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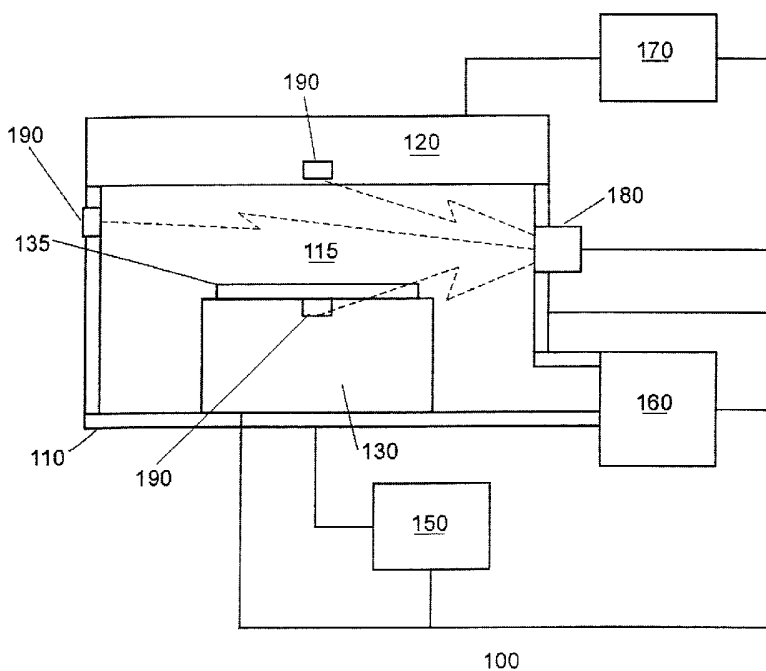
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(54) Title: METHOD AND APPARATUS FOR MONITORING A MATERIAL PROCESSING SYSTEM



(57) Abstract: The present invention presents an improved apparatus and method for monitoring a material processing system, wherein the material processing system includes a processing tool, a number of RF-responsive process sensors coupled to the processing tool to generate and transmit process data, and a sensor interface assembly (SIA) configured to receive the process data from the plurality of RF-responsive process sensors.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/39654

A. CLASSIFICATION OF SUBJECT MATTER																	
IPC(7) : G06F 19/00 US CL : 700/204																	
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) U.S. : Please See Continuation Sheet																	
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE																	
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet																	
C. DOCUMENTS CONSIDERED TO BE RELEVANT																	
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.															
X, E --- Y	US 2004/0007326 A1 (ROCHE et al) 15 January 2004 (15.01.2004), see entire document.	1-3, 5-15, 17, 23-29, 33-38, 40-43, 47-52, 54-63, 73-76 ----- 4, 16, 21, 22, 30, 31, 32, 39, 44, 45, 46, 53, 70															
Y	US 6,455,437 B1 (DAVIDOW et al) 24 September 2002 (24.09.2002), see entire document.	4, 45, 46, 53															
Y, P	US 2003/0201069 A1 (JOHNSON) 30 October 2003 (30.10.2003), see entire document.	16, 70															
Y, P	US 2003/0032207 A1 (RENGARAJAN et al) 13 February 2003 (13.02.2003), see entire document.	21															
Y, P	US 6,668,618 B2 (LARSON, III et al) 30 December 2003 (30.12.2003), see entire document.	22, 31, 32, 39, 44															
Y, P	US 6,617,963 B1 (WATTERS et al) 09 September 2003 (09.09.2003), see entire document.	30															
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.																	
* Special categories of cited documents: <table border="0" style="width: 100%;"> <tr> <td style="width: 30%;">"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td style="width: 10%;">"T"</td> <td>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</td> </tr> <tr> <td>"E" earlier application or patent published on or after the international filing date</td> <td>"X"</td> <td>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</td> </tr> <tr> <td>"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)</td> <td>"Y"</td> <td>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</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"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	"E" earlier application or patent published on or after the international filing date	"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	"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)	"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	"O" document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed		
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"P" document published prior to the international filing date but later than the priority date claimed																	
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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. (703) 305-3230	Authorized officer <i>Jose Dees</i> Jose Dees Telephone No. 571-272-1850																

INTERNATIONAL SEARCH REPORT

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, E	US 2004/0029299 A1 (PASADYN et al) 12 Febraury 2004 (12.02.2004), see entire document.	18-20, 71, 72 77-84
A	US 6,244,121, B1 (HUNTER) 12 June 2001 (12.06.2001), see entire document.	18-20, 71, 72, 77-84
A, P	US 2003/008/835 A1 (MCHESNEY et al) 01 May 2003 (01.05.2003), see entire document.	18-20, 71, 72, 77-84
A, P	US 2003/0231566 A1 (SMITH et al) 18 December 2003 (18.12.2003), see entire document.	18-20, 71, 72, 77-84

INTERNATIONAL SEARCH REPORT

PCT/US03/39654

Continuation of B. FIELDS SEARCHED Item 1:

700/204,108,119,120,121;702/22,23,24,25,30,31,32,43,47,50,53,63,114,115,124,126,127,130,136,138,140,183,187,188,189,198;438/
5,8,9,10,11,14,17,18,710,714,746,726;156/345.24,345.29,345.13,345.15,345.48,915;216/59,91,84,86;73/61.62,865.9;427/8,10;204/2
98.03

Continuation of B. FIELDS SEARCHED Item 3:

EAST; (((((((RADIOFREQUENCY OR RADIO-FREQUENCY OR RF) SAME (SENSING OR SENSED OR SENSOR)) AND
PLASMA) AND (TRANSMITTER OR TRANSMITTING OR TRANSMITTED) AND RING AND CHAMBER) AND ((RF OR
RADIO OR FREQUENCY) SAME (DC OR DIRECT OR CURRENT))) AND (PLASMA OR WAFER OR SUBSTRATE) AND
PLATE) AND (SIA OR INTERFACE OR SENSOR OR ASSEMBLY))