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Datasheet for the decision of 26 January 2023

Case Number: T 0322/18 - 3.2.08

Application Number: 08726822.3

Publication Number: 2129345

IPC: A61F9/008

Language of the proceedings: EN

Title of invention:
APPARATUS FOR CREATING OCULAR SURGICAL AND RELAXING INCISIONS

Patent Proprietor:
OPTIMEDICA CORPORATION

Opponents:
Carl Zeiss Meditec AG
Zimmermann, Gerd

Relevant legal provisions:
EPC Art. 123(2), 123(3)

Keyword:
Amendments - added subject-matter (yes) - inescapable trap (yes)

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Case Number: T 0322/18 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 26 January 2023

Appellant: (Patent Proprietor)	OPTIMEDICA CORPORATION 1310 Moffett Park Drive Sunnyvale, CA 94089 (US)
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Respondent: (Opponent 1)	Carl Zeiss Meditec AG Göschwitzer Strasse 51-52 07745 Jena (DE)
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Respondent: (Opponent 2)	Zimmermann, Gerd Sendlingerstr. 13 80333 München (DE)
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Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 11 January 2018 revoking European patent No. 2129345 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairwoman	P. Acton
Members:	G. Buchmann
	Y. Podbielski

Summary of Facts and Submissions

I. With the decision posted on 11 January 2018 the opposition division revoked European patent No. 2 129 345. The opposition division found that all requests treated during the opposition proceedings contravened Article 123(2) EPC.

II. The patent proprietor filed an appeal against that decision.

III. Oral proceedings took place before the Board on 26 January 2023.

IV. The appellant (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained as granted or, as an auxiliary measure, that the patent be maintained on the basis of one of auxiliary requests 1A-1D, filed with the statement of grounds of appeal, 1E, 1F and 1G filed with letter dated 27 March 2019, or auxiliary requests 2, 2A-2D, 3, 3A-3D, 4, 4A-4D, 5, 5A-5D, 6, and 6A-6D filed with the statement of grounds of appeal.

The respondents (opponent 1 and opponent 2) requested that the appeal be dismissed.

V. Subject-matter of the patent

Main request

Claim 1 of the main request reads as follows.

The passages which were deleted from original claim 1 have been ~~crossed out~~ and the passages which were added

before grant have been underlined. The remaining text is identical for claim 1 as originally filed and claim 1 of the main request.

"A scanning system (2) for treating target tissue in a patient's eye (68), comprising:

a.

an ~~light~~ ultrafast laser source (4) ~~for generating a light beam~~ configured to deliver a laser beam (6) comprising a plurality of laser pulses;

b.

an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;

c.

a scanner (40, 50) ~~for deflecting the light beam to form first and second treatment patterns of the light beam~~ configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein; and

d.

~~under the control of~~ a controller (300) operatively coupled to the laser source (4) and scanner (40, 50)

characterised in that

the controller is configured to control the scanner to adjust the position of the laser beam

based upon the signals from the OCT device

~~a delivery system for delivering the first treatment pattern to the target tissue~~ to create a cataract incision (402) in the cornea or limbus that provides access ~~to an eye chamber~~ for lens removal

instrumentation to a crystalline lens of the patient's eye;

~~the delivery system also for delivering the second treatment pattern to the target tissue to form~~ and a relaxation incision (420) ~~along or near limbus tissue or along corneal tissue anterior to the limbus tissue of the patient's eye to reduce astigmatism thereof~~ in the cornea or limbus."

VI. Auxiliary requests

Claim 1 of the auxiliary requests reads as follows.

AUXILIARY REQUEST 1A

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system configured to deliver the scanned beam to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus.

AUXILIARY REQUEST 1B

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system comprising an objective lens (58) and configured to deliver the scanned laser beam through the objective lens to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus.

AUXILIARY REQUEST 1C

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism.

AUXILIARY REQUEST 1D

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein so as to move a focus position in the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4), the OCT device (100) and the scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism.

AUXILIARY REQUEST 1E

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea, ~~and~~ limbus and sclera of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus to enable movement of a focus position of the laser beam along the Z-axis in the target tissue and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4), the OCT device (100) and the scanner (40, 50) and configured to determine the location of the limbus based on optical scattering differences of the cornea and sclera imaged using the OCT device, characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the determined location of the limbus obtained from the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism.

AUXILIARY REQUEST 1F

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea, ~~and~~ limbus and sclera of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) comprising a Z-scan device (40) configured to focus to enable movement of a focus position of the laser beam along the Z-axis in the target tissue and a X-Y scan device (50) operable to move the focus position of the laser beam laterally relative to the z-axis to direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein; wherein the X-Y scan device (50) is further configured to scan an OCT beam of the OCT device in the target tissue and to receive the return back reflections from the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4), the OCT device (100) and the scanner (40, 50) and configured to determine the location of the limbus based on optical scattering differences of the cornea and sclera imaged using the OCT device, characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the determined location of the limbus obtained from the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a

crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism.

AUXILIARY REQUEST 1G

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea, and limbus and sclera of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) comprising a Z-scan device (40) configured to focus to enable movement of a focus position of the laser beam along the Z-axis in the target tissue and a X-Y scan device (50) operable to move the focus position of the laser beam laterally relative to the z-axis to direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein; wherein the X-Y scan device (50) is further configured to scan an OCT beam of the OCT device in the target tissue and to receive the return back reflections from the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4), the OCT device (100) and the scanner (40, 50) and configured to determine the location of the limbus based on optical scattering differences of the cornea and sclera imaged using the OCT device, characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the determined location of the limbus obtained from the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a

crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism;
wherein a beam combiner (34, 152) is provided in the scanning system to combine the laser beam and the OCT beam so that both beams follow the same optical path through the X-Y scan device (50) and the delivery system.

AUXILIARY REQUEST 2

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue..

AUXILIARY REQUEST 2A

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system configured to deliver the scanned beam to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue.

AUXILIARY REQUEST 2B

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system comprising an objective lens (58) and configured to deliver the scanned laser beam through the objective lens to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue.

AUXILIARY REQUEST 2C

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and
   wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue.

AUXILIARY REQUEST 2D

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein so as to move a focus position in the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4), the OCT device (100) and the scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and
   wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue.

AUXILIARY REQUEST 3

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus~~.~~

~~2. The system of claim 1~~, and

wherein the controller is configured to operate the laser source and scanner such that ~~at least one of~~ the incisions only partially extend~~s~~ through the target tissue.

AUXILIARY REQUEST 3A

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system configured to deliver the scanned beam to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and.

~~2. The system of claim 1,~~ wherein the controller is configured to operate the laser source and scanner such that ~~at least one of~~ the incisions only partially extend~~s~~ through the target tissue.

AUXILIARY REQUEST 3B

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system comprising an objective lens (58) and configured to deliver the scanned laser beam through the objective lens to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and.

~~2. The system of claim 1,~~ wherein the controller is configured to operate the laser source and scanner such that ~~at least one of~~ the incisions only partially extend~~s~~ through the target tissue.

AUXILIARY REQUEST 3C

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and~~.~~ the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and

~~2. The system of claim 1,~~ wherein the controller is configured to operate the laser source and scanner such that ~~at least one of~~ the incisions only partially extend~~s~~ through the target tissue.

AUXILIARY REQUEST 3D

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein so as to move a focus position in the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) the OCT device (100) and the scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and
   ~~2. The system of claim 1,~~ wherein the controller is configured to operate the laser source and scanner such

that ~~at least one of~~ the incisions only partially extende through the target tissue.

AUXILIARY REQUEST 4

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue.

AUXILIARY REQUEST 4A

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system configured to deliver the scanned beam to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue.

AUXILIARY REQUEST 4B

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system comprising an objective lens (58) and configured to deliver the scanned laser beam through the objective lens to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue.

AUXILIARY REQUEST 4C

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and
   wherein the controller is configured to operate the laser source and scanner such that the cataract

incision only partially extends through the target tissue.

AUXILIARY REQUEST 4D

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein so as to move a focus position in the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4), the OCT device (100) and the scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and

wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue.

AUXILIARY REQUEST 5

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus,
   wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue, and

   wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus by starting from the inside and proceeding outwards so

   as to preserve the structural integrity of the tissue and limit the risk of tearing and infection.

AUXILIARY REQUEST 5A

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system configured to deliver the scanned beam to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus,
   wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue, and

wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus by starting from the inside and proceeding outwards so as to preserve the structural integrity of the tissue and limit the risk of tearing and infection.

AUXILIARY REQUEST 5B

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system comprising an objective lens (58) and configured to deliver the scanned laser beam through the objective lens to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus,
   wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue, and

wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus by starting from the inside and proceeding outwards so as to preserve the structural integrity of the tissue and limit the risk of tearing and infection.

AUXILIARY REQUEST 5C

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and
   wherein the controller is configured to operate the laser source and scanner such that the cataract

incision only partially extends through the target tissue, and

wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus by starting from the inside and proceeding outwards so as to preserve the structural integrity of the tissue and limit the risk of tearing and infection.

AUXILIARY REQUEST 5D

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein so as to move a focus position in the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4), the OCT device (100) and the scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and

wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue, and

wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus by starting from the inside and proceeding outwards so as to preserve the structural integrity of the tissue and limit the risk of tearing and infection.

AUXILIARY REQUEST 6

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue, and

      wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus *leaving at least 200 µm of tissue thickness* by starting from the inside and proceeding outwards so as to

preserve the structural integrity of the tissue and limit the risk of tearing and infection.

AUXILIARY REQUEST 6A

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system configured to deliver the scanned beam to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus,
   wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue, and

wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus *leaving at least 200 µm of tissue thickness* by starting from the inside and proceeding outwards so as to preserve the structural integrity of the tissue and limit the risk of tearing and infection.

AUXILIARY REQUEST 6B

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein, the delivery system comprising an objective lens (58) and configured to deliver the scanned laser beam through the objective lens to the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue, and

wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus *leaving at least 200 µm of tissue thickness* by starting from the inside and proceeding outwards so as to preserve the structural integrity of the tissue and limit the risk of tearing and infection.

AUXILIARY REQUEST 6C

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein; and
   d. a controller (300) operatively coupled to the laser source (4) and scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and
   wherein the controller is configured to operate the laser source and scanner such that the cataract

incision only partially extends through the target tissue, and

wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus *leaving at least 200 µm of tissue thickness* by starting from the inside and proceeding outwards so as to preserve the structural integrity of the tissue and limit the risk of tearing and infection.

AUXILIARY REQUEST 6D

Claims

1. A scanning system (2) for treating target tissue in a patient's eye (68), comprising:
   a. an ultrafast laser source (4) configured to deliver a laser beam (6) comprising a plurality of laser pulses;
   b. an Optical Coherence Tomography (OCT) device (100) configured to discern limbus (408) and sclera (410) relative to the cornea (406) of the patient's eye (68) to generate signals which may be used to create an image of the cornea and limbus of the eye of the patient;
   c. a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein so as to move a focus position in the target tissue; and
   d. a controller (300) operatively coupled to the laser source (4), the OCT device (100) and the scanner (40, 50) characterised in that the controller is configured to control the scanner to adjust the position of the laser beam based upon the signals from the OCT device to create a cataract incision (402) in the cornea or limbus that provides access for lens removal instrumentation to a crystalline lens of the patient's eye, and a relaxation incision (420) in the cornea or limbus, and
   the delivery system comprising an objective lens (58) and configured to deliver through the objective lens to the target tissue the first treatment pattern to form the cataract incision (402) and the second treatment pattern to form the relaxation incision (420) to reduce astigmatism, and

wherein the controller is configured to operate the laser source and scanner such that the cataract incision only partially extends through the target tissue, and

wherein the controller is configured to control the scanner to adjust the position of the laser beam to create the relaxation incision (420) as an only partially penetrating incision in the cornea or limbus *leaving at least 200 µm of tissue thickness* by starting from the inside and proceeding outwards so as to preserve the structural integrity of the tissue and limit the risk of tearing and infection.

VII. The arguments of the appellant can be summarised as follows:

Main request - Article 123(2) EPC

The meaning of the term "to focus" in Feature c) of claim 1 as granted was that the convergence/divergence of the laser beam was varied in order to adjust the position of the focus spot in the patient's eye along the Z-axis. The scanner did not produce the focus spot with a diameter of 10 micrometers. This was disclosed in paragraph [0029] of the description as originally filed. Therefore, the subject-matter of claim 1 fulfilled Article 123(2) EPC.

Not only the scanner but all components of the system were configured to create incisions in the target tissue. The contribution of the scanner included a variation of the divergence of the beam, i.e. a focusing/defocusing function. This resulted in a three dimensional scanning which was needed to create two dimensional incisions. The term "to focus and direct" referred to this three dimensional scanning and not to the main focusing function which results in the focus spot.

Auxiliary requests 1A-1D - Article 123(2) EPC

The amendments made in auxiliary requests 1A-1D further clarified the function of the scanner and of the delivery system. The claim had been formulated more narrowly, so that Feature c) was now in accordance with the system described in the application.

Auxiliary requests 1E-1G - Article 123(3) EPC

The amendments made in auxiliary requests 1E-1G further clarified the function of the scanner and of the delivery system. If the claim as granted could be construed broadly, it now had been restricted to the functions as described in the application. No broadening of the scope of the claim had taken place.

Further auxiliary requests

The appellant agreed with the Board that the arguments discussed for the main request and auxiliary requests 1A-1G also applied to the remaining auxiliary requests.

VIII. The arguments of the respondents can be summarised as follows:

Main request - Article 123(2) EPC

From Feature c) it was clear that the scanner had the function of focusing the laser beam to a small spot in order to create incisions in the target tissue. The scanner was the only component which was specified as having the function "to create incisions". In contrast thereto, the application as originally filed disclosed that the scanner was used to move the focus spot which was produced by the delivery system which had an objective lens. Therefore, the subject-matter of claim 1 contravened Article 123(2) EPC.

Auxiliary requests 1A-1D - Article 123(2) EPC

Feature c) was present in all these requests. The addition of the delivery system to the claim did not overcome the objection under Article 123(2) EPC.

Auxiliary requests 1E-1G - Article 123(3) EPC

The amendments had shifted the main focusing function from the scanner to the delivery system. The scope of the claim had therefore been changed in a way that it covered different subject-matter (aliud) which contravened Article 123(3) EPC.

Further auxiliary requests

The same arguments applied to the remaining requests.

Reasons for the Decision

1. Main Request

1.1 Claim 1 refers to a system for treating target tissue in a patient’s eye. The components of the claimed system are a laser, a scanner, an OCT device and a controller. According to Feature c), "a scanner (40, 50) [is] configured to focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein".

The wording of this feature is not present in the application as filed. Therefore, for the assessment under Article 123(2) EPC, it had to be decided, whether Feature c) (in combination with the other features of claim 1) can be directly and unambiguously derived from the technical context of thedescription and figures of the application as filed.

1.2 According to the description (in particular paragraphs [0029]-[0030]), the light beam produced by the laser enters a Z-scan device 40 which is used to adjust the position of the focus spot in the patient's eye along the Z-axis. The Z-scan device is formed by a Galilean telescope. The movement of one of its lenses results in a corresponding movement of the focus spot. At the same time, the Z-scan device expands the beam by 2 times (page 6, line 27). The expanded beam enters a X-Y scan device 50 which adjusts the position of the focus spot in the X-Y plane. Finally, the beam (having for example a diameter of 15 mm; page 7, line 15) is focused by a delivery device which includes an objective lens 58 for this purpose (paragraph [0030]). This focusing results in the focus spot in the patient's eye tissue, which has a diameter of about 10 micrometers and is able to

create incisions in the eye tissue.

With regard to the focusing and scanning functions, nothing is disclosed in the application as filed which differs from this general arrangement.

1.3 In contrast to this arrangement, Feature c) specifies the scanner to "focus and direct the laser beam in a pattern within the cornea (406) or limbus (408) to create incisions therein". This is the only place in the claim which defines by which means the incisions are created in the eye. The remaining features of claim 1 may contribute to the overall treatment but the creation of incisions per se is explicitly and exclusively specified as a result of the functioning of the scanner. Therefore, the wording of Feature c) must be understood such that the scanner provides a focusing which results in the focus spot having a diameter of about 10 micrometers.

1.4 The appellant argued that during the adjustment - or scanning - of the Z position of the focus spot, the Z-scan device varied the divergence/convergence of the beam, which meant that it was focusing the beam, in accordance with claim 1. The appellant correctly described the function of the Z-scan device as it is specified in the description. However, a slight variation of the divergence/convergence of the beam cannot be regarded as "focusing to create incisions", as required by Feature c). Since the claim is clear with regard to the meaning of the term "to focus" it should not be construed differently by using the description.

1.5 Moreover, according to the description, the Z-scan device 40 expands the beam instead of providing a focus

spot (paragraph [0029]). This cannot be regarded as "focusing ... to create incisions". Further according to the description, the focusing to create the incisions is performed by the delivery system which includes the objective lens 58 (paragraph [0030]), not by the scanner. The appellant's argument that the delivery system formed part of the claimed scanner is not correct because the description clearly distinguishes between the scanner and "all the optical elements downstream of the scanner" which form the delivery system (paragraph [0061]).

1.6 Consequently, Feature c) must be construed in a way that the scanner provides the focusing of the (large) laser beam down to the focus spot which is capable of creating incisions in the eye tissue. This is not disclosed in the application as originally filed and contravenes Article 123(2) EPC.

2. Auxiliary requests 1A-1B

In auxiliary requests 1A and 1B, a delivery system has been added to Feature c) which is located "downstream of the scanner" and is "configured to deliver the scanned beam ... to the target tissue". In auxiliary request 1B, the delivery system additionally comprises an objective lens (58) through which the beam is delivered to the target tissue.

The presence of the delivery system does not alter the meaning of the remainder of Feature c). The fact that the scanner is configured to focus and direct the laser beam to create incisions, is still present. Since the focusing function of the objective lens is not specified in the claim, there is no reason to assume that the objective lens provides the main focusing of

the laser beam instead of the scanner.

Therefore, the subject-matter of claim 1 of auxiliary requests 1A and 1B contravenes Article 123(2) EPC.

3. Auxiliary request 1C

Based on the main request, Feature c) of auxiliary request 1C still requires that "the scanner [is] configured to focus and direct the laser beam ... to create incisions". Additionally it comprises a "delivery system downstream of the scanner", and the scanner directs the beam in a "first and second treatment pattern."

As in auxiliary requests 1A and 1B, the presence of the delivery system does not alter the focusing function of the scanner.

Therefore, the subject-matter of claim 1 of auxiliary request 1C contravenes Article 123(2) EPC.

4. Auxiliary request 1D

In addition to Feature c) of auxiliary request 1C, Feature c) of auxiliary request 1D specifies that the scanner is configured "to move a focus position in the target tissue".

Since the scanner of auxiliary request 1C already directs the laser beam in a pattern, the feature according to which the scanner moves the focus position in the target tissue does not alter the overall function of the scanner.

However, Feature c) still contains the definition that

the scanner also focuses the laser beam to create incision in the target tissue.

The latter still contravenes Article 123(2) EPC.

5. Auxiliary request 1E-G

Feature c) of auxiliary request 1E reads:
"a scanner (40, 50) and a delivery system (56, 58) downstream of the scanner, the scanner (40, 50) configured to focus to enable movement of a focus position of the laser beam along the Z-axis in the target tissue and direct the laser beam in a first and second treatment pattern within the cornea (406) or limbus (408) to create incisions therein".

In this request the function of the scanner has become twofold: there is a “focusing” function which relates to the movement of the focus along the z-axis. In addition to this the scanner has a “directing” function which provides a pattern to create incision.

The now claimed “focusing” function provides the movement of a focus position (e.g. by slightly changing the convergence/divergence of the beam). This is, however, fundamentally different from a scanner which focuses the beam to create incisions in the tissue. The first is the function described in the application, paragraphs [0029] and [0030]. The second is not disclosed in the application as originally filed, but is present in claim 1 as granted (see the discussion of the main request).

Since the meaning of the term "to focus" is completely different in claim 1 as granted and claim 1 of auxiliary request 1E, the scope of the claim has

shifted (aliud) and contravenes Article 123(3) EPC.

The appellant argued that claim 1 as granted had encompassed, in addition to the main focusing function, also the meaning of "positioning the focus spot along the Z-axis" and that auxiliary request 1E restricted Feature c) to this meaning only. Therefore, the scope of the claim had only been restricted by the amendment.

However, claim 1 as granted did not encompass a focusing in the meaning of "positioning the focus spot along the Z-axis" (see the discussion of the main request). Therefore, claim 1 could not be restricted to this meaning.

With regard to auxiliary requests 1F and 1G, the specification according to which the scanner is formed from a Z-scan device and an X-Y scan device, which perform different tasks, does not change the assessment under Article 123(3) EPC. In both requests the Z-scan device is configured "to focus to enable movement of a focus position" along the Z-axis. The focusing to create incisions has been removed from the claim.

Therefore, claim 1 of auxiliary requests 1E-1G contravenes Article 123(3) EPC.

6. Further auxiliary requests

Auxiliary requests 2-6 contain Feature c) of claim 1 as granted, so that they contravene Article 123(2) EPC for the same reasons as the main request.

Auxiliary requests 2A-D, 3A-D, 4A-D, 5A-D and 6A-D contain the same amendments of Feature c) as auxiliary requests 1A-D. Therefore, claim 1 of these auxiliary

requests contravenes Article 123(2) EPC for the same reasons as given for auxiliary requests 1A-D.

The appellant did not present any further arguments in this respect.

7. Reimbursement of the appeal fee

The appellant requested reimbursement of the appeal fee because of a substantial procedural violation. Under Rule 103(1)(a) EPC reimbursement of the appeal fee is subject to the following three conditions: Firstly, the Board considers the appeal to be allowable, secondly, there was a substantial procedural violation during the proceedings before the department of first instance, and thirdly reimbursement is equitable.

As shown above, the Board has concluded that the appeal is not allowable, so that condition (i) is not satisfied. For that reason alone, there is no legal basis for reimbursing the appeal fee and the request for reimbursement must be refused.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairwoman:

C. Moser P. Acton

Decision electronically authenticated