BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [ ] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 2 December 2010

Case Number: T 0917/08 - 3.4.02

Application Number: 02006415.0

Publication Number: 1243916

IPC: G01N 21/55

Language of the proceedings: EN

Title of invention:
Measuring apparatus and measuring chip

Patentee:
FUJIFILM Corporation

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step - claims 1 and 2 (no)"
"Oral proceeding cancelled"

Decisions cited:
T 2047/07, T 1829/07

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0917/08 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 2 December 2010

Appellant: FUJIFILM Corporation
26-30, Nishiazabu 2-chome
Minato-ku
Tokyo (JP)

Representative: Klunker . Schmitt-Nilson . Hirsch
Destouchesstraße 68
D-80796 München (DE)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 19 December 2007 refusing European patent application No. 02006415.0 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: A. G. Klein
Members: M. Rayner
L. Bühler

Summary of Facts and Submissions

I. The applicant appealed against the decision of the examining division refusing European Patent Application 02006415.0 (=EP-A-1 243 916). The patent application concerns measuring apparatus with a dielectric block. In the examination and/or appeal proceedings, reference has been made to documents including the following:

D1 WO-A-95/22754
D2 US-A-5 917 607.

II. In the decision under appeal, the examining division reasoned that claim 1 before it differed from the disclosure of document D2 by virtue of the following: "each set of one of the adjacent components of the optical incidence system (6a-h; 32-35), of one of the adjacent corresponding photodetectors of the photodetector means (7a-h) and of one of the adjacent corresponding measuring units (10; 95; 110) define one plane such that the adjacent light beams are in different adjacent planes."

The use of several adjacent lenses for each light beam instead of the use of a single lens for all light beams according to document D2 was to be regarded, however, as merely one of two or, maybe, several straightforward possibilities which the skilled person would have selected, depending on the circumstances, without any exercise of inventive skill. An object of document D2 was simultaneously to detect and evaluate the five light beams impinging on the two-dimensional detector array (column 6, line 61 to column 7, 1ine 24). In order to use a photodetector with a small area, a lens

126 was provided such that the five light beams were condensed onto small sensor elements. Document D2 discloses that "from the viewpoint of cost" (see col.3, lines 12-25), it was an object that "the photodetector means may be simple in structure" (see col.4, 11.10-14). In view of this object, the area of the photodetector was kept as small as possible.

According to the present application the object of the skilled person might be, starting from document D2, to provide an alternative way of measuring the plurality of light beams. At the time of the filing date of the application the skilled person had the choice of using a photodetector array or CCD area sensor (see column 7, line 4 of document D2) or a sensor array with a longitudinal dimension corresponding to that of the "row of several light sources 5" according to, for example, document Dl (see e.g. page 6, lines 10-12 and Figs. 4a and 4b). Had the skilled person accepted the higher cost of the sensor array, he would have dispensed with the condensing lens and selected an arrangement according to Figures 4 and 5 of document D2 with a photodetector as described in document Dl. Thus, the skilled person would obviously have arrived at a device comprising light beams in different adjacent planes.

Independent claim 2 discloses additionally to claim 1, "a sensing substance disposed on a surface of said thin film layer so that it interacts with a specific compound in a sample". The use of an additional sensing surface is common practice and would obviously be provided by the skilled person as necessary.

III. The appellant requested that the decision under appeal be set aside and a patent granted on the basis of claims 1 to 14 submitted with the statement of grounds for appeal. Oral proceedings were requested on an auxiliary basis. Arguments including the following were advanced in support of the appeal.

Each of independent claims 1 and 2 is based on an version of claim 1 amended with respect to that attached to the written decision of the examining division by including limitations from previous claim 10, specifically directed to the fifth and sixth embodiment of the invention. The subject matter of claims 1 and 2 involves an inventive step because there is no prior art from which these features can be derived. In the prior art, the measuring units are arranged and supported only in one single direction, whereas the present invention teaches arranging and supporting the measuring units both in a first direction and a second direction and providing for a measuring-unit feed means for relatively moving the components of the system in order to move the measuring units to positions in which the light beams serially enter the measuring units.

IV. Consequent to the auxiliary request of the appellant, oral proceedings were appointed by the board. In a communication attached to the summons, the board made the following observations.

(a) The appellant has not disputed the reasoning of the examining division in relation to lack of inventive step of the feature treated as novel during the examination proceedings. The board

concurs with the view that dispensing with the condensing lens disclosed by document D2 can be considered an obvious measure for the skilled person.

(b) The appeal is therefore focused on features deriving from the fifth and sixth embodiments described in the application, in other words no longer the optical system but the supporting body and measuring unit feed means.

(c) So far as the supporting body is concerned, contrary to the submissions of the appellant, Figure 3 of document D1 does show a succession of so called strips 8 in which there are several adjacent wells, called a well plate with several rows of wells in claim 4 and strips placed side by side in claim 5. In other words, the wells in a strip are supported in the "P" direction and the strips themselves in the "Q" direction. While no specific feed structure is disclosed, when the detectors 6 function row-wise (page 6, line 12), a real or optical relative movement therebetween and the wells must obviously take place to analyse all the wells in the plate. Therefore, the board doubted whether any inventive step can be considered present in providing feed means according to the structure claimed.

(d) In the light of the state of the file, it did not therefore seem the appeal would be successful.

V. Following the summons to oral proceedings, the appellant informed the board that it would not attend the oral proceedings and requested that a decision be made on the status of the file. As the request of the appellant amounts to waiving the opportunity to have the case discussed before the board, the board interpreted it as a withdrawal of the request for oral proceedings (cf. T2047/07, point 1.1 of the Reasons for the decision or T1829/07, point 1.2), which were then cancelled.

VI. Independent claims 1 and 2 are worded as follows.

"1. A measuring apparatus comprising:
a plurality of measuring units comprising a dielectric block (202), a thin film layer (12) formed on a surface of said dielectric block (202), and a sample holding mechanism for holding a sample (15) on a surface of said thin film layer (12);
a supporting body (200) for supporting said plurality of measuring units;
a light source (220) for emitting a light beam (30; 30F);
an optical incidence system (221-255; 300-303) for making said light beam enter said dielectric block (202) at an angle of incidence so that a total internal reflection condition is satisfied at an interface between said dielectric block (200) and said thin film layer (12); and
photodetection means (7a-h, 305) for measuring the intensity of said light beam totally reflected at said interface;
wherein said optical incidence system (22 1-255; 300-303) is constructed so that light beams simultaneously

enter the dielectric blocks (202) of at least two measuring units supported by said supporting body (200); and
wherein said photodetection means (7a-h, 305) comprises at least two photodetectors provided so that they correspond in number to the light beams which enter said dielectric blocks (202),
characterized in that each set of one of the adjacent components of the optical incidence system (6a-h; 32-35), one of the adjacent corresponding photodetectors of the photodetector means (7a-h) and one of the adjacent corresponding measuring units (10; 95; 110) define one plane such that the adjacent light beams are in different adjacent planes, and that said supporting body (200) arranges and supports a plurality of measuring units in a first direction (P) so that said light beam enters said measuring units at the same time, and also arranges and supports a plurality of measuring units in a second direction (Q) perpendicular to said first direction; and
there is provided measuring-unit feed means (210, 211, 212) for relatively moving said supporting body and said optical system and photodetection means in said second direction (Q), thereby moving said plurality of measuring units arranged in said second direction (Q) to positions in which said light beam serially enters said measuring units.

2. A measuring apparatus comprising:
a plurality of measuring units comprising a dielectric block (202), a thin film layer (12) formed on a surface of said dielectric block, a sensing substance (14) disposed on a surface of said thin film layer (12) so that it interacts with a specific component in a sample

(15), and a sample holding mechanism for holding said sample on a surface of said sensing substance;
a supporting body (200) for supporting said plurality of measuring units;
a light source (220) for emitting a light beam (30; 30F);
an optical incidence system (201-255; 300-303) for making said light beam enter said dielectric block at an angle of incidence so that a total internal reflection condition is satisfied at an interface between said dielectric block and said thin film layer; and
photodetection means (7a-h, 305) for measuring the intensity of said light beam totally reflected at said interface;
wherein said optical system is constructed so that light beams simultaneously enter the dielectric blocks of at least two measuring units supported by said supporting body; and
wherein said photodetection means comprises at least two photodetectors provided so that they correspond in number to the light beams which enter said dielectric blocks (202),
characterized in that each set of one of the adjacent components of the optical incidence system of one of the adjacent corresponding photodetectors of the photodetector means and one of the adjacent corresponding measuring units define one plane such that the adjacent light beams are different adjacent planes, and that said supporting body (200) arranges and supports a plurality of measuring units in a first direction (P) so that said light beam enters said measuring units at the same time, and also arranges and

supports a plurality of measuring units in a second direction (Q) perpendicular to said first direction; and
there is provided measuring-unit feed means (210, 211, 212) for relatively moving
said supporting body and said optical system and photodetection means in said second direction (Q), thereby moving said plurality of measuring units arranged
in said second direction (Q) to positions in which said light beam serially enters said measuring units."

Reasons for the Decision

1. The appeal is admissible.

2. The appellant has not disputed the reasoning of the examining division in relation to lack of inventive step of the feature treated as novel during the examination proceedings. As set out in section IV(a) of the Facts and Submissions above, the board concurs with the view of the examining division that the feature concerned can be considered an obvious measure for the skilled person.

3. Moreover, the board has been offered no reason to reconsider its negative view in relation to inventive step of the supporting body and measuring unit feed means, i.e. the features introduced into the claims on appeal, for the reasons given section IV(b) and (c) of the Facts and Submissions above. Accordingly, the board confirms its view that subject matter of claims 1 and 2

novel over the disclosure of document D2 is obvious to a person skilled in the art.

4. The board thus concluded that the subject matter of independent claims 1 and 2 cannot be considered to involve an inventive step within the meaning of Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar The Chairman

M. Kiehl A. G. Klein