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**Datasheet for the decision
of 3 July 2008**

Case Number: T 0407/05 - 3.4.02

Application Number: 02001117.7

Publication Number: 1202106

IPC: G02F 1/09

Language of the proceedings: EN

Title of invention:

Optical filter device and method of controlling transmittance

Applicant:

FUJITSU LIMITED

Opponent:

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Headword:

-

Relevant legal provisions:

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Relevant legal provisions (EPC 1973):

EPC Art. 56
RPBA ART. 13

Keyword:

"Main and first auxiliary request: inventive step (no)"
"Second auxiliary request not admitted (too late, not searched)"

Decisions cited:

-

Catchword:

-



Case Number: T 0407/05 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 3 July 2008

Appellant:

FUJITSU LIMITED
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Representative:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 11 November 2004
refusing European application No. 02001117.7
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 no. 02 001 11767 (publication EP 1 202 106 A1), which is a divisional application, for the reason that the claims according to a main request and first to third auxiliary requests then on file contain subject-matter which extended beyond the content of the corresponding earlier application no. 98 114 541.0 (parent application) contrary to Article 76(1) EPC 1973. A fourth request was not allowable for lack of clarity under Article 84 EPC 1973 and of an inventive step within the meaning of Article 56 EPC 1973, and a fifth request was not admitted according to former Rule 71a EPC 1973. Reference was made to the following documents:

D1: PAJ of JP 7 120 711

D2: PAJ of JP 6 130 339

II. In a "Statement in Support of the Appeal" the applicant requested that a patent be granted on the basis of amended claims 1 to 4 submitted with the above statement. The applicant argued as follows:

The amended independent claims 1 and 3 are further clarified in comparison to the independent claims 1 and 3 of the version according to the fourth auxiliary request filed during the oral proceedings before the examining division.

The terms in the amended claims "birefringent optical means" and "Faraday rotator means" reflect that in some of the various embodiments disclosed in the present application, such means may comprise more than one birefringent plate or more than one Faraday rotator, respectively, as illustrated, for example, in Figs. 17, 19 and 21 of the present application.

It was believed that the amended claims meet the requirements of Articles 84 and 76(1) EPC 1973.

As far as novelty is concerned it appeared to be not in dispute that the subject-matter of the independent claims 1 and 3 according to the aforementioned fourth auxiliary request are new over any of cited documents D1 and D2. This appeared to be applicable also to the subject matter of the amended independent claims 1 and 3 of the present version.

With regard to inventive step over D1, reference was made to arguments included in the earlier submission of Aug. 27, 2004, particularly in view of the Exhibits 1 and 2 which had been attached to said submission. With regard to inventive step over D2, reference was also made to arguments included in the earlier submission. It appeared that these arguments were not sufficiently taken into consideration by the examining division in the oral proceedings and its decision.

III. In an annex to the summons to the oral proceedings requested by the appellant, the Board made preliminary non-binding comments on original disclosure, clarity, novelty and inventive step of the claimed subject-matter. Inter alia the Board stated that objections

concerning lack of clarity within the meaning of Article 84 EPC 1973 were also maintained. This might even amount to a lack of disclosure of the invention under Article 83 EPC 1973. In fact, it was not clear from the wording indicated in claims 1 and 3 how the controller achieves the result that the characteristic curve is changed to "maintain a minimum optical transmittance and a maximum optical transmittance at the same wavelength". From Exhibit no. 2 it could be gathered that a certain range for the phase difference provided by the birefringent element and a certain orientation of the birefringent element with respect to polarisation states of the Faraday rotator are required. However, such subject-matter was already patented in the parent application and therefore should not be claimed again in the present divisional application.

IV. On 3 June 2008, one month before the oral proceedings, the applicant submitted versions for claims 1 and 2 to overcome objections raised by the Board in the annex to the summons.

On 2 July 2008 the appellant filed by fax a new main request and a first auxiliary request. At the oral proceedings held on 3 July 2008 the appellant filed a second auxiliary request. The claims of the main request were identical to those of the request previously filed on 3 June 2008. The appellant acknowledged during the oral proceedings that the claims of the first auxiliary request differed from those of the main request only as to the exact words used and did not differ in any way as to substance. The appellant also acknowledged in the oral proceedings that claim 1 of the second auxiliary request differed

from the main request as to both wording and content and that it introduced a feature which had not been covered by the search.

The applicant requested the decision of the examining division be set aside and a patent be granted on the basis of the main or auxiliary requests.

V. The independent claims according to the various requests read as follows:

Main request

1. A tunable optical filter device having a periodic optical transmittance versus wavelength characteristic curve, said optical filter comprising

first and second polarizers (P1, P2) each having a transmission axis determining a polarization axis of transmitted polarized light;

a birefringent plate (BP) provided between said first and second polarizers (P1, P2) and having an optical axis determining a phase difference given between two orthogonal components of transmitted polarized light; and

a variable Faraday rotator (FR) provided between said first and second polarizers (P1, P2), for giving a variable Faraday rotation angle to transmitted polarized light;

wherein changing of said characteristic curve is controllable in accordance with a variation of the Faraday rotation angle given by said variable Faraday rotator (FR) so as to maintain a minimum optical transmittance and a maximum optical transmittance at the same wavelength.

2. A method of changing a periodic optical transmittance versus wavelength characteristic curve of a tunable optical filter device comprising

first and second polarizers (P1, P2) each having a transmission axis determining a polarization axis of transmitted polarized light;

a birefringent plate (BP) provided between said first and second polarizers (P1, P2) and having an optical axis determining a phase difference given between two orthogonal components of transmitted polarized light; and

a variable Faraday rotator (FR) provided between said first and second polarizers (P1, P2), for giving a variable Faraday rotation angle to transmitted polarized light;

said method of changing said characteristic curve includes a step of controlling a variation of the Faraday rotation angle given by said variable Faraday rotator (FR) so as to maintain a minimum optical transmittance and a maximum optical transmittance at the same wavelength.

Auxiliary request I

1. A tunable optical filter device having a periodic optical transmittance versus wavelength characteristic curve, said optical filter comprising

first and second polarizers (P1, P2) each having a transmission, axis determining a polarization axis of transmitted polarized light;

a birefringent plate (BP) provided between said first and second polarizers (P1, P2) and having an optical axis determining a phase difference given

between two orthogonal components of transmitted polarized light; and

a variable Faraday rotator (FR) provided between said first and second polarizers (P1, P2), for giving a variable Faraday rotation angle to transmitted polarized light, said Faraday rotation angle obtaining a minimum optical transmittance and a maximum optical transmittance at the same wavelength in the periodic optical transmittance versus wavelength characteristic of the optical filter device.

2. A method of changing a periodic optical transmittance versus wavelength characteristic curve of a tunable optical filter device comprising

first and second polarizers (P1, P2) each having a transmission axis determining a polarization axis of transmitted polarized light;

a birefringent plate (BP) provided between said first and second polarizers (P1, P2) and having an optical axis determining a phase difference given between two orthogonal components of transmitted polarized light; and

a variable Faraday rotator (FR) provided between said first and second polarizers (P1, P2), for giving a variable Faraday rotation angle to transmitted polarized light;

said method of changing said characteristic curve includes a step of obtaining a minimum optical transmittance and a maximum optical transmittance at the same wavelength in the periodic optical transmittance versus wavelength characteristic of the optical filter device.

Auxiliary request II

1. A tunable optical filter device having a periodic optical transmittance versus wavelength characteristic curve, said optical filter comprising

first and second polarizers (P1, P2) each having a transmission axis determining a polarization axis of transmitted polarized light;

a birefringent plate (BP) provided between said first and second polarizers (P1, P2) and having an optical axis determining a phase difference given between two orthogonal components of transmitted polarized light; and

a variable Faraday rotator (FR) provided between said first and second polarizers (P1, P2), for giving a variable Faraday rotation angle to transmitted polarized light, said Faraday rotation angle obtaining a center wavelength in an operating wavelength band by selecting in said operating wavelength band a center point (C) disposed between a point (A) and a point (B) each providing a maximum loss or a minimum loss of optical transmittance.

2. A method of changing a periodic optical transmittance versus wavelength characteristic curve of a tunable optical filter device comprising

first and second polarizers (P1, P2) each having a transmission axis determining a polarization axis of transmitted polarized light;

a birefringent plate (BP) provided between said first and second polarizers (P1, P2) and having an optical axis determining a phase difference given between two orthogonal components of transmitted polarized light; and

a variable Faraday rotator (FR) provided between said first and second polarizers (P1, P2), for giving a variable Faraday rotation angle to transmitted polarized light;

said method of changing said characteristic curve includes a step of obtaining a center wavelength in the operating wavelength band by selecting in said operating wavelength band a center point (C) disposed between a point (A) and a point (B) each providing a maximum loss or a minimum loss of optical transmittance.

Reasons for the Decision

Admissibility of late-filed requests

1. Article 13 RPBA, entitled " Amendment to a party's case", provides in sub-articles (1) and (3):

"(1) Any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject matter submitted, the current state of the proceedings and the need for procedural economy.

(3) Amendments sought to be made after oral proceedings have been arranged shall not be admitted if they raise issues which the Board or the other party or parties cannot reasonably be expected to deal with without adjournment of the oral proceedings."

2. Although filed at an extremely late stage (the day before the oral proceedings), the Board considered the

main request and first auxiliary request could be admissible since they were either identical to or only superficially different from other requests previously filed. Thus in the context of the case they contained no complex subject-matter and, despite the late stage at which they were filed, neither caused the Board any difficulty nor required any adjournment of the proceedings nor had any effect on procedural economy.

3. As regards the second auxiliary request however, the position was entirely different. The new feature introduced into claim 1 of this request specifying the Faraday rotation angle obtaining a center wavelength in an operating wavelength band by selecting in said operating wavelength band a center point (C) disposed between a point (A) and a point (B) each providing a maximum loss or a minimum loss of optical transmittance had never been considered before. Since it was only filed at the oral proceedings, the Board had had absolutely no opportunity to consider it prior to those proceedings. And, perhaps most significantly, the appellant conceded that such a claim had not been covered by the search so it was at least highly likely that, if this request were to be admitted, the case would have to be remitted to the first instance for a further search. Thus all the criteria of Article 13(1) RPBA - complexity of subject-matter, stage of the proceedings, and procedural economy - pointed against admissibility of this request. Further, the need to adjourn the oral proceedings if admitted, whether just for the Board to consider the request further or to remit the case to the first instance, made it unavoidable that the request must be refused under Article 13(3) RPBA.

Patentability

4. The only requests remaining for consideration as to their substance are the main request and the auxiliary request I.

Main request

5. Both documents D1 and D2 disclose a tunable optical filter device in the form of filters or attenuators comprising first and second polarizers, a birefringent element and a Faraday rotator between the first and second polarizers, the device having a periodic optical transmittance versus wavelength characteristic curve filtering a light. Since present claim 1 is not clear as to the function of the controlling, it is assumed that the variation of the Faraday angle has the same or at least similar effects in D1 and D2 as in the present application. This would be recognised by a person skilled in the art who would evidently make use of these effects. Therefore the claimed subject-matter would not be novel in the meaning of Article 54(1) and (2) EPC 1973.
6. Such reasoning applies also to claim 2 related to a corresponding method of changing a periodic optical transmittance versus wavelength characteristic curve of a tunable filter.

Auxiliary request I

7. Claim 1 according to this request differs from claim 1 of the main request only in that different wording is

used for the definition of the last feature. As was confirmed by the applicant in the course of the oral proceedings there was no intention to change the claim in substance. However, simply deleting wording connected with "controllable" does not solve the problem related to the function of the Faraday rotator, which is not clear. Consequently, the above argumentation presented in connection with the main request applies also to the auxiliary request I. Moreover, the same reasoning applies to claim 2 related to a corresponding method of changing a periodic optical transmittance versus wavelength characteristic curve of a tunable filter.

Applicant's arguments

8. In the written appeal procedure the applicant simply stated that the claimed subject-matter was specified to an extent meeting the requirements of Articles 84 and 83 EPC 1973 and that this subject-matter also met the requirements of novelty and inventive over the cited prior art. Reference was made to arguments presented to the examining division. At the oral proceedings before the Board the applicant in substance only repeated that the claimed subject-matter was novel and involved an inventive step and that the last feature in claim 1 relating to the function of the Faraday rotator was neither disclosed in the cited documents, nor obvious for the skilled person.

Conclusion

9. Therefore, taking due account of the submissions of the applicant, the Board concludes that the subject-matter

of claims 1 and 2 according to both the main request and the auxiliary request I is not novel within the meaning of Article 54(1) and (2) EPC 1973.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Kiehl

A. G. Klein