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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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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[Continued on next page]

(54) Title: JUNCTION BOX FOR A PHOTOVOLTAIC SOLAR PANEL

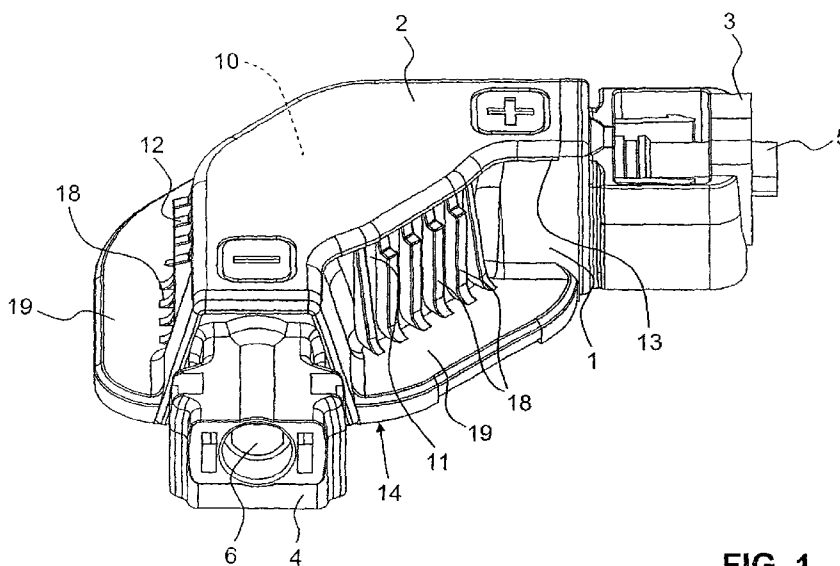


FIG. 1

(57) Abstract: A junction box for a solar panel comprises a housing, a lid, a first connector and a second connector. The housing comprises sidewalls and a top wall defining an interior space. The first coupling comprises a first contact element and the second coupling comprises a second contact element. Said contact elements penetrate at least one of the sidewalls, so that the contact elements provide an electrical contact from external contact elements to internal contact elements, such as solder tails. Internal contact elements are arranged at least partially in said interior space. The top wall comprises an opening extending only partially in said top wall. Said opening is located such in the top wall that access to said solder tails in a substantially perpendicular direction to the surface of a solar panel for connecting the solder tail to the solar panel is provided.

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FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL,  
NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG,  
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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/CH2008/000455

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. H01L31/048		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) H01L H01R		
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, WPI Data		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 654 470 A (FELDMAN STEVEN [US] ET AL) 31 March 1987 (1987-03-31)	1-3,5,12
Y	column 2; figures 1,2	4,7,9, 11,13
Y	----- JP 11 026035 A (ENGEL KOGYO KK) 29 January 1999 (1999-01-29)	4,7,13
A	the whole document	1,2
X	----- EP 1 501 157 A (TYCO ELECTRONICS AMP GMBH [DE]) 26 January 2005 (2005-01-26)	1
Y	cited in the application paragraph [0007] - paragraph [0023]; figures 1,4-8	9
Y	----- JP 2001 168368 A (KANEGAFUCHI CHEMICAL IND) 22 June 2001 (2001-06-22)	11
A	the whole document	1,4
-/--		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <span style="margin-left: 200px;"><input checked="" type="checkbox"/> See patent family annex.</span>		
* 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  <h2 style="text-align: center;">23 February 2009</h2>	Date of mailing of the international search report  <h2 style="text-align: center;">20/05/2009</h2>	
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  <h2 style="text-align: center;">Bakker, Jeroen</h2>	

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/CH2008/000455

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 2006/086588 A (BP CORP NORTH AMERICA INC [US]; LARES JOSEPH G [US]; AMIN DINESH S [US] 17 August 2006 (2006-08-17) paragraph [0028]; figure 6C -----	2

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CH2008/000455

## 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 allsearchable 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.:

1-15

### 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.

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

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

1. claims: 1-15

A junction box and its production method.  
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2. claims: 16-20

A solder element and its production method.  
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/CH2008/000455
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Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
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