

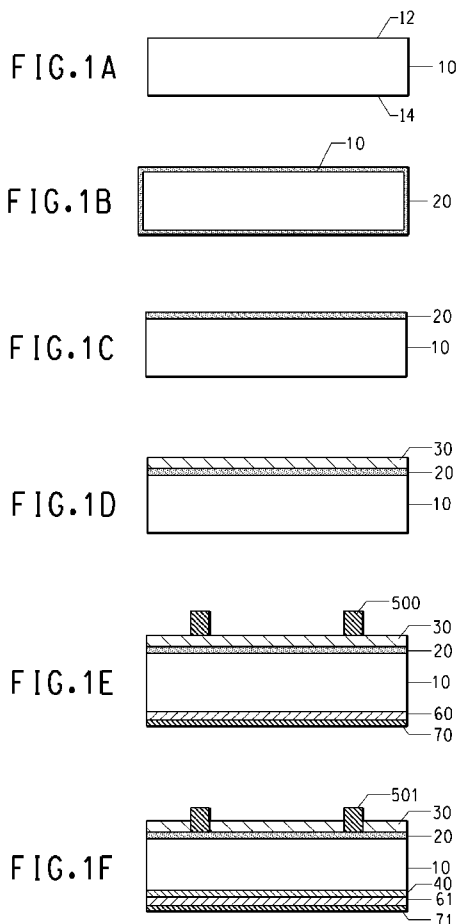


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[Continued on next page]

(54) Title: CONDUCTIVE PASTE COMPOSITION AND SEMICONDUCTOR DEVICES MADE THEREWITH



(57) Abstract: A conductive paste composition contains a source of an electrically conductive metal, a lead-tellurium-based oxide, a discrete oxide of an adhesion promoting element, and an organic vehicle. An article such as a high-efficiency photovoltaic cell is formed by a process of deposition of the paste composition on a semiconductor substrate (e.g., by screen printing) and firing the paste to remove the organic vehicle and sinter the metal and lead-tellurium-based oxide.





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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, 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.

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**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. C03C8/10 C04B35/01 H01B1/22 H01L31/0224 H01B1/16  
 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)  
 C03C C04B H01B 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

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 2012/116052 A1 (DU PONT [US]; HANG KENNETH WARREN [US]; MIKESKA KURT RICHARD [US]; TOR) 30 August 2012 (2012-08-30)	1-27
L	the whole document	1-27
X	US 5 663 109 A (DIETZ RAYMOND L [US] ET AL) 2 September 1997 (1997-09-02)  column 1, line 12 - line 20 column 10, line 13; claims 1-18	1-12, 15-20, 24-26
X	EP 0 463 826 A1 (JOHNSON MATTHEY INC [US]) 2 January 1992 (1992-01-02)  page 3, line 51 - page 6, line 25; claims 1-13; tables 1-5	1-12, 15-20, 23-26
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Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&amp;" document member of the same patent family</p>
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Date of the actual completion of the international search  10 October 2012	Date of mailing of the international search report  18/10/2012
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  Marsitzky, Dirk

## INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 92/00924 A1 (COOKSON GROUP PLC [GB]) 23 January 1992 (1992-01-23)  page 6, line 3 - line 13; claims 1-30; example 13; table 2 -----	1-4, 6-11, 15-20, 23-26

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/030475

Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
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			WO 9200925 A1	23-01-1992
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