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**Datasheet for the decision
of 4 March 2020**

Case Number: T 0123/16 - 3.4.02

Application Number: 07009066.7

Publication Number: 1857853

IPC: G02B21/06, G02B21/32, G02B21/00

Language of the proceedings: EN

Title of invention:
Illuminating device

Patent Proprietor:
Olympus Corporation

Opponent:
Leica Microsystems CMS GmbH

Headword:

Relevant legal provisions:
EPC 1973 Art. 83, 100(b)

Keyword:
Sufficiency of disclosure - (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0123/16 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 4 March 2020

Appellant: Olympus Corporation
(Patent Proprietor) 2951 Ishikawa-machi, Hachioji-shi,
Tokyo 192-8507 (JP)

Representative: von Hellfeld, Axel
Wuesthoff & Wuesthoff
Patentanwälte PartG mbB
Schweigerstrasse 2
81541 München (DE)

Respondent: Leica Microsystems CMS GmbH
(Opponent) Ernst-Leitz-Strasse 17-37
35578 Wetzlar (DE)

Representative: Grabovac, Dalibor
GH-Patent
Patentanwaltskanzlei
Bahnhofstraße 2
65307 Bad Schwalbach (DE)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 4 December 2015
revoking European patent No. 1857853 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman R. Bekkering
Members: A. Hornung
T. Karamanli

Summary of Facts and Submissions

- I. The patentee (appellant) lodged an appeal against the decision of the opposition division to revoke European patent No. 1 857 853 for lack of novelty of the subject-matter of claim 1 according to the main request and for lack of inventive step of the subject-matter of claim 1 according to the auxiliary request then on file. The main request was based on the patent as granted.
- II. Opposition had been filed against the patent as a whole and was based on the grounds for opposition under Article 100(a) EPC together with Article 54(1) EPC and Article 56 EPC, Article 100(b) EPC and Article 100(c) EPC.
- III. The patentee, with its statement of grounds of appeal, requested that the decision of the opposition division be set aside and the patent be maintained as granted (main request) or, as an auxiliary measure, be maintained as amended on the basis of the claims according to the auxiliary request filed with letter dated 26 September 2013 (erroneously referred to as 26 September 2014 in the grounds of appeal) as auxiliary request 1 or according to one of auxiliary requests 2 to 4 filed with its statement of grounds of appeal.
- IV. In response to the patentee's statement of grounds of appeal, the opponent (respondent) requested that the appeal be dismissed and the decision to revoke the patent be upheld.
- V. In a communication annexed to a summons to oral proceedings, scheduled on 4 March 2020, the board informed the parties about its preliminary opinion on the case.

VI. In response to the summons to oral proceedings, the parties informed the board that they would not be attending the oral proceedings. They did not file any comments concerning the board's preliminary opinion as annexed to the summons.

VII. The board held oral proceedings on 4 March 2020 in the absence of the duly summoned parties.

At the end of the oral proceedings, the chairman announced the board's decision.

VIII. Claim requests

(a) Independent claim 1 according to the main request reads as follows:

"A microscope (2) comprising:

a light source (19) configured to emit illumination light;

an objective lens (7);

an optical system configured to guide the illumination light so as to change an illumination area in accordance with a size of an object to be observed in an observation field; and

a switching unit configured to switch the optical system between a first state in which the optical system focuses the illumination light on a pupil plane (7a) of the objective lens (7) to perform plane illumination of the observation field and a second state in which the optical system makes the illumination light incident on the pupil plane (7a) of the objective lens (7) in the form of a

substantially collimated light beam to perform spot illumination of the observation field,

characterized in that

the optical system includes

at least one lens (24a, 24b) configured to change the numerical aperture of the illumination light at the pupil plane (7a) of the objective lens (7) when the system is switched in the first state, and

an illumination position moving unit (22, 32) configured to change a center angle of the illumination light focused on the pupil plane in the first state in which the plane illumination is performed".

(b) Independent claim 1 according to the first auxiliary request reads as follows (modifications with respect to claim 1 of the main request are highlighted):

"A microscope (2) comprising:

a light source (19) configured to emit illumination light;

an objective lens (7);

an illuminating device (1; 30) ~~optical system~~ configured to guide the illumination light so as to change an illumination area in accordance with a size of an object to be observed in an observation field; and

a switching unit configured to switch the illuminating device ~~optical system~~ between a first state in which the illuminating device ~~optical system~~ focuses the illumination

light on a pupil plane (7a) of the objective lens (7) to perform plane illumination of the observation field and a second state in which the illuminating device ~~optical system~~ makes the illumination light incident on the pupil plane (7a) of the objective lens (7) in the form of a substantially collimated light beam to perform spot illumination of the observation field,

characterized in that

the illuminating device ~~optical system~~ includes

at least one lens (24a, 24b) configured to change the numerical aperture of the illumination light focused into a point on ~~at~~ the pupil plane (7a) of the objective lens (7) when the system is switched in the first state, and

an illumination position moving unit (22, 32) configured to change a center angle of the illumination light focused on the pupil plane in the first state in which the plane illumination is performed".

(c) Independent claim 1 according to the second auxiliary request differs from claim 1 of the first auxiliary request in that it comprises the following feature at the end of the claim:

"wherein when the system is switched in the first state, the illumination light is focussed into a center of an optical axis of the pupil plane (7a) of the objective lens (7)".

(d) Independent claim 1 according to the third auxiliary request differs from claim 1 of the second auxiliary

request in that it comprises the following feature at the end of the claim:

"the illumination light is used for light-stimulating a specimen (A),

and the microscope (2) further comprises

a laser light source (8) configured to emit an observation laser beam;

a microscope scanning unit (11) configured to two-dimensionally scan a spot of the observation laser beam on the specimen; and

a detecting unit (17) configured to detect light emitted from the specimen caused by the scan of the observation laser beam".

(e) Independent claim 1 according to the fourth auxiliary request reads as follows:

"A microscope (2) comprising:

a light source (19) configured to emit illumination light;

an objective lens (7);

an illuminating device (1; 30) configured to guide the illumination light so as to change an illumination area in accordance with a size of an object to be observed in an observation field; and

a switching unit configured to switch the illuminating device between a first state in which the illuminating

device focuses the illumination light on a pupil plane (7a) of the objective lens (7) to perform plane illumination of the observation field and a second state in which the illuminating device makes the illumination light incident on the pupil plane (7a) of the objective lens (7) in the form of a substantially collimated light beam to perform spot illumination of the observation field,

characterized in that

the illuminating device includes

at least one lens (24a) configured to change the numerical aperture of the illumination light focused into a point on the pupil plane (7a) of the objective lens (7) by moving the at least one lens (24a) along the optical axis of the illumination light when the system is switched in the first state, and

an illumination position moving unit (22, 32) configured to change a center angle of the illumination light focused on the pupil plane in the first state in which the plane illumination is performed, wherein

when the system is switched in the second state, the at least one lens (24a) is removed from the optical axis of the illumination light".

Reasons for the Decision

1. Main request

1.1 On the basis of the explanations given in point 6.2.3 of its communication annexed to the summons to oral proceedings,

the board arrives at the conclusion that the European patent does not disclose the invention as defined in present claim 1 in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC 1973).

The lack of sufficiency of disclosure relates to the following feature of claim 1: "at least one lens (..) configured to change the numerical aperture of the illumination light at the pupil plane (..) of the objective lens". The skilled person does not know how to influence the numerical aperture with the "at least one lens".

The board notes that the claim itself remains silent about the concrete characteristics of this "at least one lens". According to the patent description, column 11, lines 34 to 39, "[a]s shown in Fig. 2, by moving the at least one lens (the lens 24a) along the optical axis direction, the illumination area adjustment unit 24 can change the numerical aperture of the stimulation laser beam L2 incident on the pupil plane of the objective lens 7 with the focal point remaining in the pupil plane of the objective lens 7". More precisely, the lens 24b of the illumination area adjustment unit 24 is stationary while the lens 24a is movable (column 8, lines 51 to 54).

The board notes that moving a lens along the optical axis generally displaces the position of the point where the light focuses. It is not clear from the patent, how the lens 24a of claim 1 is to be configured in order to change the numerical aperture without moving the focusing point of the system in the pupil plane of the objective lens and without moving the second lens 24b of the illumination area adjustment unit 24. Therefore, the skilled person is not enabled by the information provided in the European patent to carry out the invention.

1.2 The patentee did not provide any comments or counter-arguments in support of the view that the invention was sufficiently disclosed in the patent.

1.3 Since the patent does not sufficiently disclose the invention as defined in claim 1, the ground for opposition under Article 100(b) EPC 1973 prejudices the maintenance of the patent as granted.

2. Auxiliary requests 1 to 4

The amendments of claim 1 of auxiliary requests 1 to 4 are not suitable to overcome the objection of lack of sufficiency of disclosure raised against claim 1 of the main request.

2.1 The amendments to claim 1 of the first auxiliary request merely clarify

(i) that the illumination light which is focused on a pupil plane of the objective lens according to the unamended preamble of the claim is actually "focused into a point on" the pupil plane of the objective lens and

(ii) that the optical system of claim 1 is actually an "illumination device".

The amendments to claim 1 do not define more precisely how the "at least one lens" of the illumination device is configured to change the numerical aperture. Therefore, the amendments to claim 1 are not suitable to overcome the objection of lack of sufficiency of disclosure raised against the invention of claim 1 according to the main request.

2.2 The amendments to claim 1 of the second auxiliary request with respect to claim 1 of the first auxiliary request merely clarify that the point on the pupil plane of the objective lens is "a center of an optical axis of the pupil plane (..) of the objective lens".

The amendments to claim 1 of the second auxiliary request are not suitable to overcome the objection of lack of sufficiency of disclosure for substantially the same reasons as the amendments to claim 1 of the first auxiliary request.

2.3 The amendments to claim 1 of the third auxiliary request with respect to claim 1 of the second auxiliary request substantially define further components of the claimed microscope.

These amendments have no effect on the lens configured to change the numerical aperture of the illumination light and, hence, are not suitable to overcome the objection of lack of sufficiency of disclosure.

2.4 Claim 1 of the fourth auxiliary request is amended with respect to claim 1 of the first auxiliary request substantially in that it clarifies that the change of the numerical aperture of the illumination is obtained "by moving the at least one lens (..) along the optical axis of the illumination light".

This additional information about how the numerical aperture of the illumination light is changed by the one lens is based on the description of the patent (column 8, lines 51 to 54; column 11, lines 34 to 39) and was taken into account in the assessment of whether the invention was sufficiently disclosed (see point 1.1 above). Therefore, the amendments to claim 1 of the fourth auxiliary request are not suitable

to overcome the objection of lack of sufficiency of disclosure.

2.5 It follows that the invention according to auxiliary requests 1 to 4 is not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC 1973).

3. For the above reasons the board comes to the conclusion that none of the patentee's requests is allowable and that the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



M. Kiehl

R. Bekkering

Decision electronically authenticated