



- (51) **International Patent Classification:**  
*G01R 31/28* (2006.01) *G01R 1/073* (2006.01)
- (21) **International Application Number:**  
PCT/US2015/067304
- (22) **International Filing Date:**  
22 December 2015 (22.12.2015)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**  
62/096,693 24 December 2014 (24.12.2014) US
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- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,

DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) **Date of publication of the international search report:**  
15 September 2016

(54) **Title:** SEMI-AUTOMATIC PROBER

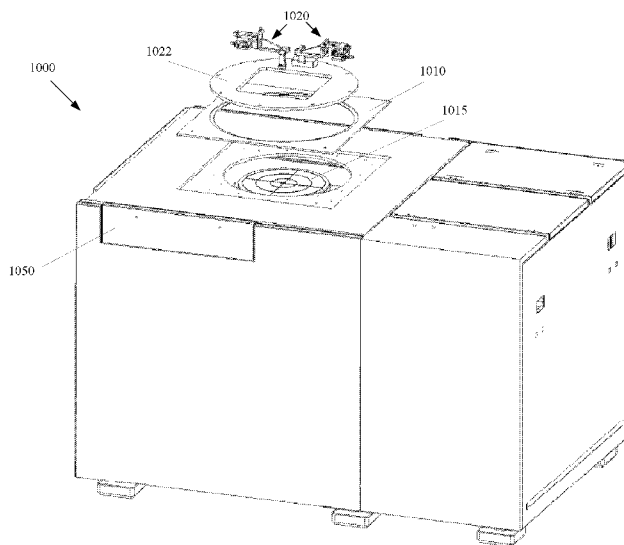


FIG. 2B

(57) **Abstract:** A wafer probe station system for reliability testing of a semiconductor wafer. The wafer probe station is capable of interfacing with interchangeable modules for testing of semiconductor wafers. The wafer probe station can be used with different interchangeable modules for wafer testing. Modules, such as probe card positioners and air-cooled rail systems, for example, can be mounted or docked to the probe station. The wafer probe station is also provided with a front loading mechanism having a rotatable arm that rotates at least partially out of the probe station chamber for wafer loading.



**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/US2015/067304

A. CLASSIFICATION OF SUBJECT MATTER  
INV. G01R31/28 G01R1/073  
ADD.  
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)  
G01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 114 869 A (WILLIAMS SCOTT R [US] ET AL) 5 September 2000 (2000-09-05)	1
Y	abstract column 1, line 7 - line 57	2
X	EP 0 975 009 A1 (ASM JAPAN [JP]) 26 January 2000 (2000-01-26)	12-20
Y	abstract; figures 1-8c paragraphs [0001] - [0009], [0017], [0029] - [0034]	2
X	EP 0 448 316 A2 (CANON KK [JP]) 25 September 1991 (1991-09-25)	12,17
A	abstract; figures 1-4d column 2, line 11 - column 5, line 21	2,13-16, 18-20

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "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)
- "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

- "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
- "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
- "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
- "&" document member of the same patent family

Date of the actual completion of the international search <b>4 May 2016</b>	Date of mailing of the international search report <b>01/08/2016</b>
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer <b>Kleiber, Michael</b>
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2015/067304

## 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:

see additional sheet

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 an 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.:  
1, 2, 12-20

### 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.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2015/067304
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6114869	A	05-09-2000	NONE
EP 0975009	A1	26-01-2000	EP 0975009 A1 26-01-2000
			JP 2000040728 A 08-02-2000
			KR 20000011844 A 25-02-2000
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EP 0448316	A2	25-09-1991	DE 69121747 D1 10-10-1996
			DE 69121747 T2 23-01-1997
			EP 0448316 A2 25-09-1991
			JP H03273663 A 04-12-1991
			US 5160961 A 03-11-1992

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 2, 12-20

Wafer handling mechanism  
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2. claims: 3-5

Probe positioner  
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3. claims: 6-8

Air-cooled rail assembly supporting vertical probe cards  
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4. claims: 9-11

Accurate landing on wafer determination with compensation  
for temperature effects  
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