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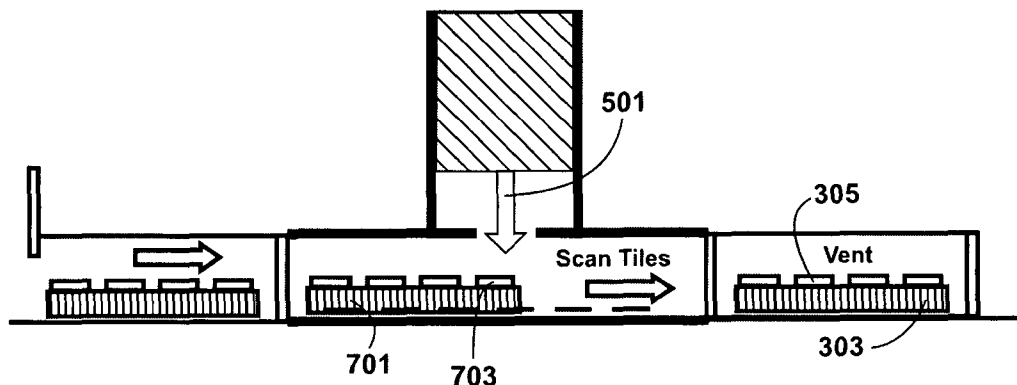
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(54) Title: METHOD AND SYSTEM FOR CONTINUOUS LARGE-AREA SCANNING IMPLANTATION PROCESS



(57) Abstract: A method for manufacturing doped substrates using a continuous large area scanning implantation process is disclosed. In one embodiment, the method includes providing a movable track member, in a chamber, with an inlet and an outlet. The method may also include providing a first substrate, which includes a first plurality of tiles. The method includes transferring the first substrate including the first plurality of tiles from the inlet port onto the movable track member. The first plurality of tiles are subjected to a scanning implant process. The method also includes maintaining a second substrate including a second plurality of tiles in the vacuum. The method includes transferring the second substrate including a second plurality of tiles from the inlet port onto the movable track member. The method includes subjecting the second plurality of tiles to an implant process using the scanning implant process.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 07/74352

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - H01L 21/00 (2008.01)
 USPC - 438/795
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 USPC 438/795

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 USPC 7438/795, 118/730; 250/443.1, 492.2, 592.1; see keywords below.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 PubWEST (DB=PGPB,USPT,USOC,EPAB,JPAB; PLUR=NO; OP=ADJ); freepatentsonline.com; WIPO; Google Patents; Google;
 Keywords: vacuum, tile, doped, substrate, scanning, plasma immersion ion, implantation, track, substrate, shower, large area, continuous, solar, photovoltaic

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0121627 A1 (SHENG et al) 09 June 2005 (09.06.2005) see entire document, especially para[0005], [0006], [0007], [0011], [0012], [0014], [0017], [0018].	1-79, 91
Y	US 2004/0056332 A1 (BACHRACH et al) 25 March 2004 (25.03.2004) see entire document, especially para[0036],[0045], [0049], [0050], [0051], [0064], [0065], [0066], [0068], [0070], [0072], [0073], [0075], [0076], [0082], [0083], [0086], [0088], [0089], [0090].	1-79, 91
Y	US US 4,981,408 A (HUGHES et al) 01 January 1991 (01.01.1991) see entire document, especially col 1, in 17-20, in 53-54, in 63-65, col 2, in 10, col 3, in 45, col 6, in 28-45, in 61-62.	1-57, 79, 91
Y	US 5,196,710 A (KALFAIAN) 23 March 1993 (23.03.1993) see entire document, especially col 1, in 60-63, col 4, in 62, col 5, in 51-52, col 6, in 53	58-78
Y	US 2005/0077486 A1 (SCHENKEL et al) 14 April 2005 (14.04.2005) see entire document, especially para[0020].	23, 24
Y	US 2004/0126985 A1 (BENDERNAGEL et al) 01 July 2004 (01.07.2004) see entire document, especially para[0057], [0064].	26, 27, 31
Y	US 2004/0171196 A1 (WALITZKI) 02 September 2004 (02.09.2004) see entire document, especially para [0010], [0044], [0048].	33, 34
Y	US 2005/0054217 A1 (KLOMP et al) 10 March 2005 (10.03.2005) see entire document, especially para[0134].	45, 48, 72, 75
Y	US 2003/0045131 A1 (VERBEKE et al) 06 March 2003 (06.03.2003) see entire document, especially para[0061], [0163], [0175].	49

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 17 February 2008 (17.02.2008)	Date of mailing of the international search report 17 MAR 2008
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 07/74352

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

- 1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

- 2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

- 3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Group I: Claims 1-79 and 91

Group II: Claims 80-90

Group III: Claims 92-119

Group I: Claims 1-79 and 91, having independent claims 1, 32, 58, 79 and 91 are directed to a method for forming substrates using continuous implant and scanning processes, providing a movable track member; a tray device for performing one or more implantation processes; and a scanning implant apparatus using a plurality of tiles to be processed.

Group II: Claims 80-90, having an independent claim 80 is directed to a method of doping a substrate.

Group III: Claims 92-119, having an independent claim 92, is a method for forming substrates for one or more layer transfer processes using a high energy linear accelerator process, providing a semiconductor substrate having a surface region.

- 1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
- 2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
- 3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
- 4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.