the struts between the anode and the cathode. Thus, the skilled person reading the application as filed would realise that the gist of the invention lies in electrically connecting the anode and the cathode by means of the struts rather than in any particular arrangement achieving this.

3.3 For these reasons, the board has come to the conclusion that claim 1 does not infringe Article 123(2) EPC.

4. *Sufficiency of disclosure (Article 83 EPC)*

The description of the patent discloses, at column 4, lines 50 to 55, struts contacting the anode. Furthermore, at least Figure 5 of the patent shows conductive struts which electrically connect the cathode with exposed portions of the anode. Thus, the patent discloses how to provide an electrical contact between the struts and the anode, and thus an electrical connection between the cathode and the

anode, in a manner sufficiently clear and complete for it to be carried out by a skilled person and therefore meets the requirement of Article 83 EPC.

5. *Clarity (Article 84 EPC)*

Although the expression "predetermined specific resistance" read alone may be unclear, the functional requirement recited at the end of claim 1 that a leakage current, as distinct from a short-circuit current, flows through the struts, does at least imply that the leakage current should be such as not to impair operation of the display device. Thus, the board considers that, for practical purposes, claim 1 is sufficiently clear as regards the resistance of the struts.

Present claim 1 explicitly specifies struts electrically connecting the anode and the cathode of the flat panel display. In the view of the board, this implies that no insulating section should be present in a path between the anode and the cathode that comprises the conductive struts.

Therefore, claim 1 meets the clarity requirement of Article 84 EPC.

6. *Novelty (Article 54 EPC)*

6.1 *Novelty with respect to D5, D17 and D18*

Document D5 discloses a flat panel display device having a plurality of struts tightly held between a face plate and a back plate. The struts are formed by mutually engaging pins and hollow cylinders, the pins being formed on the face plate and the hollow cylinders

on the back plate. Each pin extends into one of the hollow cylinders without touching its side wall, and makes contact with the cylinder bottom.

According to D5, in this manner, a relatively long path is brought about along the strut surface between a control matrix provided with a cathode layer on the back plate and anode strips provided on the face plate. D5 further indicates that the struts are short-circuit proof due to this long leakage path. In the view of the board, this means that short-circuits are to be avoided by the provision of a long path, but does not mean that a leakage current flows through the struts.

D5 also discloses that it is advisable to provide a slightly conductive coating, such as a lithium compound in an aqueous solution, on the surfaces of the pins or hollow cylinders facing the electron rays. Even if both the pins and the cylinders are provided with this conductive coating, this does not imply that they are both completely coated. Furthermore, D5 is silent as regards an eventual electrical connection of the hollow cylinders with the cathode and of the pins with the anode strips.

Thus, in the view of the board, D5 does not disclose conductive struts electrically connecting the anode and the cathode.

D17 and D18, which are documents claiming the same priority as D5, do not go beyond the disclosure of D5 as discussed above.

6.2 Novelty with respect to D6

D6 discloses a flat panel display device, wherein beam control layers formed by electrodes and a plurality of struts formed by platelike spacers and rodlike spacers

are tightly packed between the back and face plates of the display device. D6 proposes to remove wall charges by making the platelike spacers conductive so that a leakage current flows between electrodes or between an electrode and the cathode. According to D6 this can be achieved by using electrically conductive glass or ceramics for the spacers or by coating insulating spacers with a conductive film. D6 indicates that the rodlike spacers arranged between the cathode and a beam control layer can be made conductive to remove wall charges, but this is proposed for the case where only the path between the cathode and the neighbouring electrode is conductive.

Thus, the board takes the view that D6 does not disclose an electrical connection between the anode and the cathode of the display device.

- 6.3 Since the other documents do not come closer to the claimed subject-matter, the board concludes that the subject-matter of claim 1 does not form part of the state of the art cited by the appellant and therefore has to be considered as new.

7. *Inventive step (Article 56 EPC)*

- 7.1 The essential difference between the subject-matter of claim 1 and the state of the art disclosed in document D5 or D6 is that struts of conductive material electrically connect the anode and the cathode of the flat panel display device, whereby a leakage current flows through the struts between the anode and the cathode.

This prevents any accumulation of electrical charge on the struts or on parts in connection therewith and, as indicated in the patent, avoids electric spark discharges in the display device.

7.2 As explained in the above discussion of documents D5 and D6, these documents only disclose making part of the path between the anode and the cathode electrically conductive. Thus, these documents do not make the invention defined by claim 1 obvious because they do not suggest to make the complete path between anode and cathode of the display device electrically conductive.

7.3 Documents D7 to D10, in particular D7, disclose coating a ceramic insulator with a slightly conductive material, so that a leakage current flows between conductors for the purpose of avoiding a flash-over between the conductors in vacuum. However none of D7 to D10 refers to flat panel display devices, and the board considers that the skilled person has no reason to apply the teaching of D7 to D10 to flat panel display devices such as disclosed in D5 and D6. Indeed, D5 and D6, as explained above, disclose making only part of the path between the anode and the cathode of a flat panel display device conductive, implying that the whole path between the anode and the cathode should not be conductive in order to avoid short-circuits or leakage currents between the anode and the cathode.

7.4 The board has therefore come to the conclusion that, having regard to the state of the art cited by the appellant, the subject-matter of claim 1 is not obvious to a skilled person and thus has to be considered as involving an inventive step.

Claim 10

8. *Clarity (Article 84 EPC)*

As regards the objection that claim 10 is not clear because the term "those struts" lacks an antecedent, the board observes that claim 10 specifies that the

struts in question are those "that are adjacent to said face plate (1)". Thus, the wording of claim 10 is clear.

9. *Inventive step (Article 56 EPC)*

9.1 It is not contested that the subject-matter of claim 10 is new and that document D6 discloses the closest prior art. In particular, D6 describes a flat panel display device having the features specified in the pre-characterising portion of claim 10 with struts formed by a plurality of parallel rods arranged between the anode and a beam control layer of the display device. D6 indicates that these parallel rods can be conductive to avoid charges accumulating thereon. Figure 2 of D6 shows that the parallel rods are provided on the beam control layer.

9.2 Therefore, the subject-matter of claim 10 differs from the state of the art disclosed in D6 essentially in that second struts of electrically conductive material are rigidly mounted on the face plate of the flat panel display device, the second struts extending parallel to each other in a second direction perpendicular to the direction of the first struts provided on the beam control layer, the second struts being held in contact crossingly with the first struts.

A beneficial effect of these novel features is that the beam control layer with its first struts can slightly move relatively to the face plate of the flat panel display device without causing damage to the fluorescent layer or the anode.

9.3 Document D13 discloses a flat panel display device with electrodes that are separated by a structure formed by insulating rods. In particular, four groups, each formed by glass rods parallel to each other, are

arranged one above the other so that the rods of adjacent groups cross along perpendicular directions. The rods of adjacent groups are fixed to each other by frit glass and the whole structure is also affixed with frit glass to the electrodes it separates.

Thus, D13 discloses a rigid insulating structure for separating electrodes, which is rigidly mounted on both electrodes and thus does not allow relative movement between the electrodes.

9.4 Therefore, the structure disclosed in D13 does not provide the beneficial effect achieved by the subject-matter of claim 10. In particular, D13 does not suggest the feature of claim 10 that first and second struts are provided on separate elements of the flat panel display device.

9.5 For these reasons, the board has come to the conclusion that, having regard to the state of the art cited by the appellant, the subject-matter of claim 10 is not obvious to a skilled person and thus has to be considered as involving an inventive step.

Claim 23

10. *Inventive step (Article 56 EPC)*

The difference between claim 23 and claim 10 is that the crossing struts of claim 23 are held between first and second beam control layers. Therefore, the arguments developed above in respect of claim 10 also apply to the subject-matter of claim 23.

Thus, having regard to the state of the art cited by the appellant, the subject-matter of claim 23 is not obvious to a skilled person and has to be considered as involving an inventive step.

11. The subject-matter of dependent claims 2 to 9, 11 to 22 and 24 to 33 of the main request is also to be regarded as new and inventive in view of the conclusion reached for independent claims 1, 10 and 23.

Furthermore the dependent claims, the description and the drawings have been amended for consistency with the subject-matter of the independent claims and for acknowledging the prior art submitted during the opposition.

Therefore, taking into account the amendments made to the patent in the version of the main request, the board finds that the patent and the invention to which it relates meet the requirements of the EPC.

12. The proprietor's auxiliary requests need not be considered.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent as amended according to the proprietor's main request in the following version:

Description:

columns 1 to 10 with one sheet of inserts to columns 1 and 2, as filed in the oral proceedings;

Claims:

Nos 1 to 33 according to the main request filed during the oral proceedings;

Drawings:

Figures 1A, 1B and 2 to 11 of the patent specification.

The Registrar:



M. Hörnell

The Chairman:



W. J. L. Wheeler

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