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D E C I S I O N
of 12 April 2005

Case Number: T 0353/02 - 3.2.2

Application Number: 86304097.8

Publication Number: 0247260

IPC: A61B 3/10

Language of the proceedings: EN

Title of invention:
Apparatus for analysis and correction of abnormal refractive errors of the eye

Patentee:
VISX Incorporated

Opponents:
1. Carl Zeiss AG
2. Summit Technology, Inc.

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0353/02 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 12 April 2005

Appellant: (Opponent 1)
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-

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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 25 January 2002 concerning maintenance of European patent No. 0247260 in amended form.

Composition of the Board:

Chairman: T. K. H. Kriner
Members: M. G. Noël
U. J. Tronser

Summary of Facts and Submissions

I. By its interlocutory decision dated 25 January 2002, the opposition division decided that the European patent No. 0 247 260 could be maintained in amended form.

II. The appellant (opponent 1) lodged an appeal, received at the EPO on 28 March 2002, against the first instance's decision. The appeal fee was paid at the same date, and a statement setting out the grounds of appeal was filed on 29 May 2002.

III. In its communication dated 19 October 2004 the Board informed the parties among other things of its provisional opinion according to which the subject-matter of the independent claim 9 did not involve an inventive step with respect to the combination of documents:

D1: "Photoablative reprofiling of the cornea using an excimer laser: Photorefractive keratectomy" by J. Marshall et al., Lasers in Ophtalmology, vol. 1, No. 1, May 1986, pages 21 to 48; and

D12: US-A-4 019 813.

D12 had already been considered during the examining procedure.

IV. At the oral proceedings held on 12 April 2005 only the appellant was represented. The respondent (patentee) and the opponent 2 had previously informed the Board

that they would not be represented during oral proceedings although being duly summoned.

The appellant supported the Board's opinion that the subject-matter of claim 9 did not involve an inventive step with respect to D1 and D12.

V. The appellant requested that the decision under appeal be set aside and that the European patent No. 0 247 260 be revoked.

The respondent (patentee) requested, in its written submission of 15 October 2002, that the appeal be dismissed.

VI. The European patent under dispute comprises three independent claims 1, 9 and 13 in the same category, claim 9 of which having the following wording (identifying letter (f) introduced by the Board for ease of reference):

"Ophthalmological apparatus for correctively improving optical properties of an eye by sculpturing the optically used central area of the anterior surface of the cornea to achieve a requisite change in the curvature thereof, said apparatus comprising:

(a) a digital computer; and

(b) computer controlled automatic laser-sculpturing means for directing laser radiation to the optically used central area of the anterior surface of the cornea, the laser radiation being such as to be capable of selectively ablating the anterior surface of the cornea by

photodecomposition with penetration into the stroma and volumetric removal of corneal tissue;

and said apparatus being characterized by the provision of:

(c) means connected to said computer for determining the actual topography of the anterior surface of the cornea and for entering corresponding digitized actual topography data into storage in said computer;

(d) means connected to said computer for enabling digitized output data corresponding to a desired topography of the anterior surface of the cornea to be entered into storage in said computer;

(e) display means connected to said computer and arranged to provide a computer-aided and co-ordinated display of the actual and desired topographies, said display means being adapted and arranged to produce a two-dimensional profile display of a meridian section of the subject cornea and including selectively operable means for changing the meridian for which the display is applicable, and the display further including numerical identification of data from said computer storage or derived therefrom at predetermined spacings or locations on the displayed profile;

(f) and by virtue of the arrangement being such that in operation of the apparatus the laser radiation of said laser-sculpturing means is automatically controlled by said computer in dependence upon the actual and desired topography data in said computer storage so as to effect a sculpturing volumetric removal of tissue from the optically used central area of the anterior surface of the

cornea in order to achieve a change in the curvature thereof away from its actual topography and towards its desired topography."

Reasons for the Decision

1. The appeal is admissible.

2. Claim 9 under dispute is formed by the combination of the features of claims 1 to 4 as granted. More specifically, features (a), (b), (c), (d), a first part of (e) and (f) are derived from claim 1 as granted, whereas the remaining parts of feature (e) originate from the dependent claims 2, 3, and 4 as granted, respectively.

3. *Inventive step*

3.1 As in the previous appeal decision of the present case (T 0063/96 of 30 March 1999), document D1 is still considered as representing the closest prior art. In this decision the Board found that claim 1 as granted was novel on the ground that the display means recited in feature (e) were not disclosed by D1.

The previous Board's analysis remains unchanged in the present case. As a matter of fact, document D1 relates to photorefractive keratectomy and discloses (cf. right-hand columns of pages 23 and 46) the necessary prerequisites for making an ophtalmological apparatus comprising all structural and functional features contained in claim 1 as granted, excepted that part of feature (e) which relates to display means for

providing a computer-aided display of the actual and desired topographies of the cornea.

The features now additionally incorporated to feature (e) of the present claim 9, i.e. those related to the provision of a two-dimensional profile display of a meridian section of the cornea and to the means for changing the meridian section and for displaying numerical identification of data at predetermined locations of the displayed profile, are neither disclosed by document D1. The subject-matter of claim 9 is, therefore, novel.

3.2 With respect to the disclosure of document D1, the above cited distinguishing features serve to solve the problem addressed in the present patent (column 3, lines 47 to 56 and column 4, lines 5 to 9) of providing the surgeon with corneal data in the form of readily interpretable context to determine the nature and extent of the required refraction-corrective corneal surgery in order to achieve emmetropia.

According to the solution defined by feature (e), display means (modules C and D) are connected to the computer and arranged to provide a display (Figures 2, 5 and 6) of the actual and desired topographies. In fact, the CAD/CAM display provided in module D is designed for receiving, from module A, digitized measurement data of the actual topography of the corneal surface and, from module E, digitized data of the desired or idealized topography of the same (column 6, lines 47 to 55). Therefore, feature (e) allows for a direct visual comparison between the idealized and the measured eye along the meridian

selected for profile display (column 7, lines 20 to 29). Besides the display of the meridian, which can be selectively changed, further numerical identification data may be displayed at predetermined locations on the displayed profile, as illustrated for example in Figure 2.

3.3 Document D12 discloses not only measurement and display means for determining and displaying the thickness of the cornea (Figures 4 and 5) but also measurement and display means for determining and displaying the actual topography of the same (Figures 6 and 7; column 2, lines 6 to 10 and column 7, lines 24 to 26), as well as memory means for storing all these data (column 11, lines 16 to 20 and column 12, lines 12 to 18). A two-dimensional profile display of the cornea is thus obtained along various meridians (column 2, lines 11 to 14 and column 5, lines 53 to 59) along with numerical identification data (column 7, lines 37 to 42 and Figure 7). In this respect, it must be noticed here that also in the present patent (cf. column 6, lines 35 to 46) a suitable software is mentioned to be available to the skilled person for including numerical data in the various displays, as shown in Figure 2.

The skilled person who is aware, through document D1, of an ophtalmological apparatus comprising computer controlled means for automatically laser-sculpturing the anterior surface of the cornea so as to achieve a required change of curvature, and who is looking for display means capable of providing the surgeon with topography data of the cornea in a readily interpretable form in order to efficiently conduct the surgical operation, will immediately find in document

D12 all the suitable means which are necessary for this purpose, similar to those as generally defined in feature (e) of claim 9.

In document D12 the displayed data are used principally for fitting the profile of a contact lens to the measured corneal profile of the patient's eye (column 7, lines 15 to 19 and 54 to 63 and column 8, lines 11 to 18) by simultaneously displaying and comparing these two profiles, in the same way as in Figure 5 of the present patent the measured corneal profile (measured value) and the idealized profile (set value) are simultaneously displayed and compared for evaluating the section area to be ablated. However, in D12 the measurements may also be used for other purposes such as for treating eye problems (column 1, lines 28 to 33). The use of these data in an operating system for automatically correcting the topographic abnormalities of a corneal surface, such as the apparatus disclosed in D1 is, therefore, not excluded.

3.4 For the foregoing reasons the Board is satisfied that the subject-matter of independent claim 9 does not involve an inventive step, within the meaning of Article 56 EPC, with respect to the combination of the teachings of documents D1 and D12.

In the respondent's (patentee's) written submissions of 15 October 2002, no argument was presented in favour of the patentability of claim 9. Since, moreover, the respondent did not react to the communication of the Board introducing document D12 into the appeal proceedings, the Board had no reason to depart from the above conclusion, also shared by the appellant.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The European patent No. 247 260 is revoked.

The Registrar: The Chairman:

V. Commare T. Kriner