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**Datasheet for the decision  
of 24 January 2023**

**Case Number:** T 1119/20 - 3.4.02

**Application Number:** 07767085.9

**Publication Number:** 2034349

**IPC:** G02B21/36, G02B21/16, C12M1/00,  
C12M1/34

**Language of the proceedings:** EN

**Title of invention:**  
OBSERVING APPARATUS AND OBSERVING METHOD

**Patent Proprietor:**  
Nikon Corporation

**Opponent:**  
Carl Zeiss Microscopy GmbH

**Headword:**

**Relevant legal provisions:**  
EPC Art. 56, 123(2)  
RPBA 2020 Art. 12(4), 12(6), 13(2)

**Keyword:**

Amendments - added subject-matter (no)

Late-filed objections - not admitted in first-instance proceedings or filed with appeal - admitted (no)

Late-filed evidence - documents filed with the appeal or in reply to summons - admitted (no)

Inventive step - (yes)

**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 1119/20 - 3.4.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.4.02**  
**of 24 January 2023**

**Appellant:** Carl Zeiss Microscopy GmbH  
(Opponent) Carl-Zeiss-Promenade 10  
07745 Jena (DE)

**Representative:** Schiffer, Axel Martin  
Rundfunkplatz 2  
80335 München (DE)

**Respondent:** Nikon Corporation  
(Patent Proprietor) 15-3, Konan 2-chome  
Minato-ku  
Tokyo 108-6290 (JP)

**Representative:** Hoffmann Eitle  
Patent- und Rechtsanwälte PartmbB  
Arabellastraße 30  
81925 München (DE)

**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
2 March 2020 concerning maintenance of the  
European Patent No. 2034349 in amended form.**

**Composition of the Board:**

**Chairman** R. Bekkering  
**Members:** C. Kallinger  
C. Almberg

## **Summary of Facts and Submissions**

- I. The opponent (appellant) appealed against the opposition division's interlocutory decision finding that, on the basis of the second auxiliary request, the patent as amended met the requirements of the EPC.
- II. In the statement setting out the grounds of appeal, the opponent requested the revocation of the patent and submitted the following document:

D12 E.D. Salmon et al.: "A High-Resolution Multimode Digital Microscope System", (1998), METHODS IN CELL BIOLOGY, vol. 56, pages 185 to 215
- III. In its reply, the proprietor requested that the appeal be dismissed or, in the alternative, that the case be remitted to the opposition division for further prosecution or, as a further auxiliary measure, that the patent be maintained as amended on the basis of auxiliary requests 1 to 31.
- IV. In a communication pursuant to Article 15(1) RPBA 2020 the board informed the parties of its preliminary opinion. The board was, inter alia, of the opinion that the patent as amended met the requirements of Article 123(2) EPC, that the subject-matter of claim 1 of the patent as amended involved an inventive step in view of document D9 and the common general knowledge, and that document D12 should not be admitted into the appeal proceedings.

V. In its reply to the board's communication the opponent provided further arguments and submitted the following document:

D12a Cover pages, table of contents and preface of D12

VI. Oral proceedings took place on 24 January 2023.

VII. The parties' final requests were as follows.

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

The proprietor requested that the appeal be dismissed, i.e. that the patent be maintained in the form found allowable by the Opposition Division in the decision under appeal (main request).

In the alternative, should the Board follow the opponent's appeal on the basis of new facts, objections, arguments and/or evidence, the proprietor requested that the case be remitted to the Opposition Division for further prosecution.

In the further alternative, the proprietor requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims of one of auxiliary requests 1 to 31 filed with letter of 13 November 2020.

VIII. In addition to the above listed documents D12 and D12a, this decision refers to the following documents:

D2 US 5,790,710

D8 US 2006/0050376 A1

D9 US 2003/0231791 A1

IX. Claim 1 of the main request reads as follows (the feature numbering as used in the decision under appeal has been added by the board):

- a An observing apparatus for observing cells in a specimen, comprising:
- b a stage (101) for thereon positioning a cell culture vessel (A) containing a specimen with cells to be observed;
- c a photographic unit comprising an objective lens (103) configured to provide a low magnification for wide-field observation and a high magnification for cell observation and an image recording means (104),
- d the photographic unit being configured to photograph cells by recording an image of an interior of a cell culture vessel (A) positioned on the stage (101);
- e an illuminating unit (106) configured to irradiate the specimen with light; and
- f a control unit (105) for controlling operation of the illuminating unit and the photographic unit;
- g a storage unit for storing images photographed by the photographic unit;
- h a display control unit (109) configured to control displaying images photographed by the photographic unit;
- i wherein the control unit is configured to set (S10, S51, S61) the location in the interior of a cell culture vessel to be photographed by the photographic unit,
- k to select the magnification used by the objective lens,
- l to output (S20, S54, S64) images photographed by the photographic unit, and

- m to execute the following sequence of steps: a step (S10, S20) of acquiring a macro image by photographing the interior of the cell culture vessel at the low magnification using an observation with the light;
- n' a step (S30) of obtaining information with regard to a position of an observation object region set in the macro image in which cells are present;
- o' a step (S50-S64) of acquiring an observation object region image of the observation object region set in the macro image using the information with regard to the position of the observation object region;
- p' a step (S70) of obtaining information with regard to a position of a cell selected in the observation object region image for main observation; and
- q' a step (S80, S90) of performing the main observation on the selected cell using the information with regard to the position of the cell,  
characterized in that
- r the illuminating unit is configured to irradiate the specimen only during photography by the photographing unit and
- s comprises an excitation light source (108) for irradiating the specimen with excitation light which excites a fluorescent reagent added to the specimen during the fluorescence observation and
- t a transmitted light source (106) for irradiating the specimen with transmission light;

- u the control unit is configured to execute the step (S50-S64) of acquiring an observation object region image by selectably using a fluorescence observation with the excitation light and an observation with the transmission light, wherein one or more small regions in the observation object region are photographed at the high magnification;
- v the display control unit (109) is configured to superimpose (S260-300), while receiving a user selection (S310) as the information with regard to the position of the cell selected for main observation, an image of the observation object region obtained using a fluorescence observation with the excitation light and an image of the observation object region obtained using an observation with the transmission light;
- w' and the main observation includes time lapse processing using fluorescent light.

## **Reasons for the Decision**

- 1. Main request - Amendments (Article 123(2) EPC)
- 1.1 Objections discussed in the decision under appeal
- 1.1.1 Feature d - *"cell culture vessel"*

The opponent argued that the amendment specifying that the cells which were to be observed were in a cell culture vessel (feature d), constituted an unallowable intermediate generalisation.



Although originally filed claim 1 contained the feature that *"a photographic unit that [...] photographs the cells in the observation object region, based upon a macro image captured at low magnification of an interior of a cell culture vessel"*, it was not immediately evident from this passage that the photographic unit was *"configured to photograph cells by recording an image of an interior of a cell culture vessel"* as defined in feature d.

This was only directly and unambiguously disclosed in paragraph [0009] of the original description, which disclosed to observe *"cells within a cell culture vessel A that has been set by the user upon stage 101 within the chamber 102"*. The disclosure continued in paragraph [0010] by stating that *"the interior of the chamber 102 is sealed, and its internal environment"* is controlled to be suitable for culturing cells. The features that the chamber 102 surrounds the cell culture vessel A and the presence of controller 111, which maintains the internal climatic parameters at values suitable for cell growth, could not be considered optional, in particular not for the amended claim 1 as maintained, which was directed very specifically to a method (time lapse processing) typically used with cell cultures.

Therefore, the omission of these features in claim 1 constituted an unallowable intermediate generalisation.

This objection is not convincing for the following reasons.

Claim 1 as originally filed discloses that the photographic unit takes a region where cells are present as an observation object region and photographs the cells in the observation object region. It does so based upon a macro image captured at low magnification

of an interior of a cell culture vessel. If the photographic unit is expressly stated to photograph cells based on a macro image of a cell culture vessel, the skilled person would not understand this to mean that the cell culture vessel was an arbitrary cell culture vessel. Such a reading of the claim would make no sense to the skilled person, since if cells are to be photographed based on an image of the interior of a cell culture vessel, there must be some relationship between the interior of the cell culture vessel and those cells. The only relationship which makes technical sense to the skilled person is that the cells are in the interior of the cell culture vessel. It is therefore implicit in claim 1 as originally filed that the cells are in the cell culture vessel.

Moreover, the original disclosure is explicit about the relationship between the cells and the interior of the cell culture vessel. Paragraph [0009], final sentence, expressly points out that *"[i]n this embodiment, processing when observing cells within a cell culture vessel A that has been set by the user upon the stage 101 within the chamber 102 will be explained"*. Paragraph [0018] goes on to explain that *"[f]irst, using an objective lens that can perform observation over a wide field of view such as 4X or the like, by performing phase contrast observation of the entire range within the observable region while shifting the objective lens, the controller 105 photographs a phase contrast image. "Within the observable region" here means within the interior of the cell culture vessel A"*. The purpose of doing this is, as explained in paragraph [0020], to allow the identification of cell growth regions, which contain cells which are eventually the subject of observation. There is no other conceivable location where cells to be

photographed could reside during the disclosed processing. Hence, taking the whole original disclosure into account, the skilled person reaches no other interpretation of original claim 1 than that cells are present in the interior of a cell culture vessel, and that these cells are the cells to be photographed.

The opponent argued in addition that paragraphs [0009] and [0010] of the original disclosure only disclosed the cell culture vessel in combination with a chamber which surrounded the cell culture vessel and a controller which maintained the internal environment of the chamber at values suitable for cell growth. The use of a surrounding chamber and an environmental controller was in particular necessary for the now claimed time lapse processing using fluorescent light (feature w').

This argument is however not convincing because the cell culture vessel itself was already recited in original claim 1 without any reference to a chamber or a controller. In addition, even paragraphs [0009] and [0010], which disclose the use of a cell culture vessel, do not disclose a close structural or functional relationship, and certainly no inextricable link, between the use of a cell culture vessel and the surrounding chamber and environmental controller. Therefore, even in the now claimed case of time lapse processing as the main observation, the skilled person is aware of the fact that the invention also functions in the absence of a chamber surrounding the cell culture vessel and an environmental controller.

1.1.2 Feature o' : tiling/random mode

The opponent argued that the omission of a reference to a *"tiling mode"* or a *"random mode"* in feature o' did not meet the requirements of Article 123(2) EPC because the original disclosure (see page 5, lines 4 to 11, Figure 7 and claim 11) only related to methods employing one of the two modes. As a further consequence, also a *"selection unit"* had necessarily to be present.

This objection is not convincing for the following reasons.

Feature o' defines in essence *"a step (S50-S64) of acquiring an observation object region image of the observation object region set in the macro image"*. Claim 1 as originally filed disclosed *"a photographic unit that takes a region where cells are present as an observation object region and photographs the cells in the observation object region, based upon a macro image captured at low magnification of an interior of a cell culture vessel."* A similar disclosure is on page 2, lines 15 to 25 of the application as originally filed. These portions disclose, generally, the photographing of an observation object region containing cells which have been previously identified in a macro image.

In addition, the skilled person recognises from the original disclosure that the objective lens is an operative part of a microscope used in particular to observe cells with high or low magnification (see paragraphs [0008] and [0012] of the original disclosure). Neither of these functions requires the use of a tiling mode or a random mode.

Finally, the board agrees with the proprietor's line of argument that the skilled person understands from the application as originally filed (see in particular paragraphs [0020] and [0026] to [0041]) that the use of a tiling mode or random mode are presented as optional and are not essential to the functioning of the invention.

- 1.1.3 In conclusion, the board is not convinced by the opponent's arguments and is in particular of the opinion that also the amended feature w', which now restricts the main observation to include time lapse processing and thus to a method typically used for cell cultures, necessitates the incorporation of neither features relating to the environmental control as discussed in the application as filed, nor the selection unit that selects a tiling or random mode.

The board agrees with the reasoning of the opposition division and the arguments of the proprietor and is of the opinion that the above discussed features find a basis in the application as originally filed and thus meet the requirements of Article 123(2) EPC.

- 1.2 Further objections under Article 123(2) EPC

During the oral proceedings before the opposition division, the opponent raised new objections under Article 123(2) EPC, which the opposition division did not admit into the opposition proceedings (appealed decision, point 18.5).

The opponent raised these objections again in its statement of grounds of appeal, however, without giving any reason as to why the opposition division's decision not to admit these objections was incorrect.

When not to admitting these objections, the opposition division considered, *inter alia*, the *prima facie* relevance. Since the board therefore sees no reason why their discretionary decision would have suffered from an error, the board does not admit these objections into the proceedings either (Article 12(6) RPBA 2020).

- 1.3 With its statement of grounds of appeal, the opponent brought forward further objections under Article 123(2) EPC (*c.f.* reply to appeal, point 3.2).

These objections were raised for the first time and without any explanation as to why they were submitted only in appeal.

The board agrees with the proprietor's line of argument that these objections go beyond those on which the appealed decision was based and thus constitute amendments within the meaning of Article 12(4) RPBA 2020 (referring to Article 12(2) RPBA 2020). As these amendments have neither been clearly identified, nor clearly justified in terms of their late filing, the board, in the exercise of its discretion, does not admit these objections into the appeal proceedings (Article 12(4) RPBA 2020).

2. Documents D12 and D12a - Admittance
  - 2.1 Document D12

The opponent submitted document D12 for the first time with its statement of grounds of appeal and argued that this document was *prima facie* relevant and established the common general knowledge of the skilled person in

view of the feature w', which, surprisingly, was the basis for the opposition division's conclusion on inventive step. Its filing for the first time during the appeal procedure was justified since the extent and content of the common general knowledge was not clear.

The board is not convinced by the opponent's arguments for the following reasons.

Firstly, D12 refers to a specific system developed by the authors of the document and is therefore not suited to represent the common general knowledge. In addition, the opposition division's reasoning did not rely on the argument that time lapse processing per se would not be known to the skilled person but argued that, starting from D9, there would not be any incentive or motivation for the skilled person to change the method of evaluation. In other words, D12 is for two reasons not suitable to address the issues underlying the appealed decision, and considering it would be detrimental to procedural economy.

Finally, the now claimed time lapse processing was already part of granted claim 1. Therefore, the opponent should have already submitted document D12 during the first-instance opposition proceedings.

For the above reasons document D12 is not admitted into the appeal proceedings (Article 12(4) and (6) RPBA 2020).

## 2.2 Document D12a

Document D12a was submitted by the opponent for the first time with its reply to the board's communication, i.e. after notification of the summons to oral

proceedings, in order to demonstrate (by showing the cover pages and the table of contents of document D12) that document D12 represented common general knowledge.

The board, however, agrees with the proprietor's argument that document D12a was submitted without invoking any exceptional circumstances, which have been justified with cogent reasons, and that D12a does not help to establish the extent to which document D12, which is merely one of many chapters of the book shown in D12a, can represent the common general knowledge of the person skilled in the art.

Therefore, document D12a is not taken into account (Article 13(2) RPBA 2020).

3. Main request - Inventive step (Article 56 EPC)

3.1 The opponent argued that document D9 represented the closest prior art because the device had the most structural features in common with the observing apparatus of claim 1. Although D9 referred to Fluorescence In Situ Hybridization (FISH) in the background section (see paragraph [0004]), D9 was not restricted to FISH or the like, but was directed at fluorescence microscopy of biological samples in general.

In comparison to the claimed observing apparatus, document D9 did not disclose that the main observation was a time lapse processing using fluorescent light (feature w').



Based on this difference, the problem to be solved was to provide an automatic observation of time evolution in biological samples.

The opponent further argued that in the case at hand, the skilled person was a physicist or engineer with experience in multi-functional microscopy in biology and that time lapse processing was part of his common general knowledge. This was also supported by documents D2 (column 24, lines 9 to 17) and D8 (paragraph [0150]), which explicitly disclosed time lapse analysis of biological samples.

Furthermore, document D9 contained several pointers towards the implementation of time lapse processing as main observation:

- Paragraph [0005] disclosed the use of a video camera which could be used for observing progress over time.
- Paragraphs [0056] and [0057] disclosed that the sample examined in D9 included cell cultures. For the skilled person, it was common practice to perform time lapse observations on cell cultures.
- Paragraphs [0009] and [0130] showed that D9 was not restricted to perform only the steps described in in the detailed embodiments of D9 but suggested to perform further examination of the samples.

With respect to features r and v, which have been identified by the opposition division and the proprietor as further differences over document D9, the opponent argued that both features were at least implicitly disclosed in D9: Feature r in paragraphs [0140]-[0144] (turn bright field light source on and off) and feature v in paragraph [0074], last sentence (overlapping of stored images). Furthermore, even if

theses features were not known from D9, they did not contribute to the presence of an inventive step, since they concerned two independent problems, the solutions to which were straightforward when biological samples were observed with fluorescence microscopy.

Starting from document D9 as closest prior art, the skilled person would recognize that the apparatus disclosed therein comprised all the structural features of the claimed apparatus and was, in addition, suitable for performing time lapse processing of biological samples.

Based on his common general knowledge of time lapse processing and with the additional pointers in D9, it would therefore be obvious for the skilled person to adapt the apparatus disclosed in D9 accordingly, i.e. to reprogram the control unit of D9 to take a series of pictures of a single sample over time. In doing so, the skilled person would arrive at the subject-matter of claim 1 without an inventive step being involved.

3.2 The proprietor argued that document D9 failed to disclose at least that the main observation included time lapse processing using fluorescent light (feature w').

The proprietor argued further that document D9 centered around the idea of an automated analysis system that quickly and accurately scans large amounts of biological material on a slide and automates the analysis of fluorescent images on a slide quickly and accurately (see paragraph [0056]). The main purpose of document D9 was to collect bulk data of a large number of cells. Thus, even if there were structural similarities between the apparatuses of claim 1 and

document D9, its main purpose differed from claimed subject-matter which aimed at the study of the time evolution of cells in a specimen. As a consequence, starting from document D9 as closest prior art and even assuming that time lapse processing was part of the common general knowledge, the skilled person would not consider to depart from the central idea of document D9 and choose time lapse processing as main observation instead.

In addition, in contrast to the opponent's arguments, D9 did not provide any pointers for the skilled person to introduce a time lapse processing:

- The video camera mentioned in D9 (see paragraph [0005]) was not disclosed in the context of observing evolutions over time but for visualizing fluorescent signals, e.g. in FISH assays.
- Although document D9 mentioned that the biological sample could be derived from a living organism such as cultured cells (see paragraph [0057]), D9 did not discuss a live cell culture. Indeed, D9 explicitly proposed that the sample be fixed (see paragraphs [0059] and [0060]), which was directly opposed to the suggestion that the time evolution was studied.
- The reloading of previously examined slides (see paragraph [0130]) aimed at reviewing the same sample. The observation of an evolution over time in the sample was neither disclosed nor foreseen.

3.3 In the board's view, and this is undisputed, the observing apparatus defined in claim 1 differs from the device disclosed in D9 at least in that the main observation includes time lapse processing using fluorescent light (feature w').

From that point, the board is not convinced by the opponent's arguments but agrees with the opposition division's and the proprietor's arguments for the following reasons.

Document D9 is concerned with a specific analysis procedure, namely the so called "FISH" procedure as set out in the background section of document D9 (see paragraphs [0003] to [0005]), which does not require any time lapse processing. Thus, D9 is directed to a different method of observation than that defined in claim 1.

Starting from D9, there was no incentive or motivation for the skilled person to change the method of evaluation. D9 is directed at bulk processing of samples (see paragraph [0056]) and suggests in the context of an exemplary operating sequence to store the images collected from a slide for later off-line review (see paragraph [0150]). The procedure in D9 does not require any time lapse processing, since D9 is not concerned with living cells and time sequential monitoring of behaviour of such cells. This is supported by the disclosures that the samples are fixed (see paragraph [0059]), that fluorescent images are stored for later review (see paragraph [0074]) and that the slides with the samples are foreseen to be reviewed anytime after the slides have been read initially (see paragraph [0150]).

Therefore, the skilled person, even if generally aware of time lapse processing of cells, would not have modified the observing apparatus known from document D9 in order to perform time lapse processing as main observation as claimed.

In view of this, a discussion of the possible further differences (features r and v) brought forward by the opponent is not necessary.

In conclusion, the board agrees with the finding of the opposition division and is of the opinion that the subject-matter of claim 1 is inventive over document D9 (Article 56 EPC).

## Order

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:



L. Gabor

R. Bekkering

Decision electronically authenticated