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**Datasheet for the decision
of 20 March 2020**

Case Number: T 1486/17 - 3.4.02

Application Number: 03731448.1

Publication Number: 1511978

IPC: G01J1/00, G01B9/00, G02B17/06,
G02B27/02, G02B27/30

Language of the proceedings: EN

Title of invention:

METHOD AND SYSTEM FOR SENSING AND ANALYZING A WAVEFRONT OF AN
OPTICALLY TRANSMISSIVE SYSTEM

Applicant:

AMO WaveFront Sciences, LLC

Relevant legal provisions:

EPC 1973 Art. 84
EPC Art. 123(2)

Keyword:

Clarity and support by the description (no)
Added subject-matter (yes)



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 1486/17 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 20 March 2020

Appellant: AMO WaveFront Sciences, LLC
(Applicant) 14810 Central Avenue, SE
Albuquerque, NM 87123 (US)

Representative: Wynne-Jones IP Limited
2nd Floor, 5210 Valiant Court
Gloucester Business Park
Gloucester
Gloucestershire GL3 4FE (GB)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 21 December
2016 refusing European patent application No.
03731448.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman R. Bekkering
Members: F. J. Narganes-Quijano
G. Decker

Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal against the decision of the examining division refusing European patent application No. 03731448.1.

In its decision the examining division held in respect of the main and the auxiliary requests then on file that the claimed invention did not involve an inventive step (Article 56 EPC 1973).

- II. With the statement setting out the grounds of appeal dated 2 May 2017 the appellant submitted claims according to a main and an auxiliary request.

The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of the claims of the main or the auxiliary request. The appellant also requested oral proceedings in the event that the claims of the main or the auxiliary request were not considered allowable.

- III. In a communication annexed to the summons to oral proceedings the board presented a preliminary assessment of the case and raised a series of objections - in particular, under Article 84 EPC 1973 and Article 123(2) EPC - in respect of the claims - in particular, of claim 1 - of the main and the auxiliary requests.

- IV. In reply to the summons to oral proceedings the appellant, by letter dated 12 February 2020, informed the board that they would not be present nor represented at the oral proceedings. The appellant also

stated that they would not be making any submissions prior to the oral proceedings.

Subsequently, the oral proceedings were cancelled.

V. Claim 1 of the main request reads as follows:

"A method of sensing a wavefront of light passing through an optically transmissive device (140), comprising:

locating a light source (110) a first distance from, and on a first side of, the optically transmissive device

passing light from the light source through the optically transmissive device;

imaging at least a portion of the light passed through the optically transmissive device by passing the light through a relay imaging system having two lenses (150, 170), the wavefront sensor comprising a lenslet array (182) and a detector array (184), the detector array comprising a subset of pixels defining a corresponding Area-Of-Interest (AOI) for each of the lenses in the lenslet array; and

sensing a wavefront of the imaged light to produce therefrom wavefront data;

the method characterised by locating a wavefront sensor (180) for the sensing of the wavefront on a second side of the optically transmissive device prior to the passing of light from the light source,

adjusting a distance between the light source and the optically transmissive device to substantially maximise a degree of collimation of the light output by the optically transmissive device and detecting first position data representative of a first location of said light source relative to said optically

transmissive device at which said maximised degree of collimation is attained, and

passing the light through a dynamic range-limiting aperture (160) disposed at an internal focal point between the two lenses of the relay imaging system, the dynamic range-limiting aperture having a size and shape to match the size and shape of the AOI and being configured to clip out from reaching the wavefront sensor (180) any light from the light source that would otherwise produce an out-of-range condition for the wavefront sensor."

Claim 1 of the auxiliary request differs from claim 1 of the main request in that the expression "is attained, and" at the end of the penultimate paragraph of claim 1 of the main request has been replaced by the following text:

"is attained;

moving said light source from said first location, to a second location, and obtaining second position data representative of said second location; and".

Reasons for the Decision

1. The appeal is admissible.
2. Oral proceedings were appointed by the board in accordance with the appellant's request for oral proceedings. In reply to the communication annexed to the summons to the oral proceedings scheduled for 3 April 2020, the appellant announced by letter dated 12 February 2020 that they would not be present nor

represented at the oral proceedings and that they would not be making any submissions prior to the oral proceedings. With these statements the appellant expressed that they did not wish to - and therefore that they renounced to - present submissions in reply to the board's communication before or at the oral proceedings. This is equivalent to a withdrawal of the request for oral proceedings. In these circumstances, the board considered that there was no need to hold oral proceedings in the absence of the appellant, and the oral proceedings were cancelled.

3. *Main request - Article 84 EPC 1973 and Article 123(2) EPC*

Claim 1 of the main request does not meet the requirements of clarity and of support by the description set forth in Article 84 EPC 1973 and the requirements of Article 123(2) EPC for the following reasons:

i) It is not clear in the third and fifth sub-paragraphs of claim 1 ("the wavefront sensor comprising a lenslet array [...] the method characterised by locating a wavefront sensor [...] "*[emphasis added]*") whether the claimed method involves the use of one or two wavefront sensors (Article 84 EPC 1973).

ii) It is not clear in the fifth sub-paragraph of claim 1 what is meant by "locating a wavefront sensor (180) for the sensing of the wavefront on a second side of the optically transmissive device prior to the passing of light from the light source" [*emphasis added*]. In addition, the mentioned feature is not supported by the description within the meaning of Article 84 EPC 1973 and by the application as

originally filed (Article 123(2) EPC) because the description of the application and also the application as originally filed (see Fig. 1 and the corresponding description) only disclose sensing the wavefront of the light from the relay imaging system by means of the wavefront sensor located on a second side of the optically transmissive device.

iii) It is not clear in the fourth sub-paragraph of claim 1 whether the step of "sensing a wavefront" is carried out with the wavefront sensor previously defined in the third sub-paragraph of the claim, and whether the wavefront sensor is located to receive light directly from the optically transmissive device or the light imaged by the relay imaging system (Article 84 EPC 1973).

iv) It is not clear in the sixth sub-paragraph of claim 1 in what sense the degree of collimation of the light output from the optically transmissive device can be controlled by adjusting the distance between the light source and the optically transmissive device (Article 84 EPC 1973). As an example, in the case of a light source emitting collimated light, the degree of collimation of the light output from the optically transmissive device would be independent of the distance between the light source and the optically transmissive device. In addition, according to the description of the application the degree of collimation of the light output from the optically transmissive device is controlled by adjusting the distance between the optically transmissive device and a light source emitting light having a predetermined degree of divergence (see paragraphs [00041], [00043] and [00044]); consequently, claim 1 is not supported by

the description (Article 84 EPC 1973) because it does not require this feature of the light source.

v) It is not clear in the last sub-paragraph of claim 1 what is the technical relationship between the "out-of-range condition" for the wavefront sensor and the corresponding Areas-Of-Interest (Article 84 EPC 1973). In addition, as noted by the appellant (see statement of grounds of appeal, page 4, third paragraph) and as is apparent from the description (see Fig. 2 to 6 and the corresponding description, and in particular paragraphs [00011], [00055] to [00057], [000101] and [000102]), the claimed avoidance of the out-of-range condition is such that each Area-Of-Interest does not receive light from the lenses of the lenslet array corresponding to adjacent Areas-Of-Interest; consequently, claim 1 is not supported by the description (Article 84 EPC 1973) because it omits this feature.

4. *Auxiliary request - Article 84 EPC 1973 and Article 123(2) EPC*

Claim 1 of the auxiliary request does not meet the requirements of clarity and of support by the description set forth in Article 84 EPC 1973 and the requirements of Article 123(2) EPC for the same reasons given in point 3 above in respect of claim 1 of the main request.

In addition, it is not clear in the context of claim 1 of the auxiliary request whether the feature distinguishing the claim from claim 1 of the main request (see point V above, last paragraph) also involves sensing the corresponding wavefront of the imaged light (Article 84 EPC 1973). In addition, there

is no basis in the application as originally filed for moving the light source as specified in the mentioned feature without simultaneously sensing the corresponding wavefront of the imaged light; therefore, the omission of this feature in claim 1 constitutes an unallowable generalisation of the content of the application as originally filed (Article 123(2) EPC).

5. The board notes that the objections mentioned in points 3 and 4 above were already raised in the communication annexed to the summons to oral proceedings, and that in their letter of reply dated 12 February 2020 the appellant did not submit arguments in reply to the mentioned objections.
6. In the absence of an allowable request, the appeal is to 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