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**Datasheet for the decision
of 1 July 2008**

Case Number: T 1053/06 - 3.4.02

Application Number: 96107726.0

Publication Number: 0763758

IPC: G02B 6/38

Language of the proceedings: EN

Title of invention:

Optical fiber ferrule assembly having angular index showing polarization plane

Applicant:

SEIKOH GIKEN CO., LTD.

Headword:

-

Relevant legal provisions:

EPC Art. 128(4)
EPC R. 144
RPBA Art. 15(1)

Relevant legal provisions (EPC 1973):

-

Keyword:

"Postponement of oral proceedings (no)"
"Exclusion of a request from public inspection (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 1053/06 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 1 July 2008

Appellant:

SEIKOH GIKEN CO., LTD.
286-23, Matsuhidai
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Chiba-ken (JP)

Representative:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 9 February 2006
refusing European application No. 96107726.0
pursuant to Article 97(1) EPC 1973.

Composition of the Board:

Chairman: A. Klein
Members: F. Maaswinkel
C. Rennie-Smith

Summary of Facts and Submissions

I. European patent application No. 96107726.0 (publication number 0 763 758) relating to an optical fiber ferrule assembly was refused in a decision, dispatched on 9 February 2006, of the examining division on the ground that the subject-matter of the independent claims then on file did not involve an inventive step (Art. 52(1) and 56 EPC) in view of the teaching in document D1 (US-A-5 216 733) and the ordinary practice of the skilled person.

II. Against this decision the applicant (appellant) lodged an appeal which was received on 7 April 2006 and paid the fee for the appeal on the same day. With the statement setting out the grounds of appeal filed on 13 June 2006 the appellant filed new claims. The appellant requested that the decision under appeal be set aside and the newly filed claims be allowed or, alternatively, oral proceedings.

III. The wording of independent claim 1, with the features numbered as in the grounds of appeal of 13 June 2006, reads as follows:

"A method of making an optical fiber ferrule assembly comprising:

- 1) removing the coating of a polarization plane maintaining optical fiber,
- 2) inserting a coated portion (4) of the optical fiber into a flange body (3) with a rim (31),
- 3) inserting the uncovered optical fiber (5) into a central hole of an optical fiber ferrule (1) and gluing

and fixing it thereto in a state that its tip portion is exposed,

4) fixing the flange body (3) through an adhesive material to the proximal portion of the ferrule (1) for forming a ferrule subassembly (3,1),

5) fitting an angular index member (2) having an index section (23, 24) over the ferrule (1) such that a central hole (21) of the angular index member (2) is engaged with the outer circumference of the ferrule (1),

6) fixing one of the angular index member (2) and the ferrule (1),

7) enlarging the tip end surface of the optical fiber (5) for observation to decide the principal axis of birefringence thereof on the basis of its configuration, and

8) rotating relatively the angular index member (2) and the ferrule subassembly (3,1) and mutually fixing them by injecting after adjustment an adhesive material through a cavity (22) at the bottom side of the angular index member (2) into between the rim (31) of the flange body (3) and the angular index member (2) so that the index section (23, 24) of the angular index member (2) makes a constant angle with respect to the principle axis of birefringence and indicates the principle axis of birefringence of the optical fiber".

The wording of independent claim 2 reads as follows:

"A method of making a starting product used for making an optical fiber ferrule assembly, the method comprising:

- removing the coating of a polarization plane maintaining optical fiber,

- inserting a coated portion (4) of the optical fiber into a flange body (3) with a rim (31),
- inserting the uncovered optical fiber (5) into a central hole of an optical fiber ferrule (1) and gluing and fixing it thereto in a state that its tip portion is exposed,
- fixing the flange body (3) through an adhesive material to the proximal portion of the ferrule (1) for forming a ferrule subassembly (3,1), and
- fitting rotatably an angular index member (2) having an index section (23, 24) over the ferrule (1) such that a central hole (21) of the angular index member (2) is engaged with the outer circumference of the ferrule (1), the angular index member (2) having at its bottom side a cavity (22) for injecting after adjustment an adhesive material through the cavity into between the rim (31) of the flange body (3) and the angular index member (2)".

The wording of independent claim 4, with the features numbered as in the grounds of appeal of 13 June 2006, reads as follows:

"An optical fiber ferrule assembly comprising:

- 9) a polarization plane maintaining optical fiber,
- 10) an optical fiber ferrule (1), the uncovered optical fiber (5) being inserted into a central hole of the ferrule (1) and glued and fixed thereto in a state that its tip portion is exposed,
- 11) a flange body (3) with a rim (31), a coated portion (4) of the optical fiber being inserted into the flange body (3) and the latter being fixed through an adhesive material to the proximal portion of the

ferrule (1) for forming a ferrule subassembly (3,1), and

12) an angular index member (2) having an index section (23, 24) and being fitted over the ferrule (1) such that a central hole (21) of it is engaged with the outer circumference of the ferrule (1), the angular index member (2) being fixed to the ferrule subassembly (3,1) by an adhesive material being injected through a cavity (22) after the angular index member is adjusted at the bottom side of the angular index member (2) into between the rim (31) of the flange body (3) and the angular index member (2) so that the index section (23, 24) of the angular index member (2) makes a constant angle with respect to the principle axis of birefringence and indicates the principle axis of birefringence of the optical fiber".

The wording of independent claim 7 reads as follows:

"A starting product for making an optical fiber ferrule assembly, the starting product comprising

- a polarization plane maintaining optical fiber,
- an optical fiber ferrule (1), the uncovered optical fiber (5) being inserted into a central hole of the ferrule (1) and glued and fixed thereto in a state that its tip portion is exposed,
- a flange body (3) with a rim (31), a coated portion (4) of the optical fiber being inserted into the flange body (3) and the latter being fixed through an adhesive material to the proximal portion of the ferrule (1), and
- an angular index member (2) having an index section (23, and being rotatably fitted over the ferrule (1) such that a central hole (21) of it is

engaged with the outer circumference of the ferrule (1), the angular index member (2) having at its bottom side a cavity (22) for injecting adhesive material into between the rim (31) of the flange body (3) after the angular index member being fitted over the ferrule and the angular index member (2)".

Claims 3, 5, 6, 8 and 9 are dependent claims.

IV. In support of its requests the appellant developed the following arguments in its grounds of appeal:

The following amendments were carried out: In claim 1, the expression "after adjustment" was inserted after the word "injecting" in feature 8, similarly in claim 2, in which, furthermore, the expression "into the cavity" was inserted after the word "material". In claim 4, the expression "after the angular index member is adjusted" was added in feature 12. In claim 7, the expression "after the angular index member being fitted over the ferrule" was inserted after the referenced numeral (3). The feature that the adhesive material is injected after the angular index member is adjusted is disclosed in lines 18, 19 on page 9 of the original documents. The supplemental amendment of claim 2 and the amendment of claim 7 seem to be advisable by reason of clarity.

The invention as defined in claim 1 relates to a method of making an optical fiber ferrule assembly comprising steps (1) to (8) (*reproduced in Section III supra*). With respect to these numbered features, the feature 1 is disclosed In the document D1. However, the sequence of the features 2 to 4 is not disclosed in the document D1. Figure 7 of this document shows that the flange

body 104 and the ferrule 100 (insertion part 102 of the ferrule) are assembled, thereafter an adhesive liquid is fitted into the flange body 104. Air holes 107 serve for completely filling the flange body 104 with the liquid. Then, the air holes 107 are closed with a rubber tube 112 and suction is applied to the ferrule for filling also the interior of the ferrule with the liquid. Finally, the optical fiber is inserted into the flange body and the ferrule, see figure 7d. It may be left undecided whether this difference of the invention over the disclosure of the document D1 can be regarded already as being an inventive step since the invention does not just depend on this difference. Especially feature 5 is of specific importance. The angular index member is fitted over the ferrule from the distal end of the ferrule subassembly. This means that the ferrule subassembly can be manufactured without taking care of the angular index member. In the contrary, according to the document D1 the angular index member 105 has to be put over the free end of the optical fiber 101 before the latter is inserted into the flange body 104 and the ferrule 100. In this connection, item 4.1 of the decision under appeal points out that the angular index member loosely riding on the optical fiber would not complicate the further handling of the ferrule subassembly since corresponding arrangements would be common and trivial in the optical or electric field. First of all, no prior art was cited in this regard. Secondly, there can be no doubt that it is easier to handle a ferrule subassembly in the absence of an angular index member loosely riding on the optical fiber, keeping in mind that the further handling of the ferrule subassembly includes the necessary grinding and polishing steps, see lines 66 to 68 in column 5 of the

document D1. According to feature 5 of claim 1, the central hole of the angular index member is engaged with the outer circumference of the ferrule, whereas, according to the document D1, the angular index member is riding on the flange body. In this connection, item 2.2 of the decision reduces this difference to the fact that the invention provides for a direct contact of the angular index member with the ferrule, whereas the document D1 provides for an indirect contact, pointing out that these constructions constitute mere constructive alternatives. However, this point of view seems to be not justified, since it does not take into consideration that completely different method steps are necessary for reaching the different constructions (angular index member riding on the optical fiber in the case of the document D1; angular index member fitted over the ferrule from the distal end of the latter). Thus, the feature 5 of claim 1 has to be considered as being an inventive step. The features 6 and 7 of claim 1 are disclosed in the document D1. Feature 8 states that the angular index member and the ferrule subassembly are relatively rotated and mutually fixed by an adhesive material. This corresponds to the disclosure of the document D1. According to the document D1, the angular index member 105 is fixed by engaging its key-way 108 with the stopper key 126 of the holding part 123, and the angular index member 105 is advanced and retained halfway, see lines 38 to 41 in column 6 of the document. Then the adjustment takes place and thereafter the angular index member is pushed onto the ferrule. The angular index member 105 may be attached to the ferrule body 103 by coating the ferrule body with an adhesive first and pushing the angular index member 105 onto the ferrule 103, see lines 5 to 8

in column 7 of the document D1. Thus, the flange body has to be coated with the adhesive before the angular index member 105 is engaged with the stopper key 126, i.e. before the adjustment takes place. The adhesive used is a fast curing epoxy, see line 10 in column 7 of the document D1. A conventional fast curing epoxy requires about 5 minutes to cure. Therefore, any manual adjustment must be done within 5 minutes of the start of adhesion. Accordingly, there is only little time for carry and out the adjustment. Furthermore, after the adjustment a relative movement between the angular index member and the ferrule subassembly is necessary since the angular index member has to be pushed onto the flange body. In this connection item 4.2 of the decision states that the angular index member is guided by a stopper key. Nevertheless, any relative movement includes the risk of unwanted displacements. According to feature 8 of claim 1, the adhesive material is applied after the adjustment. Thus, the adjustment has not to be done under time pressure. Moreover, after the adjustment no relative movement is necessary between the angular index member and the ferrule subassembly. Thus, there is no risk of unwanted displacements. According to feature 8, the application of the adhesive material after the adjustment and without a relative movement between the angular index member and the ferrule subassembly is carried out in a very easy way by injecting the adhesive material through a cavity at the bottom side of the angular index member into between the rim of the flange body and the angular index member. No corresponding indication can be found in the document D1. Thus, feature 8 of claim 1 which is not disclosed in the document D1 has to be regarded as constituting an inventive step. In summary, claim 1

include two inventive steps (features 5 and 8) and has to be considered as being patentable. Therefore, the decision of the examining division seems to be based on an ex-post facto consideration.

Independent claim 2 relates to a method of making a starting product used for making an optical fiber ferrule assembly and includes the features 1 to 5 of claim 1, wherein the feature 5 is supplemented by those features of the angular index member which are necessary to carry out the feature 8 of claim 1. Thus, the argumentation regarding claim 1 is applicable to claim 2.

Independent claim 4 relates to an optical fiber ferrule assembly including features numbered (9) to (12) (*reproduced in Section III supra*). The features 9 to 11 are disclosed in the document D1. However, feature 12 of claim 4 differs from the disclosure of document D1 by the feature that the angular index member is fitted over the ferrule such that a central hole of it is engaged with the outer circumference of the ferrule. According to document D1 however, the angular index member is riding on the flange body. This necessitates a completely different construction since the angular index member of the invention abuts on the distal side of the rim of the flange body while the angular index member of the document D1 abuts on the proximal side of that rim. Thus it is entirely impossible for the angular index member of the document D1 to directly engage the ferrule. Furthermore, the angular index member of the invention has a cavity at its bottom side so that the adhesive material can be injected between the rim of the flange body and the angular index member.

According to the document D1, the adhesive material is arranged between the central hole of the angular index member and the outer circumference of the flange body. There is found no disclosure of any adhesive material on the rim. The advantage of the optical fiber ferrule assembly according to claim 4 over the construction of the document D1 is that the assembly of the invention can be more easily and correctly manufactured. Since document D1 does not disclose any indication of the above discussed features, claim 4 has to be regarded as constituting an inventive step.

Independent claim 7 relates to a starting product for making an optical fiber ferrule assembly, the features of which differ from claim 4 only in the last paragraph which however contains the essential features of paragraph 12 of claim 4 so that the arguments discussed in connection with claim 4 are also applicable to claim 7.

The dependent sub-claims do not contain mere trivial features and thus are allowable in connection with the respective independent claims.

V. In a communication pursuant to Article 11(1) RPBA, dated 27 February 2008 and accompanying the summons to oral proceedings on 1 July 2008, the board expressed the following provisional opinion:

"1. Claim 1

1.1 In the following reference is made to the numbering of the features as used by the appellant on page 2 of the letter of 13.06.2006.

- 1.2 Features 1 to 4 define the assembling of the ferrule subassembly and the fixing of the polarization plane maintaining optical fiber (PMF) in the subassembly. The appellant has argued that in the assembling method carried out in document D1 the sequence of the steps differs from those in steps 1 - 4 of claim 1. On page 3, 2nd paragraph of the above letter the appellant has noted that "...it may be left undecided whether this difference ...can be regarded as being an inventive step". Indeed, in the preliminary opinion of the board, it would appear that, since the result of both sequences of steps results in the same intermediate assembly (the fiber mounted and fixed in the ferrule subassembly), this difference merely involves a simple kinematic inversion.
- 1.3 Concerning feature 5 the appellant asserts that this feature defines the fitting of the angular index member over the ferrule from the distal end of the ferrule subassembly, which would have the advantage that the subassembly can be manufactured without taking care of the angular index member. In this respect it is observed that the claim only defines "fitting an angular index member ...over the ferrule" and that the attribute "distal" is not defined. Furthermore, contrary to this argument, for forming the subassembly consisting of the ferrule and the flange body in the method of document D1, the angular index member is also not required: this member (c.q. flange 105) is only passed through the PMF before the PMF is adhesively bonded to

the ferrule body, see Figure 4 and column 5, lines 41 to 46.

- 1.4 It appears that the basic difference between the method disclosed in the present patent application and that in D1 resides in the placement of the angular index member around the ferrule: whereas according to D1 the index member (flange 105) is passed through the PMF and is, after adhesion of the PMF to the ferrule subassembly, advanced on the flange body (holding part 104) at the rear end of the ferrule, the patent application teaches that this index member is mounted at the front part of the ferrule (see Figure 2, part 2).

- 1.5 The underlying technical problem of this different concept could be seen as proposing an alternative mounting of the index member on the ferrule subassembly. It will therefore be addressed at the oral proceedings whether the idea of mounting the index member from the front side of the ferrule subassembly instead of the rear side involves an inventive step.

- 1.6 In this respect the board makes the following observations on the arguments of the appellant on pages 3 and 4 of the above letter.
 - 1.6.1 In paragraph 4 on page 3 the appellant disagreed with the assessment in point 4.1 of the decision under appeal that, with respect to feature 5, the angular index member riding on the fiber would not further complicate the handling of the device;

that the examining division did not cite any prior art to support its position; and that in particular for the further process steps of grinding and polishing such an index member might be disadvantageous. The board concurs with the appellant that the examining division has not substantiated its position. However, taking into consideration that for grinding and polishing the ferrule it must be firmly fixed in a mounting tool and that these further processing steps are carried out at the front side of the ferrule (i.e. the side away from the PMF and angular index member), it cannot be seen that the presence of the index member at the rear part of the ferrule subassembly would cause any complications for this processing, at least not for the skilled person in the field of fiber optics, who is accustomed to handle such fragile objects.

1.6.2 With respect to the further remark about feature 5 in paragraph 5 on page 3 (angular index member directly fitted over the ferrule, whereas in D1 the member only indirectly fits the ferrule which, according to the decision, would only represent a constructive alternative), it would appear that in the process disclosed in document D1 this feature is only a consequence of installing the angular index member on the ferrule subassembly from the fiber (rear) side.

1.6.3 Features 6 and 7 are known from document D1 (page 4, first paragraph of the above letter).

1.6.4 Concerning the adjustment of the angular index member and its fixing to the ferrule subassembly (Feature 8), the appellant has argued that the method of D1 has disadvantages because, according to this method, the flange body would have to be coated with the adhesive before the adjustment takes place, which would allow only a short time for the adjustment (fast curing epoxy) and that, before the final fixing, the angular index member must be moved relative to the ferrule subassembly which might cause unwanted displacements/misalignment. The board interprets the teaching of D1 differently: in line 41 of column 6 document D1 discloses that for the adjustment procedure of the index member this member (flange 105) is advanced and retained halfway. The optimum orientation of the ferrule, c.q. the principal axis of the fiber, is found by rotating the ferrule relatively to the graticule in the microscope which is preadjusted to the orientation of the stopper keys (column 6, lines 59 - 61). After this optimum orientation is obtained the rotation of the ferrule holding part is fixed (column 6, lines 62 - 66) and the microscope can be removed. Then, as shown in Figure 14 and disclosed in column 7, lines 1 - 11, the ferrule body may be coated with an adhesive and the index member (flange) may be advanced along the ferrule subassembly, wherein its angular position is fixed by the stopper keys 126.

1.6.5 With respect to the feature that claim 1 defines that the index member is fixed to the ferrule subassembly by injecting an adhesive material

through a cavity in the index member it is observed that it appears to be common practice in fiber optics technology to fix members by injecting a resin through a hole or cavity. As an example of such technique the board, in exercising its function under Article 111(1) EPC, refers to US-A-4 792 205 (in the following: document D4), see column 4, line 12, according to which an inner element 9 of member 12 is immobilized by gluing the latter onto piece 3 by injecting resin through radial holes 17.

1.7 In conclusion, the differences between the subject-matter of claim 1 and the disclosure in document D1 appear to relate to the technical problem of providing an alternative fixation of the angular index member in a PMF ferrule subassembly. Furthermore, as soon as the skilled person considers providing this index member from the front (fiber exit) side of the subassembly it would appear that, modifying the teaching of D1, the further steps defined in claim 1 automatically follow. Therefore, in the board's preliminary opinion, the presence of an inventive step of the subject-matter is in doubt.

2. The further claims

2.1 The subject-matter of independent claim 2 largely corresponds to the method features of claim 1 and, similarly, apparatus claims 4 and 7 in terms of apparatus features: these claims differ in particular from the disclosure in document D1 by the different mounting/fixation position of the

angular index member. As explained in the context of claim 1 the board presently cannot identify any patentable subject-matter in these claims, because these features would appear obvious to the skilled person as soon as he contemplated fixing the angular index member at the front side of the ferrule subassembly instead of at the rear side."

- VI. In a reply of 28 April 2008 the appellant announced that it would not pay the renewal fee under Rule 51(2) EPC which would be due in May 2008. It also announced it would not attend the scheduled oral proceedings. Furthermore it was requested that, in order to avoid unnecessary time and effort in preparing for the oral proceedings these be rescheduled to a date after expiration of the six months surcharge period after which the European patent application would be deemed to be withdrawn. The appellant also requested that this letter should not be included in the part of the file open to public inspection.
- VII. In a reply sent 19 May 2008 the registrar of the board informed the appellant that the board had noted the appellant's intention not to attend the oral proceedings but that these would take place at the date previously arranged. With respect to the further request to keep the appellant's letter of 28 April 2008 in the part of the file not open to public inspection, the board observed that this was not possible.

Reasons for the Decision

1. The appeal is admissible.

2. As regards the appellant's request in its letter of 28 April 2008 to postpone the oral proceedings, a change of date for oral proceedings "may exceptionally be allowed in the Board's discretion following receipt of a written reasoned request" (see Article 15(1) RPBA). It appears from the use of the word "exceptionally" that the reason or reasons given for a postponement must be out of the ordinary and must outweigh any other considerations the board may take into account. In the present case the reasons given (see *Section VI supra*) clearly indicated that the appellant had chosen not to pursue this case further and would prefer its patent application to be lost for non-payment of the next renewal fee at a later date rather than by an adverse decision of the board now. Those reasons are directed entirely to the convenience of the appellant which, until it received the board's negative preliminary opinion, had preferred to pursue the appeal proceedings and had indeed itself requested oral proceedings.

3. Against those reasons the board must consider the interests of the public and of justice. It would clearly not be in the interest of efficient administration of appeals for the board to allow parties to decide whether or not oral proceedings they have requested should in fact be held and if so when. Further, in cases such as the present when it would be too late to give another party or parties the requisite two months notice of oral proceedings for the date appointed in this case, a postponement would unfairly

prejudice by delay other appeals pending before the board. Perhaps most importantly, it would be unfair on the public for the board, without receiving any reasons from an appellant applicant, to extend the life of a patent application which it considers likely to fail beyond the date on which the public has, until now, expected a final decision. Accordingly, the board considered the request for postponement had to be refused.

4. The appellant's further request to exclude its request for postponement from the public part of the file was also not allowable. Under Article 128(4) EPC there is a general right to inspection of the file of any published European patent application or patent subject only to restrictions laid down in the Implementing Regulations. Those restrictions are to be found in Rule 144 EPC and are limited to:
 - (a) the documents relating to the exclusion of or objections to members of the Boards of Appeal or of the Enlarged Board of Appeal;
 - (b) draft decisions and notices, and all other documents, used for the preparation of decisions and notices, which are not communicated to the parties;
 - (c) the designation of the inventor, if he has waived his right to be mentioned under Rule 20, paragraph 1;
 - (d) any other document excluded from inspection by the President of the European Patent Office on the ground that such inspection would not serve the purpose of informing the public about the European patent application or the European patent.

None of (a), (b) or (c) can apply in the present case and, as regards (d), the appellant has not relied on any exclusion by the President. Since oral proceedings before the boards of appeal are public and the summonses thereto and the dates thereof are public information, it would appear highly unlikely that any documents relating to the appointment or postponement of such proceedings could be the subject of such an exclusion since such documents, for example the appellant's request for postponement, necessarily serve the purpose of informing the public about the European patent or patent application in question.

5. In the communication of 27 February 2008 the board indicated in detail the reasons why in its view the subject-matter of claim 1 did not involve an inventive step over the teaching of document D1 and ordinary skill (Article 52(1) and 56 EPC); and that no patentable subject-matter could be identified in the further claims either.

6. The appellant has had the opportunity to comment on the objections raised in the board's communication (Article 113(1) EPC) and to respond either in writing and/or by attending the oral proceedings and presenting its arguments there. Since the appellant has not taken this opportunity, the board has not been presented with any reason to change its view expressed in its communication. Therefore, none of the independent claims nor the appended dependent claims being allowable, the appellant's requests must be refused.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Kiehl

A. G. Klein