

(51) International Patent Classification:
H01L 21/677 (2006.01) **H01L 21/00** (2006.01)(21) International Application Number:
PCT/EP2010/053140(22) International Filing Date:
11 March 2010 (11.03.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/161,084 18 March 2009 (18.03.2009) US(71) Applicant (for all designated States except US): **OC OERLIKON BALZERS AG** [LI/LI]; CH-9496 Balzers (LI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VOSER, Stephan** [CH/CH]; Rossweidstrasse 4, CH-9472 Grabs (CH). **DOVIDS, Gerhard** [AT/CH]; Landstrasse 21, CH-7304 Maienfeld (CH).(74) Agent: **TROESCH SCHEIDEGGER WERNER AG**; Jacques Troesch, Schwäntenmos 14, CH-8126 Zumikon (CH).

(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, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

[Continued on next page]

(54) Title: VACUUM TREATMENT APPARATUS

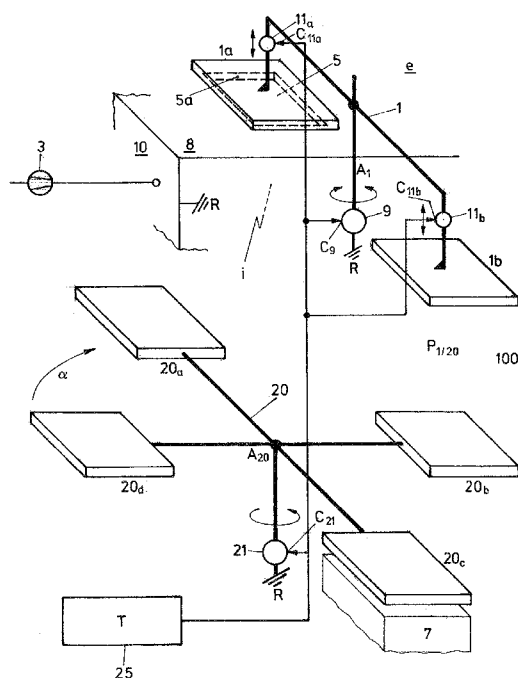


FIG. 1

(57) Abstract: A transport arrangement (100) for bi-directionally transporting substrates towards and from a load lock (5) comprises a first substrate handler (1) swivelable about a first axis (A_1) and with at least two first substrate carriers (1a, 1b). A second substrate handler (20) swivelable about a second axis (A_{20}) comprises at least four second substrate carriers (20a to 20d). First and second substrate carriers are mutually aligned respectively in one position of their respective swiveling trajectory paths as one of the first substrate carriers is aligned with one of the second substrate carriers and the other of the first substrate carriers is aligned with the load lock (5). The first substrate carriers (1a, 1b) are movable towards and from the load lock (5) once aligned there with and thereby form respectively external valves of the load lock (5).

**Published:****(88) Date of publication of the international search report:**

26 May 2011

- *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))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2010/053140

A. CLASSIFICATION OF SUBJECT MATTER
INV. H01L21/677 H01L21/00
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)
H01L

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 practical, 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.
A	WO 2007/126289 A1 (NEW POWER PLASMA CO LTD [KR]; WI SOON-IM [KR]) 8 November 2007 (2007-11-08) abstract; claims 1-52; figures 1-60 paragraph [0008] - paragraph [0070] -----	1-13
A	WO 2007/129838 A1 (NEW POWER PLASMA CO LTD [KR]; WI SOON-IM [KR]) 15 November 2007 (2007-11-15) abstract; claims 1-15; figures 1-14 paragraph [0008] - paragraph [0030] -----	1-13
A	JP 2008 153353 A (OLYMPUS CORP) 3 July 2008 (2008-07-03) abstract; claims; figures 1,2 ----- -/-	1-13



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 document 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

4 April 2011

Date of mailing of the international search report

12/04/2011

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

Hamdani, Fayçal

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2010/053140

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/23597 A2 (APPLIED MATERIALS INC [US]) 21 March 2002 (2002-03-21) abstract; claims 1-24; figures 1-3,8 -----	1-13
A	JP 2008 013851 A (EBARA CORP) 24 January 2008 (2008-01-24) abstract; claims; figures -----	1-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2010/053140

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2007126289 A1	08-11-2007	EP 2020024 A1 JP 2010507221 T	04-02-2009 04-03-2010
WO 2007129838 A1	15-11-2007	KR 20070108004 A	08-11-2007
JP 2008153353 A	03-07-2008	NONE	
WO 0223597 A2	21-03-2002	EP 1319243 A2 JP 2004523880 T KR 20060017925 A KR 20070037517 A KR 20080109062 A TW 512421 B US 2002034886 A1	18-06-2003 05-08-2004 27-02-2006 04-04-2007 16-12-2008 01-12-2002 21-03-2002
JP 2008013851 A	24-01-2008	NONE	