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**Datasheet for the decision
of 14 September 2012**

Case Number: T 1119/11 - 3.4.02

Application Number: 99934932.7

Publication Number: 1098837

IPC: B81B1/00, B81C1/00, G01N21/03

Language of the proceedings: EN

Title of invention:
SILICON MICRO-MACHINED PROJECTION WITH DUCT

Applicant:
QinetiQ Limited

Headword:

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
claims 1 and 3 - added subject matter (no)

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 1119/11 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 14 September 2012

Appellant: QinetiQ Limited
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 12 November 2010 refusing European patent application No. 99934932.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: A. Klein
Members: M. Rayner
B. Müller

Summary of Facts and Submissions

I. The applicant has appealed against the decision of the examining division refusing European patent application number 99 934 932.7 (=WO-A-00/05166) concerning providing a silicon micro-needle. Hereinafter PCT publication WO-A-00/05166 is referred to as document D1.

II. Page 3, lines 23 to 25 of document D1 are worded as follows:-

In one embodiment the method may comprise fabricating the duct in a piece of material and subsequently forming the micro-projection around the duct.

III. Claims 1, 5, 6, 11, 50 and 53 of document D1 are worded as follows:-

1. A method of providing a micro-projection on the surface of a first material, the micro-projection having a base portion adjacent the first material and a remote, or a tip portion, and a duct at least in a region of the tip portion and the method comprising micro-machining the first material to provide the micro-projection and duct.

5. A method according to any preceding claim in which the duct is fabricated to be coincident with an apex of the micro-projection.

6. A method according to any preceding claim in which the duct is fabricated in a piece of the first material and subsequently the micro-projection is fabricated in the first material such that the micro-projection is co-incident with the duct.

11. A method according to any of claims 6 to 10 in which the micro-projection is formed by any of the following techniques: a) anisotropic wet etching of silicon using liquid alkaline etches; b) focused ion beam milling; or c) transferring a pattern to the first material from a domed region of the masking layer using plasma/ion beam etching.

50. A micro-projection having a base portion which is provided on the surface of a first material, and a remote, or a tip, portion wherein the micro-projection has a duct at least in a region of the tip portion.

53. A micro-projection according to any of claims 50 to 52 which is a micro-needle, a micro-barb or a micro-tube, micro-cuvette, a micro-conduit, micro-connector, micro-rod or the like.

IV. The decision under appeal invoked lack of compliance with Article 123(2) EPC (added subject matter), the reasons concerned can be summarised as follows.

The method of claims 1 and 3 features alternative methods (a) or (b) or (c) of forming a silicon micro-needle around a duct wherein "the duct is fabricated to be coincident with the apex of a micro-needle". The disclosure for any of these methods in combination with the coincident duct-needle apex is not located. In particular claim 5 as originally filed, even in combination with the general disclosure of the invention of page 2 line 23 to page 22 line 5, does not provide an unambiguous disclosure for this subject-matter. Page 3 lines 19-20 concerns a passage in which "The method may fabricate the micro-projection such

that the duct is coincident with the apex of the micro-projection". Details of the technique are not given therein and thus the passage does not provide a disclosure of how this is obtained. This conclusion applies equally in relation to the disclosure of page 3 lines 27 to 28, i.e. "Indeed, the apex of the micro-projection may be fabricated to be coincident with the duct". The conclusion applies also in relation to the disclosure of page 8 lines 19 to 20, i.e. "Preferably the duct is fabricated such that the duct is coincident with an apex of the micro-projection". The disclosure on page 8 lines 22 to 26 relates to specific techniques of forming micro-needles without mentioning a coincidence of the needle with the duct. Moreover, the passage on page 25 line 15 to page 26 line 7 concerns the provision of the focused ion beam whereby "material is directly milled away using a fine focused ion beam which is scanned around the surface". Specifically, a disclosure relating to this method which obtains coincidence of the duct and the apex is not given. Furthermore, whilst this passage also concerns the domed masking layer technique, no unambiguous disclosure is given concerning the removal of the material to provide the needle wherein the apex thereof is coincident with the duct. In particular, the associated disclosure of Figures 1, 5a and 5b does not show a micro-needle associated with any duct.

The only unambiguous disclosure of the essential process steps of forming a silicon micro-needle, wherein the duct is first fabricated in a piece of silicon material, is located in relation to the disclosure of Figure 1 and the corresponding text, in particular Figure 1, from which it is moreover evident that an apex coincident with the duct is obtained by the provision of the masking layer (12) within the duct

and extending around it. Thus the method according to amended claim 1 wherein a micro-needle is subsequently formed by using liquid alkaline etches is in combination with the overlying same masking layer which enables the mask to act as an etch stop, thereby providing a micro-needle apex which is coincident or self-aligned with the duct, cf. page 22 line 7 to page 25 line 13. Accordingly, the above mentioned process step involving the above mentioned same masking layer to form the micro-needle that was previously used to form the duct, is determined to be an essential feature of the invention which is, however, missing in claim 1. The omission of this masking feature results in an incomplete solution of the unambiguous problem underlying the application, claim 1 thus being an inadmissible generalization of the disclosure. Thus an insufficient basis for the subject-matter of the alternative techniques (a) or (b) or (c) of providing a silicon micro-needle in which the duct is fabricated to be coincident with an apex of the micro-needle is provided having regard to the subject-matter of claims 1 and 3 of the main request on file, Article 123(2) EPC. The remaining dependent claims on file do not overcome the above objection and therefore are also not allowable under Article 123(2) EPC.

- V. The appellant requested that the decision under appeal be set aside and a patent granted on the basis of a main or one of a first to seventh auxiliary request. Oral proceedings were requested on an auxiliary basis.

In support of its request, the appellant advanced arguments including the following.

The test for added matter is whether an amendment results in the skilled person being presented with

information which is not directly and unambiguously derivable from that previously presented in the application, even when account is taken of matter which is implicit. Claim 1 of the main request contains the feature that "the micro-needle is formed by any of the following techniques a) anisotropic wet etching of silicon using liquid alkaline etches; b) focused ion beam milling; or c) transferring a pattern to the silicon from a domed region of the masking layer using plasma/ion beam etching". That feature has explicit basis in original claim 11, and additional explicit basis can be found, inter alia, at page 4, lines 25-26 and at page 8, lines 22-26 of document D1. Moreover, the features of original claim 6 - from which claim 11 depends - are also incorporated into amended claim 1. Accordingly, the subject-matter of claim 1 is directly and unambiguously derivable from the original application. Explicit basis for the feature "the duct is fabricated to be coincident with the apex of the micro-needle" is claim 5, page 3, lines 19-10, page 3, lines 27-18 and page 6, lines 19-20 of the original application from which the subject-matter of amended claim 3 is therefore also directly and unambiguously derivable.

There is no requirement in the EPC for a specific disclosure of each and every feature referred to in the general description. The applicant has demonstrated that there is clear basis in the claims and general disclosure of the application as filed for the features of claim 1 and claim 3. Furthermore, because the features are separate, independent teachings drawn from the original filed claims and the general description of the invention there is clear basis for the features in combination. The etching method described in relation to Fig. 1 is merely an example of one possible

method of forming a micro-needle and it is made quite clear in the application that the micro-needle can be formed in a variety of ways (cf. page 8, lines 22-26 and page 25, line 15 to page 26, line 7). Use of a mask is optional and it is stated at page 25, line 16 that "focused ion beam milling could be used wherein no mask layer is used and the material is directly milled away". Similarly, plasma/ion beam milling can be used to form a micro-needle which is coincident with the duct by carefully controlling etch rates so that a domed shape mask is etched into the underlying silicon layer (cf. page 25, lines 20-25). Since the mask is not essential, it is irrelevant whether or not the technique is directional. Accordingly, it is unreasonable to require the Applicant to limit claim 1 to the etching method of Fig. 1 and an overlying masking layer. Claim 1 is amended by subject-matter drawn from the general description, not a specific embodiment. Hence, no intermediate generalization arises by the exclusion of the masking feature. In view of the foregoing, it is submitted that claim 1 and claim 3 are both allowable under Article 123(2) EPC.

VI. Independent claims 1 and 3 according to the main request of the appellant are worded as follows (bold typeface added by the board).

"1. A method of providing a silicon micro-needle on a silicon surface, the micro-needle having a base portion adjacent the silicon surface, a remote, or a tip portion having an apex, and a duct passing entirely through the micro-needle, the method comprising: fabricating the duct in a piece of silicon; and subsequently forming a micro-needle around the duct which is **coincident with the duct**, wherein the micro-needle is formed by **any of the following techniques: a)**

anisotropic wet etching of silicon using liquid alkaline etches; b) focused ion beam milling; or c) transferring a pattern to the silicon from a domed region of the masking layer using plasma ion beam etching.

3. A method according to claim 1 or claim 2 in which **the duct is fabricated to be coincident with an apex of the micro-needle."**

VII. With a letter received on 24 August 2012 recordal of an assignment of, inter alia, the application in suit to Pamera Management Co., LLC, with an address at 160 Greentree Drive, Suite 101; Dover, DE 19904, U.S.A., was requested. An order to debit the associated fee was also given.

Reasons for the Decision

1. The appeal is admissible. Given that the relevant department of first instance, as of yet, has not entered Pamera Management Co., LLC, in the European Patent Register, the appeal proceeds in the name of QinetiQ Limited (cf. the decision of the Legal Board of Appeal in case J 26/95, OJ 1999, 668, at point 2 of the Reasons).
2. Added subject matter
 - 2.1 Original claim 11 (i.e. claim 11 of D1), if written out in full including its dependency from claims 1, 5 and 6, is worded as follows (bold typeface and roman numerals added by the board):-

11. A method of providing a micro-projection on the surface of a first material, the micro-projection having a base portion adjacent the first material and a remote, or a tip portion, and a duct at least in a region of the tip portion and the method comprising micro-machining the first material to provide the micro-projection and duct, in which method the duct is fabricated in a piece of the first material and subsequently the micro-projection is fabricated in the first material such that **the micro-projection is coincident with the duct**, in which method **the duct is fabricated to be coincident with an apex of the micro-projection**, in which method the micro-projection is formed by **any of the following techniques: a) anisotropic wet etching of silicon using liquid alkaline etches; b) focused ion beam milling; or c) transferring a pattern to the first material from a domed region of the masking layer using plasma/ion beam etching.**

2.2 The objection of the examining division does not use the exact wording of amended claims 1 and 3 to specify lack of disclosure it could not locate, but refers in a shorthand kind of way to disclosure of methods (a), (b) or (c) in combination with **the coincident duct-needle apex**. However, with respect to the coincident items, it can be seen from a comparison with the parts of original claim 11 set out in bold typeface and claim 1 of the main request, that there is an original disclosure of alternative methods (a) or (b) or (c) in combination with the duct being coincident with the apex and the micro-projection being coincident with the duct. In other words, so far as the wording actually used is concerned, the division is in error because there is a disclosure of the subject matter objected to by the division in the application as filed.

- 2.3 The board observes that original claim 11 does not use the wording "a micro-projection **around** the duct". However, there is a disclosure in the documents as filed as referred to in section II of the Facts above.
- 2.4 The examining division did not deal specifically with the substitution of "silicon micro-needle" for "micro-projection", nor, in view of numerous references to silicon and claim 50 of D1 containing wording comparable with claim 1 of the main request in relation to the micro-projection and dependent claim 53 of D1 referring to a micro-needle, does the board see any reason for comment.
- 2.5 The examining division stated that details of technique were not given on page 3 lines 19 to 20, 27 to 28, page 8, lines 19 to 20, lines 22 to 26 and page 25, lines 15 to page 26, line 7, yet did not show where in the amendment any such details were present to occasion any putative subject matter extending beyond the content of the application as filed. The position taken by the division does not therefore bear on Article 123(2) EPC.
- 2.6 Since the disclosure of claims 1 and 3 is present in original claims, no generalisation arises in the sense argued by the examining division with reference to Figure 1. The line of argument of the examining division is not, therefore, to the point in the present case.

3. Further Procedure

- 3.1 The examination of the application hitherto resulted in a decision before the first instance dealing only with added subject matter. Of the matters normally dealt

with in the examination process, the file is not so unambiguous that the board can determine unequivocally, and thus be in a position to review, the results of the examination process. Since the board is an appeal instance, its role is primarily to review the case as presented on appeal, rather than to exercise powers within the competence of the first instance to decide the case effectively in the role of first instance for the first time. In view of the foregoing and having settled the issue of added subject matter forming the basis of the decision under appeal in relation to the Claims 1 and 3 of the main request, the board considers it appropriate to remit the case to the first instance for further prosecution.

- 3.2 In relation to claims 1 and 3 of the main request, the present decision is in favour of the appellant regarding the issues forming the basis of the decision under appeal. It is not therefore necessary to consider the claims according to the auxiliary requests, nor are the oral proceedings requested on an auxiliary basis necessary.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance for further prosecution.

The Registrar:

The Chairman:



S. Sánchez Chiquero

A. Klein

Decision electronically authenticated