

BESCHWERDEKAMMERN
DES EUROPÄISCHEN
PATENTAMTS

BOARDS OF APPEAL OF
THE EUROPEAN PATENT
OFFICE

CHAMBRES DE RECOURS
DE L'OFFICE EUROPEEN
DES BREVETS

Internal distribution code:

- (A) [] Publication in OJ
- (B) [] To Chairmen and Members
- (C) [X] To Chairmen
- (D) [] No distribution

**Datasheet for the decision
of 15 December 2008**

Case Number: T 0692/06 - 3.4.02

Application Number: 03007056.9

Publication Number: 1353217

IPC: G02F 1/1337

Language of the proceedings: EN

Title of invention:

Optical alignment method and liquid crystal display element

Applicant:

JSR Corporation, et al

Opponent:

-

Headword:

-

Relevant legal provisions:

-

Relevant legal provisions (EPC 1973):

EPC Art. 83, 56, 54

Keyword:

"Decision of examining division: confirmed"

Decisions cited:

-

Catchword:

-



Case Number: T 0692/06 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 15 December 2008

Appellant:

JSR Corporation
6-10, Tsukiji 5-chome
Chuo-ku
Tokyo 104-0045 (JP)

Representative:

TBK-Patent
Bavariaring 4-6
D-80336 München (DE)

Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted 16 December 2005
refusing European application No. 03007056.9
pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: A. Klein
Members: M. Stock
C. Rennie-Smith

Summary of Facts and Submissions

I. The applicant and appellant has appealed against the decision of the examining division refusing European patent application number 03007056.9 (published as EP 1 353 217 A1). Reference was made to the following documents:

D2: GB-A-2 314 170

D3: US-A-6 143 380

The examining division reasoned in particular that the claims and the disclosure of the invention according to a main request failed to comply with Articles 84 and 83 EPC 1973, respectively, and that the subject matter according to first and second auxiliary requests then on file failed to comply with Article 52(1) EPC 1973.

II. In its statement of grounds of appeal the appellant confirmed that the main request and the first and second auxiliary requests underlying the appealed decision were maintained. Additionally a third auxiliary request was filed.

The appellant's arguments can be summarised as follows:

The new set of claims contains three independent claims of the same category. According to Rule 29(2)c) EPC 1973, a European patent application may contain more than one independent claim in the same category only if the subject matter of the application involves alternative solutions to a particular problem, where it

was not appropriate to cover these alternatives by a single claim. This applied to the present case.

Since the examination division had expressed the opinion in an earlier communication that the subject matter of claim 6 was novel and inventive over the cited prior art, the main request based on subject-matter of these claims was patentable.

To the objection of the examining division that dependent claim 2 of the main request was incompatible with independent claim 1, it was stated that a slit exposure mask was a means for generating an optical exposure pattern by interference. Therefore, both features were consistent.

Moreover, the appellant forwarded arguments in support of novelty and inventive step in the subject-matter claimed in accordance with the first to third auxiliary requests.

In a summary of its statement the appellant criticised the behaviour of the examining division, and requested reimbursement of the appeal fee because of "substantial procedural violations".

III. In an annex to summons to oral proceedings requested by the appellant, the Board made a preliminary non-binding communication. It appeared that the appeal was likely to be dismissed. The oral proceedings should give the appellant an opportunity to present arguments in support of the claimed subject-matter. In particular, a detailed explanation would be needed, how the invention

should be put to work and why this was evident to the skilled person reading the application.

Reimbursement of the appeal fee, as requested by the appellant, could only take place, if the Board decided to set the decision of the examining division aside and detected a substantial procedural violation, see Rule 103(1)(a) EPC 2000. This seemed to be unlikely.

- IV. In the oral proceedings on 15 December 2008 the appellant maintained its requests apart from the request for reimbursement of the appeal fee which was withdrawn. The relevant claims according to the various requests read as follows:

Main request

1. An optical alignment method comprising providing liquid crystal aligning capability to the surface of a polymer film by exposing the surface of the polymer film to radiation with an irradiation intensity distribution while the surface of the polymer film and radiation source are moved relative to each other at a fixed rate, wherein

either the surface of the polymer film is moved and the radiation source is fixed, or both of the surface of the polymer film and the radiation source are moved in the same direction at different rates, or

both of the surface of the polymer film and the radiation source are moved in different directions, characterised in that

said exposing the surface of the polymer film to radiation is performed through an optical exposure pattern while the optical exposure pattern having a

plurality of lines with a certain width at certain intervals is formed on the surface of the polymer film continuously in such a manner that the lines formed around a certain virtual base point on the surface of the polymer film, expand concentrically toward the periphery and disappear at the periphery, or that they start from the periphery away from the virtual point, converge concentrically on the virtual base point and disappear at the virtual base point.

2. The optical alignment method according to claim 1, wherein liquid crystal aligning capability is provided to the surface of the polymer film by exposing the surface of the polymer film to radiation through a slit exposure mask while the surface of the polymer film and the slit exposure mask are moved relative to each other at a fixed rate.

First auxiliary request

1. An optical alignment method comprising providing liquid crystal aligning capability to the surface of a polymer film by exposing the surface of the polymer film to radiation of polarised light with an irradiation intensity distribution while the surface of the polymer film and radiation source are moved relative to each other at a fixed rate, wherein the radiation is irradiated onto the polymer surface in the normal direction.

Second auxiliary request

1. An optical alignment method comprising providing liquid crystal aligning capability to the surface of a

polymer film by exposing the surface of the polymer film to radiation of polarised light with an irradiation intensity distribution while the surface of the polymer film and radiation source are moved relative to each other at a fixed rate only in one moving direction, wherein the radiation is irradiated onto the polymer surface in the normal direction.

Third auxiliary request

1. An optical alignment method comprising providing liquid crystal aligning capability to the surface of a polymer film by exposing the surface of the polymer film to radiation of polarised light with an irradiation intensity distribution while the surface of the polymer film and radiation source are moved relative to each other at a fixed rate, wherein the radiation is irradiated onto the polymer surface through a slit exposure mask having a large number of parallel slits in the normal direction.

Reasons for the Decision

Main request

1. The Board agrees with the objections raised by the examining division under Articles 83 and 84 EPC, that the application as claimed does not contain enough technical information for the skilled person to carry out the invention. In particular, in the absence of sufficient information in the application documents it is not clear how a slit exposure mask defined in claim 2 according to the main request can produce lines

formed on the polymer film around a virtual base point, which according to claim 1 expand or converge, as a consequence of a relative movement of the polymer film and the slit exposure mask.

2. In this connection, the appellant made reference to Figures 5 and 6 of the published application with the associated description, page 32, paragraphs 0138 to 0140, from which it was clear to the skilled person that an interference pattern generated by a projector would be equivalent to the slit exposure mask defined in claim 2 and that the relative movement of the slit and the surface of the polymer could be obtained by shifting the phase of the interference fringe.
3. This argument does not convince the Board. It remains unclear how the relative movement of the slit and polymer surface shown in Figure 6 can generate a concentrically expanding or converging pattern around a virtual point, as shown in Figure 5 and defined in present claim 1. Even though it can be accepted that "a slit exposure mask may be a means for generating an optical exposure pattern by interference" as stated by the appellant in its statement of grounds (see section II above), it is not explained which movement generates the concentric expansion or convergence from and to, respectively, a virtual point. The fact that the exposure through a slit involves interference is well known and its mere mention is not sufficient for the skilled person to carry out the present invention.
4. Therefore the main request is not allowable.

First and second auxiliary requests

5. The feature of claim 1 according to the auxiliary requests that the radiation is irradiated onto the polymer surface in the "normal" direction is not explicitly mentioned in the original application. According to the appellant, this feature is merely intended to define a general direction of the radiation, which is symmetric around an axis which in turn is normal to the polymer surface, as shown in Figures 3, 4, 6 or 10.
6. However, the subject-matter of claim 1 according to the first auxiliary request, in the given interpretation of "normal direction", is entirely disclosed in D2, see Figures 5 and 6, and from D3, see Figure 1.
7. The appellant has argued that D3 discloses oblique exposure as was shown in Figure 1. This is not accepted by the Board because the oblique exposure is mentioned at column 11, lines 5 to 13, as part only of a dual exposure, i.e. exposure in two steps: (a) exposing the optical alignment layer to polarised light (beam 7 in Figure 1) at a normal incidence, (b) exposing the optical alignment layer to polarised light (beam 6) at an oblique incidence. The intensity ratio of the optical power in the two beams 6 and 7 is adjusted to 1:6 (see column 15, lines 6 to 15). Hence a beam of relatively high power exposes the substrate at normal incidence.
8. The Board also agrees with the examining division that it was obvious for the skilled person to enlarge the line focus in order to cover the entire width of the

polymer surface by one scan, what would enhance efficiency and readily result in a relative movement in only one direction, as set out in claim 1 of the second auxiliary request.

9. Therefore, the subject-matter of claim 1 according to the first and second auxiliary requests lacks novelty and fails to involve an inventive step, respectively.

Third auxiliary request

10. Claim 1 according to the third auxiliary request specifies in addition that radiation of polarised light is irradiated onto the polymer surface through a slit exposure mask having a large number of parallel slits in the normal direction. It is noted in this connection that "large" is a relative term the meaning of which is not clear. The term "large" is mentioned only once in the description, namely in the context of the description of Figure 3 (see paragraph 0129) showing a mask 3 with four slits each having a width of 7 μm . Having this vague disclosure in mind, reference is made to D3, column 10, lines 60 to 65, disclosing various methods of exposing the substrate, e.g. by polarised light transmitted through at least one mask having a pattern, which, like the alternative methods of scanning a beam of polarised light and generating interference of coherent optical beams, produces alternating dark and bright lines. Details of the mask like the number of parallel slits could be determined by the skilled person in accordance with circumstances.
11. The subject-matter of claim 1 according to the third auxiliary request therefore lacks an inventive step.

Conclusion

12. For the above reasons, which take into due account the arguments of the appellant, the Board maintains that none of the requests is allowable, since their subject-matter as far as disclosed in the meaning of Article 83 EPC 1973 or clear and supported by the description according to Article 84 EPC 1973 EPC does not meet the requirements of Article 52(1) EPC because it is not new within the meaning of Article 54(1) and (2) EPC 1973 or does not involve an inventive step within the meaning of Article 56 EPC 1973.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Kiehl

A. G. Klein