



Case Number: W 01 /86

International Application No PCT/US85/01303

DECISION

of the Technical Board of Appeal 3.4.1.

of 27 March 1986

Applicant: American Telephone and Telegraph Company
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United States of America

Representative: Alber, Oleg E., et al
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Subject of this decision: Protest according to Rule 40.2(c) of the Patent Cooperation Treaty
made by the applicants against the invitation (payment of additional
fee) of the European Patent Office (branch at The Hague)
dated 22 October 1985.

Composition of the Board:

Chairman: O. Huber

Member: J. Roscoe

Member: O. Bossung

Summary of Facts and Submissions

- I On 8 July 1985 the applicants filed an International patent application PCT/US85/01303 with the United States Patent Office. The application includes 15 claims, of which Claims 1 and 9 are independent claims and Claims 2 to 8 and 10 to 15 are dependent on Claims 1 and 9 respectively.
- II On 22 October 1985 the European Patent Office as competent International Searching Authority issued, pursuant to Article 17(3) (a) and Rule 40.1 PCT, on Form PCT/ISA206, an invitation to pay an additional search fee since it considered that the above-mentioned application did not comply with the requirements of unity of invention.

The reasons for the alleged non-compliance were expressed in the following terms:-

- Claims 1-8 : Electrically conductive pathway extending from an active semi-conductor region to a non-active region of the semi-conductor substrate, in a semi-conductor-on-insulator device
- Claims 9-15: General method for fabricating SOI IC devices.

- III On 28 November 1985 Dr Weser, who was not himself an authorised representative of the applicant for the PCT procedure, filed a letter enclosing a cheque in payment of the additional search fee. It was stated in the letter that the fee was being paid under protest and that there was a common inventive concept underlying all the claims in the application.

In a telex dated 19 December 1985 the applicant's appointed agent Olag E. Alber confirmed that in filing the aforesaid

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letter Dr Weser was acting on instructions from him contained in a letter dated 26 November 1985. Following a telex request from the receiving section of the EPO a signed copy of the instructing letter containing the text of Dr Weser's letter was filed on 10 January 1986.

- IV The applicant contends that the single inventive concept on which the claims are based involves a new SOI (Semiconductor-on-Insulator) device, encompassed by Claims 1-8, which avoids the kink effect and allows control of the threshold voltage without the use of large area contacts. In the course of developing a method for fabricating this device a new fabrication process, encompassed by Claims 9-15, was developed which permits SOI devices to be fabricated using currently available circuit designs and mask sets. Thus, both the device and fabrication process are based on the same inventive concept.

The applicant states further that since the products of Claims 1-8 are producible by the process of Claims 9-15, a search with respect to the process would inherently include the device claims.

Reasons for the Decision

1. The protest complies with Rule 40.2(b) and (c) PCT; the additional fee was paid direct to the International Searching Authority within the time limit of 45 days set in the invitation of 22 October 1985. It is therefore admissible.
2. According to Rule 40.1 PCT the invitation to pay additional fees provided for in Article 17(3)(a) PCT shall specify the reasons for which the application is not considered as complying with the requirement of unity of invention and

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shall indicate the amount to be paid. The Guidelines for International Search to be carried out under the PCT, of November 1977, also point out, in Chapter VII.2, that the invitation must

- (i) specify the reasons for which the application is not considered as complying with the requirements of unity of invention,
- (ii) identify the separate inventions, and
- (iii) indicate the amount to be paid.

Neither the manner in which the reasons are to be formulated nor the extent of the reasoning required is, however, laid down.

In the present case the invitation, issued on 22 October 1985 on Form PCT/ISA206, states the amount to be paid as DM2095 and identifies the separate inventions as the subject-matter of Claims 1-8 and 9-15 respectively. The above-mentioned requirements (ii) and (iii) are, therefore, clearly satisfied.

In the space provided on the form for the reasons the EPO followed its normal practice of simply dividing the claims into groups containing the different inventions not considered to be linked by a single inventive concept (see Rule 13 PCT, Unity of Invention), indicating at the side of each group the subject-matter common to the claims of that group and identifying, in the appropriate space further down on the form, one of the groups as that relating to the invention first mentioned in the claims.

The Board is of the opinion that, in the present case, the indications of the subject matter of the two groups of claims given by the EPO, when considered in the light of

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the actual wording of the claims concerned, permits the applicant to appreciate the considerations on which its opinion that their subject-matter was not based on a single inventive concept was founded sufficiently to enable him to formulate a reasoned statement in his protest, as required of him by Rule 40.2(c) PCT.

The absence from the statement of the subject-matter of Claims 9-15 and from the claims themselves of any reference to the conductive pathway identified as the subject-matter of Claims 1-8 leads to the conclusion that the EPO considered the method of Claims 9 to 15 not to be specially adapted for the manufacture of the pathway claimed in Claims 1-8.

3. According to Rule 13.1 PCT an international application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept.
4. As explained by the applicant in the description (see page 1, line 34 et seq.), where MOSFETs are formed on an insulating region of a semiconductor substrate, a (first) technical problem known as the "kink effect", resulting from a change in the threshold voltage, can arise due to the insulating region preventing the ready removal of charges accumulating in the active region of the devices. The previously proposed solution of applying an appropriate voltage to a low resistance diffusion contact in the active layer of one of a pair of MOSFETs in a CMOS device is undesirable because of the excessive space occupied by the contact. In the invention as set forth in Claim 1 the "kink effect" can be avoided without the need for such a

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contact by the provision of an electrically conductive pathway extending from the area of charge accumulation, identifiable in the very generally formulated Claim 1 as the "first volume of substantially single crystal semiconductor material", to a non-active region of the substrate. Claim 1 and the claims appendant to it are completely silent as to the method to be used in forming the device and from the description it is clear (see e.g. page 8, lines 11-16) that even in the embodiments processes other than that claimed in Claim 9 may be used.

The second problem to which the description draws attention (page 3, lines 9-3⁴₅) is that in prior art SOI fabrication techniques such as the lateral seeding process, in which polycrystalline silicon deposited on a substrate surface including an insulating oxide region is laterally seeded, lateral displacement of the oxide region occurs, thus largely precluding the use of available current designs and mask sets for fabricating SOI ICs. Such lateral displacement is avoided by effecting crystallisation in the manner set out in general terms in Claim 9, thus enabling essentially the same delineating device e.g. mask, to be used in lithographically defining the boundaries of the insulating region, or, to use the terminology of the claim, island, and in subsequently defining the boundaries of the device region, i.e. the region encircled by the field dielectric, in the manner also set out in Claim 9. It is to be noted that neither Claim 9 nor any of the claims appendant to it refer to the formation of an electrically conductive pathway as such, let alone a pathway as defined in Claim 1, nor do the methods of these claims directly result in a structure comprising such a pathway.

5. Thus the features which distinguish the subject-matter of the two groups of Claims 1-8 and 9-15 from the acknowledged

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state of the art are quite distinct and directed to different purposes. They provide solutions to two different problems, one operational and the other a problem of manufacture, and neither the solutions which the groups of claims represent nor the problems on which they are based are so closely linked as to form a common general inventive concept.

The Board in no way fails to recognise that, according to Rule 13.2 PCT, Rule 13.1 PCT shall be construed as permitting the inclusion in the same international application, in addition to an independent claim for a given product, of an independent claim for a process specially adapted for the manufacture of the said product. This is not however the situation in the present case where, as emerges from what has already been said, the process of Claims 9-15 is not specially adapted for manufacture of the device (product) of Claims 1-8.

Furthermore, it does not follow from the mere fact that an inventive process was developed in the course of research directed to manufacture of a particular form of an inventive device that the device and process are so linked as to form a single general inventive concept.

From what has been said above about the content of the claims it is apparent that, contrary to the assertion of the applicant, a search with respect to the process of Claims 9-15 would not cover the device claims since inventions relating to constructional features are not allocated the same classification under the IPC as those directed to methods of manufacture.

6. Thus it follows that the invitation of 22 October 1985 to pay an additional search fee was correctly issued and that the protest is not justified.

ORDER

For these reasons it is decided that:

the reimbursement of the additional fee is refused.

The Registrar: 

The Chairman: 