Internal distribution code:

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

Datasheet for the decision of 5 December 2017

Case Number: T 0926/16 - 3.3.05

Application Number: 06747937.8

Publication Number: 1893337

IPC: B01L3/00, G01N33/558

Language of the proceedings: EN

Title of invention:
METHOD AND MEANS FOR CREATING FLUID TRANSPORT

Applicant:
Amic AB

Headword:
Fluid transport/AMIC

Relevant legal provisions:
EPC Art. 54(1), 54(2), 56, 84, 111(1), 123(2)

Keyword:
Amendments - allowable (yes)
Novelty - (yes)
Inventive step - non-obvious alternative
Appeal decision - remittal to the department of first instance (yes)

Decisions cited:
T 0689/90

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

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 0926/16 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 5 December 2017

Appellant: (Applicant)	Amic AB Uppsala Science Park 751 83 Uppsala (SE)
Representative:	Bergenstråhle Group AB P.O. Box 17704 118 93 Stockholm (SE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 20 November 2015 refusing European patent application No. 06747937.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	E. Bendl
Members:	J.-M. Schwaller
	O. Loizou

Summary of Facts and Submissions

I. This appeal lies from the decision of the examining division to refuse European patent application No. 06 747 937.8 on the ground that claim 1 of the sole request then on file did not meet the requirements of Article 56 EPC in the light of the disclosure of document D5 (WO 98/43739 A2).

II. In its decision, the examining division concluded that the sole difference between the subject-matter of claim 1 and D5 was that the device had projections on its entire fluid passage while in D5 it did not have any such projections in the sample addition chamber.

According to the examining division, this feature was however obvious from D5 itself, which disclosed at page 32, lines 11 to 15 that the "surfaces of the diagnostic element 6 or of the other components of the device may be smooth, grooved, or grooved and smooth. Various textured surfaces may also be employed, alone or in combination with smooth or grooved surfaces. For example surfaces composed of posts, ...". Furthermore projections (or posts) were in general used in D5 to influence or improve the capillary forces and fluid flows. D5 thus suggested to use such projections as alternatives to smooth surfaces in capillary spaces.

III. After having amended the claims several times during the appeal proceedings, at the oral proceedings of 5 December 2017 the appellant filed a final main request (annex 4 of the minutes), independent claims 1, 6 and 7 of which read as follows:

"1. A device (1) for handling a liquid sample to be assayed, said device comprising a non-porous substrate

having a substrate surface; at least one fluid passage (27) having a first end at which a liquid sample is to be added to said device and a second end opposite said first end, wherein said at least one fluid passage (27) consists entirely of an open lateral fluid passage which is accessible from above and has no cover or lid which takes part in creating capillary flow and is supported by substantially perpendicular projections, said projections having a height (H), diameter (D) and a distance or distances (t1, t2) between the projections, capable of generating capillary flow, lateral to said substrate surface, of a liquid sample added to the first end of said at least one fluid passage (27); and at least one absorbing zone in fluid contact with said second end of said at least one fluid passage (27),
characterized in that said at least one absorbing zone comprises projections substantially perpendicular to said substrate surface, said projections having a height, diameter and a distance or distances between the projections, capable of generating capillary flow, lateral to said substrate surface, of a liquid sample added to the first end of said at least one fluid passage (27), and an adhesive foil (45) placed on the top of the perpendicular projections of said at least one absorbing zone, wherein the adhesive of the foil (45) has hydrophilic properties adapted to increase the flow velocity of said liquid sample from said first end to said second end of said fluid passage (27), and wherein the foil (45) accurately limits the fluid volume defined by said projections."

"6. A method for handling transport of a liquid sample in a device (1) according to claim 1, the method comprising the step of:

placing a liquid sample in contact with said first end of said at least one fluid passage (27) so the liquid sample is drawn through said at least one fluid passage (27) into the absorbing zone."

"7. An analytical or diagnostic test device comprising a device according to any one of claims 1-5."

IV. At the closing of the debate, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the set of claims of the final main request filed during oral proceedings of 5 December 2017 (annex 4), or in the alternative, of one of the first to fourth auxiliary requests previously filed as a main and first to third auxiliary requests with letter dated 3 November 2017.

Reasons for the Decision

1. Main request - allowability of the amendments

The subject-matter of independent claims 1, 6 and 7 of this request has a basis as follows in the application as filed:

- The subject-matter of claim 1 derives directly and unambiguously from claims 1, 3, 4 in combination with the passages at page 3, lines 25 and 26; page 9, lines 8 to 14; page 10, lines 29 and 30 and example 4 at pages 18 and 19 as originally filed.

  The feature "*an open lateral fluid passage which is accessible from above and has no cover or lid which takes part in creating capillary flow*", which has been introduced in claim 1 to clarify the term

"open", has its basis in referenced document D1 (WO 03/103835 A1) - from the same applicant - which is defined in the current application (page 3, lines 7 to 9 and page 9, lines 6 to 10) as disclosing the micropillar structure forming the so-called "open lateral fluid passage" defined in current claim 1. Since the term "open" is clearly defined in D1 (see page 6, lines 17 to 19) as meaning that the flow paths defined by the microstructures are accessible from above and have no cover or lid which takes part in creating capillary flow, the amendment is therefore held to be directly and unambiguously derivable from the application as originally filed, as it further fulfills all the criteria established in decision T 689/90, which concerns inter alia amendments based on a document cross-referenced in the description of the application as filed (see in particular point 2.2 of the grounds).

- Claims 6 and 7 have their basis in independent claims 17 and 29 as filed, respectively, in combination with the claims and passages identified above for claim 1.

2. Main request - Novelty

The board concurs with the conclusions of the examining division that the subject-matter of claim 1 at issue is novel over the content of D5, which does not disclose:

- a fluid passage consisting entirely of an open lateral fluid passage accessible from above and having no cover or lid creating capillary flow, said fluid passage being supported by substantially perpendicular projections capable of generating

capillary flow of a liquid added to the first end thereof;

- an adhesive foil placed on top of the perpendicular projections of the at least one absorbing zone and the foil adhesive having hydrophilic properties.

The other documents cited in the proceedings do not disclose the claimed subject-matter either.

3. Main request - inventive step

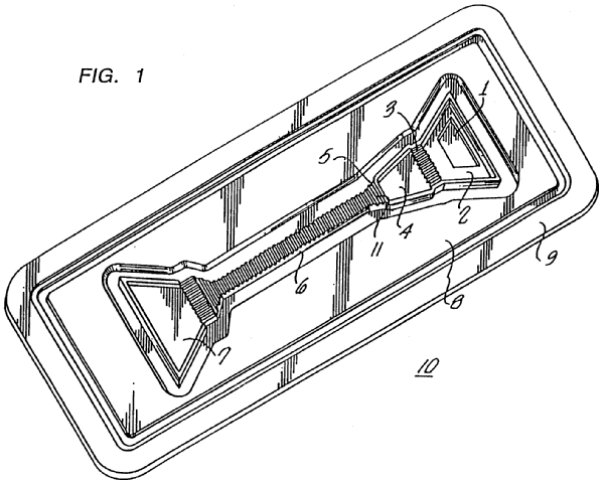
Applying the problem-solution approach, the board came to the conclusion that the subject-matter of claim 1 of this request involves an inventive step for the following reasons:

3.1 Document D5, which represents the closest state of the art, discloses (paragraph bridging pages 12 and 13) an assay device as illustrated in Figure 1 (reproduced below), said device comprising:

- a sample addition zone (1) and reservoir (2);
- a sample reaction barrier (3) fluidly connected to said reservoir;
- a reaction chamber (4) fluidly connected to said reaction barrier, wherein said barrier has a higher

capillarity than said reaction chamber;

FIG. 1



- a time gate (5) fluidly connected to the reaction chamber, said time gate permitting fluid to pass therethrough at a desired flow rate;
- a diagnostic element (6) fluidly connected to the time gate; and
- a used reagent reservoir (7) fluidly connected to said diagnostic element, whereby fluid can flow in sequence from (1) to (7) by capillarity by placing a top member (8) at a capillary distance from the bottom member (9).

D5 (page 5, first and second paragraph) describes the aim of this device as the control of the reagents movement without use of absorbent members or membranes and without requiring precise pipetting of the sample.

3.2 The appellant stated (letter point 4.3 of the letter of 3 November 2017) that the problem underlying the invention was to provide a device for handling a liquid sample which facilitates accurately controlling and defining the volume or capacity of the fluid entering the zone as well as improving the flow velocity of the sample.

3.3 The board does not accept appellant's formulation of the problem, because the purpose of the device conceived in D5 is a similar one (see point 3.1 above), so that the problem is to be reformulated in less ambitious terms as an alternative device to the one known from D5.

3.4 As regards obviousness of the subject-matter of claim 1, it has to be determined whether the proposed solution - here the features which in point 2 above are identified as establishing novelty over the disclosure of D5 - was obvious in the light of the known state of the art. For the board, the solution is not obvious for the following reasons:

3.4.1 Document D5 (page 15, lines 9 and 19) describes the sample addition reservoir (2) as being either a capillary space or an open trough. At page 32, lines 11 to 26, D5 further discloses that "*the surfaces of the diagnostic element 6 or of the other components of the device may be smooth, grooved, or grooved and smooth. Various textured surfaces may also be employed, alone or in combination with smooth or grooved surfaces. For example, surfaces composed of posts, grooves, pyramids, and the like referred to as protrusions; or holes, slots, waffled patterns and the like, referred to as depressions may be utilized*". The board is not convinced that the skilled person would understand from the above passage that the sample addition reservoir (2) falls under the wording "other components of the device" disclosed, nor that he would choose the protrusions among the alternatives proposed. And even if he would do so, D5 does not disclose or suggest the provision of having an adhesive foil with hydrophilic properties as the top member 9. The board notes that the top member 9 is described in D5 (page 13, lines 3

to 7) as being "formed by a number of techniques, including but not limited to, gluing, welding by ultrasound, riveting and the like" (emphasis added). The gluing operation defined above is however not described to be done via an adhesive foil, let alone via an adhesive foil having hydrophilic properties. D5 thus does not suggest this feature.

It follows from the above considerations that the skilled person would not arrive in an obvious manner at the subject-matter of claim 1 at issue from the disclosure of document D5 alone.

3.4.2 As none of the documents cited in the examination proceedings - in particular D1 or D3 (EP 0 348 006 A2) that the examining division cited against inventive step - discloses the use of an adhesive foil with hydrophilic properties for the purpose underlying the present invention, namely accurately controlling and defining the volume or capacity of a fluid entering a zone as well as improving the flow velocity thereof, the skilled person would not arrive at the subject-matter of claim 1 in the light of the disclosure of these documents either.

3.4.3 It follows from the above considerations that the subject-matter of claim 1 of this request involves an inventive step (Article 56 EPC).

The same considerations apply to independent claims 6 and 7, which contains all the features of above inventive claim 1, and which therefore meets the requirements of Article 56 EPC either.

4. Since the reasons that led to the refusal of the application no longer apply and since the dependent

claims and the description need to be adapted to the new independent claims filed, the board exercises its discretion under Article 111(1) EPC and remits the case to the examining division for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent on the basis of claims 1, 6 and 7 of the main request filed during oral proceedings (Annex 4 of the minutes), with the dependent claims and description to be adapted thereto.

The Registrar: The Chairman:

C. Vodz E. Bendl

Decision electronically authenticated