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**Datasheet for the decision  
of 10 April 2018**

**Case Number:** T 1275/13 - 3.2.02

**Application Number:** 06020267.8

**Publication Number:** 1769732

**IPC:** A61B3/12

**Language of the proceedings:** EN

**Title of invention:**

A fundus observation device, fundus image display device and fundus observation program

**Patent Proprietor:**

Kabushiki Kaisha TOPCON

**Opponent:**

Canon Kabushiki Kaisha

**Headword:**

**Relevant legal provisions:**

EPC Art. 54, 123(2)

RPBA Art. 12(4)

**Keyword:**

Late-filed evidence - submitted with the statement of grounds  
of appeal - admitted (yes)

Novelty - main request (no) - auxiliary request 1 (no)

Amendments - added subject-matter - auxiliary requests 2 and 3  
(yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**

**Boards of Appeal**

**Chambres de recours**

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Case Number: T 1275/13 - 3.2.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.02**  
**of 10 April 2018**

**Appellant:** Canon Kabushiki Kaisha  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
17 April 2013 concerning the maintenance of  
European patent No. 1769732 in amended form.**

**Composition of the Board:**

**Chairman** E. Dufresne  
**Members:** D. Ceccarelli  
M. Stern

## Summary of Facts and Submissions

- I. The opponent has appealed against the Opposition Division's decision, dispatched on 17 April 2013, that, taking into account the amendments according to auxiliary request 2 made by the patent proprietor during the opposition proceedings, European patent No. 1 769 732 and the invention to which it related met the requirements of the EPC.
- II. Notice of appeal was received on 20 May 2013. The appeal fee was paid the same day. The statement setting out the grounds of appeal was received on 14 August 2013.
- III. The respondent replied to the statement of grounds by letter dated 20 December 2013.
- IV. Oral proceedings took place on 10 April 2018.

The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the appeal be dismissed or, in the alternative, that the decision under appeal be set aside and the patent maintained on the basis of one of auxiliary requests 1 to 3 filed with letter dated 20 December 2013.

- V. The following documents are mentioned in the present decision:

D12: Japanese Journal of Clinical Ophthalmology,  
Vol. 59, No. 7, pages 1135 to 1139, RINSHO  
GANKA, 15 July 2005;

D12T: English translation of D12.

VI. **Claim 1** of the request held allowable by the Opposition Division, which is **the main request** in the present appeal, reads as follows:

"A fundus observation device (1) comprising:  
a first image forming means (1A) for forming a 2-dimensional image of the surface of a fundus oculi of an eye to be examined;  
a second image forming means (150) for forming a tomographic image of said fundus oculi;  
a display means (200);  
a controlling means (210) for displaying said 2-dimensional image formed by said first image forming means and said tomographic image formed by said second image forming means in parallel on said display means, wherein the controlling means also displays the cross-sectional position information indicating the cross-sectional position of said tomographic image on the surface of said fundus oculi, so as to be overlapped with said 2-dimensional image; and  
an operating means, wherein:  
said second image forming means is an optical image measuring device comprising:  
a light source;  
an interference light generating means for splitting the light output from the light source into signal light directed towards said fundus oculi and reference light directed towards a reference object, and also for generating interference light by overlaying the signal light reflected at said fundus oculi and the reference light reflected at said reference object;  
a detecting means for outputting a detection signal upon receipt of said generated interference light;  
a scanning means for scanning the incident position

of said signal light with respect to said fundus oculi in a given main scanning direction and in a sub-scanning direction perpendicular to the main scanning direction respectively; and

characterized by

a second image processing means for respectively forming tomographic images along said main scanning direction at a plurality of positions that are different in said sub-scanning direction based on said detection signal that has been output, for forming a 3-dimensional image of said fundus oculi based on the plurality of tomographic images that have been formed, wherein

after forming said 2-dimensional image and said 3-dimensional image, when a cross-sectional position is designated by said operating means on said 2-dimensional image displayed on said display means, said second image processing means forms a tomographic image at the designated cross-sectional position based on said 3-dimensional image, and

said controlling means

displays the tomographic image at the designated cross-sectional position parallel to said 2-dimensional image, and also

displays the cross-sectional position information indicating the designated cross-sectional position, so as to be overlapped with said 2-dimensional image."

Compared with claim 1 of the main request, in **claim 1 of auxiliary request 1** the definition of the second image forming means in the characterising portion has been amended as highlighted below. That definition reads:

"a second image processing means for respectively forming tomographic images along said main scanning

direction and a depth-wise direction at a plurality of positions that are different in said sub-scanning direction based on said detection signal that has been output, for forming a 3-dimensional image of said fundus oculi based on the plurality of tomographic images that have been formed".

Compared with claim 1 of the main request, in **claim 1 of auxiliary request 2** the definition of the scanning means in the preamble has been amended as highlighted below. That definition reads:

"a scanning means for scanning the incident position of said signal light with respect to an area in said fundus oculi different from an area of said 2-dimensional image in a given main scanning direction and in a sub-scanning direction perpendicular to the main scanning direction respectively".

Compared with claim 1 of the main request, in **claim 1 of auxiliary request 3** the definition of the light source in the preamble has been amended as highlighted below. That definition reads:

"a light source for outputting light at different timing from timing of the formation of said 2-dimensional image".

VII. The appellant's arguments relevant to the present decision may be summarised as follows:

*Admissibility of D12 and D12T*

D12 and D12T had been filed with the statement of grounds, in order to show that some assertions made by the respondent during the oral proceedings before the

Opposition Division, on which the impugned decision was based, were incorrect. Their filing had to be considered as a normal development of the case in response to a decision that negatively affected the appellant. D12, which disclosed a fundus observation device with two separate image forming means like the opposed patent, destroyed the novelty of the subject-matter of claim 1 of the main request and, hence, was very relevant. Moreover, since D12 and D12T had been filed already in 2013, the respondent had had plenty of time to consider them. It followed that these documents had to be admitted under Article 12(4) RPBA.

*Main request*

The subject-matter of claim 1 of the main request lacked novelty over D12. In particular, this document disclosed a fundus observation device comprising a first image forming means in the form of a scanning laser ophthalmoscope (SLO) and a second image forming means in the form of a optical coherence tomography (OCT) device (page 2, second paragraph of D12T), a display means, a controlling means and an operating means (figures 3 and 4) comprising all the features defined in claim 1 (as apparent in particular from page 2, first to third paragraphs, page 3, second paragraph and page 4, second paragraph of D12T, and figures 3 and 4). More particularly, D12 disclosed a scanning means which provided scanning of an incident light beam in three directions. First, the scan took place on a plane perpendicular to a depth-wise incident direction, along which a signal light beam for forming images of the fundus oculi was fed onto the eye to be examined. The resulting scanning was known as a C-scan in ophthalmoscopy. Repeated C-scans at different depths built up an entire volume (page 2, third paragraph of



D12T). Each C-scan could be seen as a scan of the signal light in a main scanning direction and a sub-scanning direction within the meaning of claim 1 of the main request. As regards the definition in the claim of the second image processing means for forming tomographic images along the main scanning direction at a plurality of positions that were different in the sub-scanning direction and for forming a 3-dimensional image based on the plurality of those formed tomographic images, it had to be remarked that such definition did not limit in any way the acquisition of the image data by the scanning means, but only related to the processing of such data. The claim did not exclude that the data acquisition could include multiple scans along the depth direction. The formation of the tomographic images and the 3-dimensional image as claimed were described on page 3, second paragraph of D12T. D12 also disclosed that the second image forming means comprised the scanning means. Whether the same scanning means were also used by the first image forming means was irrelevant for the assessment of novelty, since the claim wording did not exclude such a possibility.

*First auxiliary request*

The subject-matter of claim 1 of the first auxiliary request lacked novelty over D12 for the same reasons. More particularly, page 3, second paragraph of D12T stated that tomographic images were formed along the main scanning direction and a depth-wise direction, i.e. what was known as B-scan images in ophthalmoscopy. The explicit reference to the time required for obtaining a B-scan image implied the formation of a plurality of such images. According to the same paragraph, a 3-dimensional image could be formed on the

basis of those B-scan images.

*Second auxiliary request*

Claim 1 of the second auxiliary request infringed Article 123(2) EPC, since in the application as originally filed there was no direct and unambiguous disclosure that the area scanned by the scanning means was different from an area of the 2-dimensional image of the surface of the fundus oculi. More particularly, figure 6A referred to by the respondent, which merely reproduced a schematic drawing, did not show the area of that 2-dimensional image, but the fundus oculi (Ef) itself. Paragraph [0054] of the A2 publication of the application as originally filed identified the fundus oculi as Ef, while the 2-dimensional image was referred to as Ef'. Figures 9 and 10 did not show the 2-dimensional image together with the scanned area either.

*Third auxiliary request*

Claim 1 of the third auxiliary request also infringed Article 123(2) EPC, since in the application as originally filed there was no direct and unambiguous disclosure of a light source for outputting light at different timing from timing of the formation of the 2-dimensional image. In particular, the different timing of acquisition of the 2-dimensional image and the scanning of signal light was not disclosed in connection with the light source.

VIII. The respondent's arguments relevant to the present decision may be summarised as follows:

*Admissibility of D12 and D12T*

D12 and D12T could have been filed in the first instance proceedings, since claim 1 of the main request substantially corresponded to a combination of granted claims 1, 5 and 7. Moreover, the filing of D12 and D12T and the novelty objection based on these documents could not be considered as a response to the impugned decision, which was mainly concerned with inventive step instead, in view of a combination of other documents. Also, D12 was not prima facie highly relevant, because the fundus observation device which it disclosed was substantially different from that of the patent. It followed that neither D12 nor D12T should be admitted into the appeal proceedings under Article 12(4) RPBA.

*Main request*

The subject-matter of claim 1 of the main request was novel over D12. According to the claim, the main scanning direction and the sub-scanning direction had to be on a plane corresponding to a C-scan. The device of D12 did not comprise a second image processing means as claimed, for respectively forming tomographic images along the main scanning direction at a plurality of positions that were different in the sub-scanning direction and for forming a 3-dimensional image of the fundus oculi based on the plurality of those tomographic images. With the claimed second image processing means, a single scan in the main scanning direction already provided a full tomographic image along the depth-wise direction. Based on a plurality of such tomographic images, a 3-dimensional image of the fundus oculi was formed. In contrast, the device of D12 required the scanning, along three perpendicular

directions, of the whole volume of which a three dimensional image had to be formed. Specifically, a sequence of C-scans at varying depths were performed. The 3-dimensional image obtained with the device of D12 was not based on the plurality of tomographic images as claimed, but rather on the images associated with that sequence of C-scans. Moreover, D12 did not disclose a scanning means as claimed, since in the device of D12 the scanning means was used by the first image forming means, whereas according to the claim the scanning means belonged to the second image forming means.

*First auxiliary request*

In claim 1 of the first auxiliary request, it had been clarified that a 3-dimensional image was obtained based on multiple B-scan images. D12 did not disclose that such B-scan images were formed and that then, on their basis, a 3-dimensional image was formed. On the contrary, according to page 3, second paragraph of D12T a 3-dimensional image was formed on the basis of C-scans only. In fact, there was no disclosure of a plurality of B-scans, since in that paragraph a single B-scan was mentioned.

*Second auxiliary request*

Claim 1 of the second auxiliary request complied with Article 123(2) EPC. The application as originally filed, in particular figure 6A, clearly disclosed that the area scanned by the scanning means, rectangular in the figure, was different from an area of the 2-dimensional image of the surface of the fundus oculi (circular in the figure). Moreover, figures 9 and 10 displayed the different areas. Paragraph [0054] of the A2 publication of the application as originally filed

made it clear that the 2-dimensional image formed by the first image forming means corresponded to what was shown as fundus oculi Ef in figure 6A.

*Third auxiliary request*

Claim 1 of the third auxiliary request complied with Article 123(2) EPC. In particular, when reading the application as originally filed as a whole, the skilled person would directly and unambiguously derive that only the light source could be responsible for the difference in time between the acquisition of the 2-dimensional image and the scanning of the signal light.

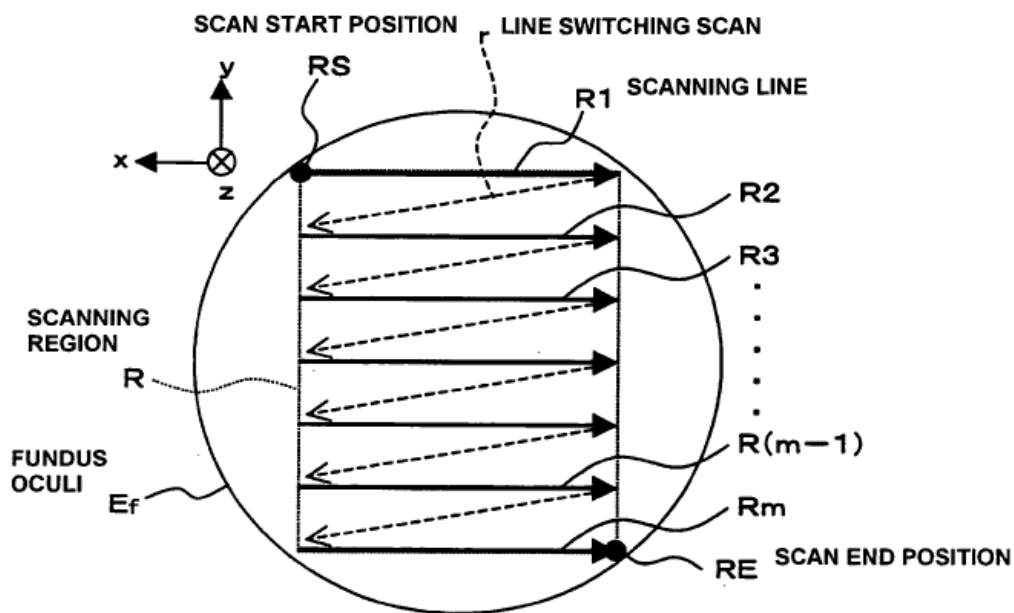
**Reasons for the Decision**

1. The appeal is admissible.
2. The invention

The invention relates to a fundus observation device for observing the fundus of an eye to be examined. Fundus observations are carried out to diagnose or monitor the progressing state of diseases of the retina or the optic nerve, like macular degeneration or glaucoma. For reliable diagnosis and monitoring of those diseases, it is desirable to observe the state of both the fundus surface and the deep layer tissues. For this purpose, the fundus observation device of the invention comprises a "first image forming means", for example in the form of a fundus camera, for forming a 2-dimensional image of the fundus surface and a "second image forming means", for example in the form of an OCT (Optical Coherence Tomography) device, for forming a

plurality of tomographic images at different positions of the fundus, typically on a plane substantially perpendicular to the fundus surface, by scanning signal light along two scanning directions on that plane, as shown in figure 6A reproduced below. The fundus observation device further comprises display means and controlling means for displaying the 2-dimensional image and a tomographic image in parallel. The controlling means makes it possible to display the cross-sectional position of the tomographic image relative to the 2-dimensional image.

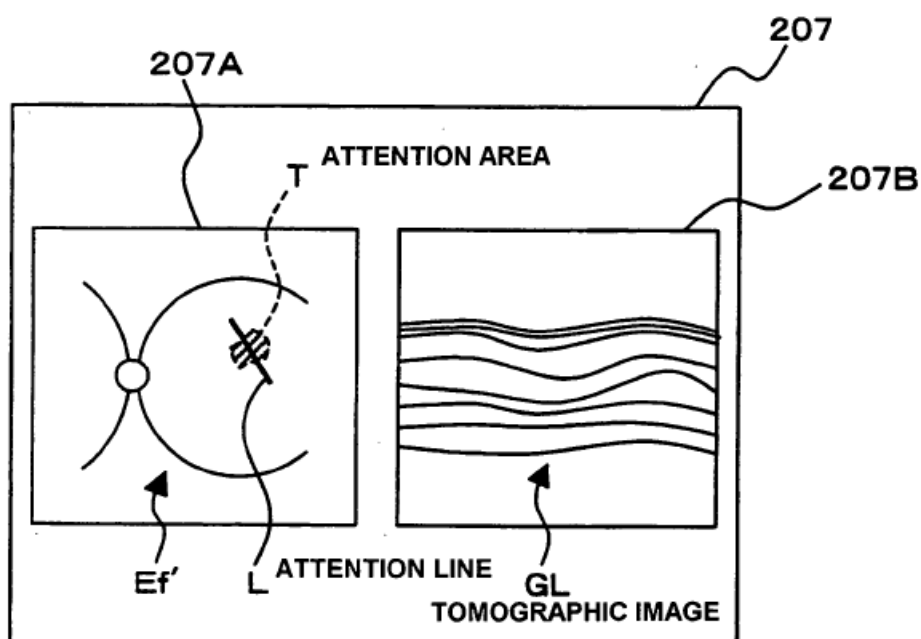
**FIG.6A**



According to the independent claims of all the requests, the second image forming means is capable of forming a 3-dimensional image of the fundus oculi based on the plurality of tomographic images. After the 2-dimensional image of the fundus surface and the 3-dimensional image of the fundus oculi are formed, when a position on the 2-dimensional surface image is selected (for example a line or an area - figures 10

and 13), the display means can display the tomographic image at that selected position, in a cross-sectional direction with respect to the 2-dimensional image. The tomographic image can be displayed in parallel to the 2-dimensional surface image with the respective selected position, as shown for example in figure 11 reproduced below.

**FIG.11**



3. Admissibility of D12 and D12T

D12 is a scientific article concerning a glaucomatous optic nerve disk damage analysis performed with a three-dimensional ophthalmoscope consisting of the combination of a scanning laser ophthalmoscope (SLO) and an OCT device. Since it discloses two different image forming means, the second of which is an OCT image forming means, the Board considers it prima facie highly relevant for the subject-matter of claim 1 of

the main request. D12 was filed by the appellant with the statement of grounds.

Under Article 12(4) RPBA, everything presented by the appellant with the statement of grounds is to be taken into account in the appeal proceedings, although the Board retains the discretion to hold inadmissible facts and evidence which could have been presented in the first instance proceedings.

The appellant filed D12 and D12T in the attempt to improve its position in view of the impugned decision. The Board is aware that these documents could have been filed in the first instance proceedings, in particular because claim 1 of the main request, which was held allowable in that decision, substantially corresponds to a combination of granted claims. However, the Board considers that filing as a specific and justified reaction to the reasons provided by the Opposition Division in the impugned decision, in particular that the skilled person would not combine an ophthalmic apparatus with an OCT signal processing system of a different field. In this context, it is of no importance whether D12, relating to an OCT signal processing system in ophthalmoscopy, may even turn out to be novelty-destroying for the subject-matter of claim 1 of the main request.

For these reasons, the Board admits D12 and D12T into the proceedings under Article 12(4) RPBA.

4. Main request

The Board is of the opinion that the subject-matter of claim 1 of the main request lacks novelty over D12.



D12 discloses a fundus observation device with a first image forming means for forming a 2-dimensional image of the surface of a fundus oculi and a second image forming means for forming a tomographic image of the fundus oculi (respectively the Scanning Laser Ophthalmoscope - SLO and the Optical Coherence Tomography device - OCT on page 1, third paragraph of D12T), a display means and a controlling means for displaying the 2-dimensional image and the tomographic image in parallel, indicating the cross-sectional position of the tomographic image on the 2-dimensional image (figures 3 and 4), and an operating means (implicit, for the operation of the ophthalmoscope), wherein the second image forming means has a light source, an interference light generating means for generating a signal light and a reference light, and a detecting means of interference light (as is normal for an OCT device), and a scanning means for scanning the incident position of the signal light in two perpendicular directions on a plane (the C-scan described in the paragraph bridging pages 2 and 3 of D12T and shown in figure 1), the fundus observation device further comprising a second image processing means for forming tomographic images along one of the scanning directions at a plurality of positions that are different in the other scanning direction for forming a 3-dimensional image of the fundus oculi (the B-scan and the formation of the 3-dimensional image described in the second paragraph of page 3 of D12T), wherein, after forming the 2-dimensional image and the 3-dimensional image, when a cross-sectional position is designated by the operating means on the 2-dimensional image a tomographic image at the designated cross-sectional position is shown in parallel to the 2-dimensional image on which the cross-sectional position is indicated (figure 4 and its

description on page 7 of D12T), as defined in claim 1 of the main request.

The respondent argued that D12 did not disclose a scanning means as claimed, since the scanning means was used by the first image forming means. However, the Board notes that in the device of D12 the scanning means is used by both the SLO and and OCT (page 2, second paragraph of D12T) and that the claim is not limited to a scanning means exclusively used by the second image forming means. This leads to the conclusion that the second image forming means, i.e. the OCT device of D12, comprises a scanning means within the meaning of claim 1.

As regards the suitability of the second image processing means of the fundus observation device of D12 for respectively forming tomographic images along the main scanning direction at a plurality of positions that are different in the sub-scanning direction, the Board notes that a plurality of B-scan images as the one shown in figure 1 of D12 would be such tomographic images. The second paragraph on page 3 of D12T discloses that "a measurement time of 0.5 second [sic] is required for obtaining a B-scan cross-sectional tomographic image". Considering that the device is capable of producing a 3-dimensional image by performing a 3-dimensional scanning, it is clear that the reference in singular to a B-scan image in that paragraph implies a reference to the measurement time for obtaining any of a number of such images. Hence, the second image processing means of the fundus observation device of D12 is suitable for forming a plurality of tomographic images along the main scanning direction at a plurality of positions that are different in the sub-scanning direction, as defined in

claim 1 of the main request.

As far as the respondent's argument that the 3-dimensional image obtained with the second image processing means of the OCT device of D12 was not based on that plurality of tomographic images, but rather on the images associated with a sequence of C-scans, the Board notes and accepts the appellant's argument that the definition of the second image processing means does not limit the claim to a particular acquisition sequence of image data, but relates only to the processing of such data. More particularly, the claim does not exclude the particular data acquisition described in D12T. Moreover, the claim does not require either that the 3-dimensional image be formed exclusively based on the defined plurality of tomographic images. In D12T, the formation of a 3-dimensional image is described on page 3, second paragraph. The eighth sentence of the paragraph recites:

*"A three-dimensional image is formed on the basis of these pieces of information, wherein the measurement time depends on the frame rate, the depth scan width and the number of image acquisition steps".*

Reasonably, *"these pieces of information"* include the B-scan and the C-scan images obtained as described in the same paragraph. It follows that the second image processing means of the fundus observation device of D12 is also suitable for forming a 3-dimensional image of the fundus oculi based on the plurality of tomographic images formed along the main scanning direction at a plurality of positions that are different in the sub-scanning direction, i.e. the B-scan images, as defined in claim 1 of the main

request.

As a consequence, the subject-matter of claim 1 of the main request is not patentable under Article 52(1) EPC, since it lacks novelty (Article 54(1) and (2) EPC).

5. First auxiliary request

As the respondent submitted, compared with claim 1 of the main request, claim 1 of the first auxiliary request merely clarifies that the plurality of tomographic images that can be formed by the second image processing means are B-scan images. This is due to the explicit definition that they extend along the main scanning direction and a depth-wise direction. As explained above in relation to the main request, D12 discloses this feature. It follows that the first auxiliary request is not allowable either, due to lack of novelty (Article 54(1) and (2) EPC) of the subject-matter of claim 1 over D12.

6. Second auxiliary request

Claim 1 of the second auxiliary request does not comply with Article 123(2) EPC, since it contains subject-matter which extends beyond the content of the application as originally filed.

More specifically, the Board does not see any direct and unambiguous basis in the application as originally filed for scanning means suitable for scanning the incident position of the signal light with respect to an area in the fundus oculi different from an area of the 2-dimensional image. Figure 6A, invoked as such a basis by the respondent, does not depict any area of the 2-dimensional image, since the reference Ef in the

figure is the fundus oculi itself. This is made even clearer by paragraph [0054] of the A2 publication of the application as originally filed, which explicitly identifies the fundus oculi as Ef, and the 2-dimensional image as Ef'. Figures 9 and 10, also referred to by the respondent, do not show any scanning of the incident position of the signal light.

Hence, the second auxiliary request cannot be allowed either.

7. Third auxiliary request

Claim 1 of the third auxiliary request does not comply with Article 123(2) EPC, since it contains subject-matter which extends beyond the content of the application as originally filed.

More specifically, the Board does not see any direct and unambiguous basis in the application as originally filed for a light source of the second image forming means suitable for outputting light at different timing from timing of the formation of the 2-dimensional image.

The light source is not directly and unambiguously linked to the functionality of producing a 2-dimensional image and a 3-dimensional image one after the other. The application as originally filed is silent in this respect. The respondent's argument that the skilled person would derive that link when reading the application as originally filed as a whole is not convincing, since components of the fundus observation device other than the light source of the second image forming means could provide that functionality as well.

Hence, the third auxiliary request cannot be allowed either.

8. Since none of the respondent's requests can be allowed, the patent is to be revoked.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



D. Hampe

E. Dufrasne

Decision electronically authenticated