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D E C I S I O N
of 29 September 1994

Case Number: T 0476/91 - 3.2.2

Application Number: 83302443.3

Publication Number: 0093599

IPC: A61B 1/06

Language of the proceedings: EN

Title of invention:
Hard endoscope of the oblique viewing type

Patentee:
OLYMPUS OPTICAL CO., LTD.

Opponent:
Karl Storz GmbH & Co.

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0476/91 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 29 September 1994

Appellant: (Opponent)
Karl Storz GmbH & Co.
Mittelstraße 8
D-78532 Tuttlingen (DE)

Representative:
Münich, Wilhelm, Dr.
Kanzlei Münich, Rösler, Steinmann
Wilhelm-Mayr-Str. 11
D-80689 München (DE)

Respondent: (Proprietor of the patent)
OLYMPUS OPTICAL CO., LTD.
43-2, 2-chome, Hatagaya
Shibuya-ku
Tokyo 151 (JP)

Representative:
Bridge-Butler, Alan James
G.F. Redfern & Co.
Redfern House
149/151 Tarring Road
Worthing
West Sussex BN11 4HE (GB)

Decision under appeal: **Decision of the Opposition Division of the European Patent Office dated 29 April 1991 rejecting the opposition filed against European patent No. 0 093 599 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: H. Seidenschwarz
Members: M. Bidet
J. Van Moer
P. Dropmann
W. Moser

Summary of Facts and Submissions

I. On 27 June 1991 an appeal was filed against the decision of the Opposition Division, issued on 29 April 1991, rejecting the opposition to patent No. 0 093 599, the appeal fee having been paid on the same date. The Statement of Grounds of Appeal was filed on 28 August 1991.

II. The Opposition was filed against the patent as a whole and based on Article 100(a) EPC.

The Opposition Division held that the grounds of opposition mentioned in Article 100(a) EPC, based solely on an alleged prior use, did not prejudice the maintenance of the patent in unamended form.

The Appellant (Opponent) argued before the Opposition Division that an endoscope produced by it and having the reference 27015B, was sold and used before the priority date of the patent in suit, i.e. before the 1 May 1982 and supplied documents ("Anlage 1" to "Anlage 4") to support the allegation of prior use.

The Opposition Division considered, on the basis of the oral evidence of witnesses heard on 21 January 1991, that the evidence relating to the construction of the endoscope and to its distribution was not at all convincing, and awarded the costs in full to the Respondent (patent Proprietor) in accordance with Article 104(1) EPC.

III. Together with the grounds of appeal, the Appellant filed new documents B1 to B7 and a model B8 of the endoscope of type 27015B.

Before the oral proceedings on 29 September 1994 it filed on 21 September three other models B9 to B11 of the endoscope, having the reference 27015B, and documents B12 to B24, in order to substantiate the allegation of prior use.

IV. During the oral proceedings the Respondent filed an amended Claim 1 which reads as follows:

"A hard endoscope having a rigid tubular housing forming an insertion sheath (13) extending from an operational hand-grip (15) that is provided with a light guide entry port (14) and an eyepiece (16) and terminating in a planar end-face at the distal end, the normal to the end face being inclined to the longitudinal axis of the endoscope, in which end face a viewing aperture (27) is provided adjacent a single output-port for illumination projected from an end-face (39) of a single light-guide fibre bunch (23) an optical viewing system being provided in the insertion sheath and extending adjacent the insertion sheath between the eyepiece (16) and the viewing aperture (27) and sealed at the end-face (39) by an end-face member (25) defining the viewing aperture and also defining a generally crescent-shaped aperture for the fibre bunch (23), characterised in that the light guide fibres in the bunch adjacent the output port are trapped between two opposed part-cylindrical surfaces (26, 37) so as to maintain the fibres in the bunch substantially parallel in order to limit the dispersion of the projected light."

(i) In its written statements, the Appellant argued that the features of the characterising portion of Claim 1 were known from its endoscope 27015B according to the models B8 to B11 and the document B4 (Anlage 2). The parallelism of the light-guiding fibres was a basic requirement for limiting the dispersion of the projected

light of an endoscope. Since the models B8 to B11 showed a homogeneous light, they fulfilled said requirement which could be demonstrated by means of a diaphragm or by opening the distal end of one of said models. Therefore, Claim 1 was not new having regard to the models B8 to B11 in combination with the drawing document B4 which showed the distal end of the endoscopes according to said models.

Furthermore, the Appellant asserted that Claim 1 lacked novelty or at least lacked an inventive step, based on new evidence relying on copies of pages 8 to 13, 35, 36, 84 and 395 of a book (document B16) written by Dr G. Berci having the title "Endoscopy" and published in 1976 (the Appellant placed the book at the disposal of the Board during the oral proceedings). The lack of inventive step was also based on the model B8 combined with the drawings according to document B4.

As regards lack of novelty of Claim 1 the distal end of the endoscope "S" on photographs A and B of the Figure 7 of page 395 of document B16 corresponded to the models B8 to B11 submitted during the appeal. From the photographs in Figure 7, the **crescent**-shaped form at the single inclined end-face represented the distal end of a **single** bunch of fibres which was maintained between two-part cylindrical sheaths (see photograph A: endoscopes). These fibres were maintained parallel to each other, since the illumination of endoscope "S" shown in photograph B had a direction perpendicular to the end face. This also applied to the endoscope "W" shown in Figure 7, in which the fibres at the end face had to be **parallel** in order to obtain the beam parallel to the longitudinal axis of the endoscope in photograph B.

As regards lack of inventive step of Claim 1, the use of a single bunch of optical fibres in an endoscope was not only shown on page 395 but also on page 8, right-hand column, at the end of the first paragraph in relation to Figure 11 on page 9. The skilled person knew that at the distal end the illuminating bunch may be divided in the endoscope into two or more smaller bunches which are suitably "angled" or the light guide in the endoscope may use fibres of higher numerical aperture in order to obtain a total angle of field as large as 70 degrees (see page 36, Figure 10). Therefore, the skilled person would easily provide the fibres with "suitable" angles, i.e. all fibres in a parallel direction, in an endoscope according to the endoscope "S" shown in Figure 7 of page 395 or according to model B8 in combination with document B4 in order to obtain an illuminated field of view of very good homogeneity or regularity.

(ii) The Respondent argued that the construction of the distal end of an endoscope as shown on document B4 did not point to maintaining the fibres of the light-guide fibre bunch parallel. The disassembly of the distal end would result in destroying the cemented parts. Therefore a person skilled in the art could not identify the arrangement of the fibres adjacent the output part at the distal end of the endoscope. From the drawing according to document B4, he had to conclude that the fibres were not parallel but diverging at least those fibres of the fibre bunch 1. Furthermore, document B4 showed clearly that the endoscopes Storz 27015B had three light bunches. Claim 1 therefore differed from the known endoscopes in that:

1. it needed only one light-guide fibre bunch,

2. the fibres were maintained parallel at the output part of the distal end, and

3. the aperture for the light-guide bunch was crescent-shaped.

(iii) The Appellant requested that the decision under appeal be set aside, except for the apportionment of costs, and that the European patent No. 0 093 599 be revoked.

(iv) The Respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of

- the description, columns 1 to 9
- Claims 1 to 10, and
- the drawings, sheets 1 to 5

filed at the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. *Admissibility of amendments*

Claim 1 differs from granted Claim 1 by the addition twice of the word "single" into the granted claim, so that lines 58 to 61 in column 9 of the patent specification read as follows:

"in which end face a viewing aperture (27) is provided adjacent a **single** output-port for illumination projected from an end-face (39) of a **single** light-guide fibre bunch (23)"

The description as originally filed describes the use of a single bunch of fibres at a sole output port for illumination, see Figure 3 and text page 6, lines 3 to 11; page 8, lines 3 to 17; page 10, lines 2 to 13 and lines 24 to 29.

Since the amendment is supported by the description and since it also reduces the scope of the protection, the requirements of Articles 123(2) and (3) EPC are fulfilled.

3. *Novelty*

3.1 The Board accepts that the endoscope Storz 27015B according to the model B8 has been sold and used before the priority date of the patent in suit.

From the demonstration made by the Appellant during the oral proceedings, it is clear that the endoscope Storz 27015B emits three overlapping light beams at its distal end. From this it follows that the structure of this endoscope incorporates three bunches of fibres at its distal end. This corresponds to the arrangement of the fibres adjacent the output port at the distal end according to the drawings of document B4. As can also be seen from document B4, the fibres at the distal end are not parallel to each other, since the angles of the fibres with the intersecting end face have different values (see left-hand side of "Teilskizze II") and the apertures of the three bunches 1, 2 and 3 are not crescent-shaped (see "Teilskizze I").

Therefore Claim 1 is novel with respect to the endoscope Storz 27015B in that:

(a) **only one** bunch of fibres is provided adjacent the output port,

(b) the fibres adjacent the output port are maintained in the bunch substantially **parallel** to each other,

(c) the aperture for the fibre bunch is **crescent-shaped** in the end-face of the endoscope.

3.2 The main argument against novelty is based on Figure 7 of the copy of page 395 from the book "Endoscopy". The Appellant argues, that from the photographs A and B with the accompanying explanation of page 395, the distal end shown of the endoscope "S" corresponds to the endoscope Storz 27015B and that the crescent-shaped form at the end-face defines a single bunch in a single inclined end-face. But this Figure should be seen in its context as explained at page 394 not submitted by the Appellant. Thus under the paragraph "Still Photography" of page 394, it is said "an additional fibre sheath packed with more light-carrying fibres (Figures 5 and 6) is used for still photography. The external flash tube is attached to the sheath or to the end of the larger fibre bundle (Figure 7)." From this it follows clearly that the endoscope "S" is provided with more than one bunch of fibres adjacent the output part at its distal end.

Claim 1 is therefore novel with respect to the endoscope shown in Figure 7.

3.3 The other drawings taken from the book submitted by the Appellant are less relevant than Figure 7 of page 395. The Board is satisfied that Claim 1 is novel with respect to the endoscopes according to the Figures 10 and 11 on page 9 and the Figure 10 on page 36 of the book, since the internal structure of the endoscope as defined in Claim 1 is not clearly and unambiguously disclosed.

4. *Inventive step*

4.1 The problem to be solved with respect to the endoscope Storz 27015B is to provide an endoscope whose manufacture is simple but enables a tighter tolerance to be maintained during the manufacture of a quantity of such endoscopes, and which maintains an even illumination of the field to be observed. This is achieved by the novel features (a), (b) and (c) set out above.

The fact that the fibres in the bunch according to Claim 1 are mutually parallel along the direction of the field of view allows the light beam to be directed positively in the field of view, so that the illumination neither disperses nor illuminates unevenly or irregularly an object visible in the field of view. Furthermore having only one bunch avoids having intersecting areas of illuminated surfaces in the case of several bunches and the given direction of illumination to be maintained with high accuracy. Since the fibres are maintained parallel to each other all over the length of the light-guide fibre bunch in the endoscope, the production of such an endoscope is simpler than the production of an endoscope having the fibres in the light-guide fibre bunch spread at its distal end.

4.2 Since document B4 shows clearly that the construction of the distal end of the endoscope Storz 27015B (models B8 to B11) does not permit the use of a single light guide fibre bunch and prevents the parallel arrangement of the fibres in the single bunch adjacent the output port, said document cannot suggest the solution as specified in Claim 1.

4.3 Nothing in the Figures of the book "Endoscopy" points to the solution according to the patent in suit, more particularly to the parallel arrangement of the fibres at the distal end of the endoscopes.

The argumentation of the Appellant that the "parallel" beam obtained in photograph B of Figure 7 at page 395 of document B16 with the endoscope "W" necessarily needs the fibres to be arranged parallel to each other, fails with respect to the endoscope "S" since these endoscopes belong to two different types of endoscopes. The endoscope "S" like the endoscopes according to the models B8 to B11 and the document B4 have a planar end-face at their distal ends which is inclined to the longitudinal axis of the endoscope whereas the endoscope "W" concerns an endoscope with fibres arranged in a circular shape and with a direction of view which is described as "0 degrees, straightforward" (see description of Figure 7).

Neither can a hint be derived from the embodiments according to the Figures 10, 11 and 12 on pages 9, 10 and 36 of the book "Endoscopy" suggesting to the person skilled in the art the arrangement of the fibres between two opposed part-cylindrical surfaces at the distal end of an endoscope as indicated in Claim 1. These Figures represent only schematic drawings of endoscopes without any details having regard to the arrangement of the fibres in the light-guide fibre bunch at the distal end of these endoscopes, or of the light-guide entry port at the proximal end of an endoscope (page 36, Figure 10).

4.4 Therefore, the teaching of the book "Endoscopy" could not, either alone or in combination with the teaching of the endoscope Storz 27015B as shown by document B4, lead the person skilled in the art to an endoscope according to the patent in suit.

4.5 In the light of the prior art considered above, Claim 1 involves an inventive step as is required by Article 56 EPC and is therefore patentable pursuant to Articles 52(1), 54 and 56 EPC. Dependant Claims 2 to 10 define further embodiments and meet likewise the requirements of the EPC.

5. The patent can be maintained as amended.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside, except for the apportionment of costs.

2. The case is remitted to the first instance with the order to maintain the patent on the basis of the documents mentioned under point IV (iv).

The Registrar: The Chairman:

S. Fabiani H. Seidenschwarz