



- (51) **International Patent Classification:**
H01L 31/0224 (2006.01)
- (21) **International Application Number:**
PCT/US2012/022512
- (22) **International Filing Date:**
25 January 2012 (25.01.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/435,928 25 January 2011 (25.01.2011) US
- (71) **Applicants (for all designated States except US):** **E. I. DU PONT DE NEMOURS AND COMPANY** [US/US]; 1007 Market Street, Wilmington, Delaware 19898 (US). **INNOVALIGHT INC** [US/US]; California (US).
- (72) **Inventor; and**
- (75) **Inventor/Applicant (for US only):** **MEISEL, Andreas** [DE/US]; 237 Sierra Vista Avenue, Mountain View, California 94043 (US).
- (74) **Agent:** **CARTY, Sherry, M.**; E. I. du Pont de Nemours and Company, Legal Patent Records Center, 4417 Lancaster Pike, Wilmington, Delaware 19805 (US).
- (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, QA, RO, RS, RU, RW, 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.

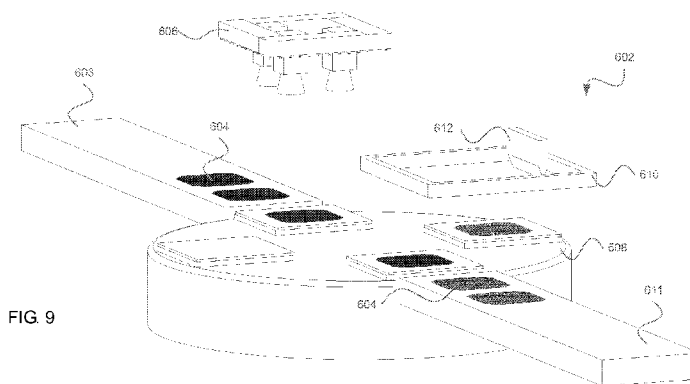
- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, 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, 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:**
7 March 2013

(54) **Title:** A METHOD FOR CALCULATING AN OFFSET VALUE FOR ALIGNED DEPOSITION OF A SECOND PATTERN ONTO A FIRST PATTERN



(57) **Abstract:** A method for calculating an offset value for aligned deposition of a second pattern onto a first pattern, comprising steps of: (a) loading a substrate with the first pattern on a surface of the substrate into a pattern recognition device at an original position inside the pattern recognition device; (b) determining a coordinate of a prescribed point of the first pattern by the pattern recognition device; (c) superimposing the second pattern onto the first pattern on the surface of the substrate; (d) bringing back the substrate with the first pattern and the second pattern into the original position inside the pattern recognition device; (e) determining a coordinate of a prescribed point of the second pattern by the pattern recognition device; wherein the prescribed point of the first pattern corresponds to the prescribed point of the second pattern; and (f) calculating the offset value between the first pattern and the second pattern.



INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/022512

A. CLASSIFICATION OF SUBJECT MATTER
INV. H01L31/18 H01L31/0224
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 practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010/094344 A1 (APPLIED MATERIALS INC [US]; BACCINI ANDREA [IT]; GALIAZZO MARCO [IT]) 26 August 2010 (2010-08-26) paragraph [0001] - paragraph [0005] paragraph [0006] - paragraph [0008] paragraph [0022] - paragraph [0051] figure 6	1-14
X	----- EP 0 906 827 A1 (MATSUSHITA ELECTRIC IND CO LTD [JP]) 7 April 1999 (1999-04-07)	1
A	paragraph [0018] - paragraph [0020] page 22 - paragraph 38	2-14
A	----- EP 2 216 175 A1 (SHINETSU CHEMICAL CO [JP]) 11 August 2010 (2010-08-11) paragraph [0001] - paragraph [0007] paragraph [0010] - paragraph [0021] -----	1-14

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

16 January 2013

Date of mailing of the international search report

23/01/2013

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

Keller, Jan

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/022512

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010094344	A1	26-08-2010	CN 102325654 A 18-01-2012
			EP 2398647 A1 28-12-2011
			JP 2012518555 A 16-08-2012
			KR 20110126721 A 23-11-2011
			TW 201041467 A 16-11-2010
			US 2012048132 A1 01-03-2012
			WO 2010094344 A1 26-08-2010

EP 0906827	A1	07-04-1999	CN 1219151 A 09-06-1999
			DE 69711043 D1 18-04-2002
			DE 69711043 T2 14-11-2002
			EP 0906827 A1 07-04-1999
			JP 3310540 B2 05-08-2002
			JP 9309198 A 02-12-1997
			KR 20000015836 A 15-03-2000
			US 6036994 A 14-03-2000
WO 9744192 A1 27-11-1997			

EP 2216175	A1	11-08-2010	CN 101800265 A 11-08-2010
			EP 2216175 A1 11-08-2010
			JP 2010208317 A 24-09-2010
			TW 201043472 A 16-12-2010
			US 2010229740 A1 16-09-2010
