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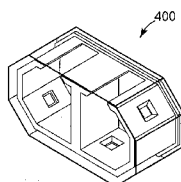
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(54) Title: SUN SENSOR ASSEMBLY AND RELATED METHOD OF USING



(57) Abstract: The present invention includes a sun sensor assembly having an aperture that defines an area that is less than the area of the photo-detecting surface of a corresponding first photo-detector. According to another aspect, the present invention also includes a solar concentrator includes at least two sun sensor assemblies mounted on the concentrator in a manner to help the solar concentrator track the sun. According to another aspect, the present invention also includes a method of processing electrical signals from two or more photo-detectors. According to yet another aspect, the present invention includes a sun tracking system that includes a solar panel that includes a solar concentrator and control system.

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/021777

A. CLASSIFICATION OF SUBJECT MATTER

INV. G01S3/786

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)

G01S 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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 262 195 A (WHITE PAUL R ET AL) 14 April 1981 (1981-04-14) cited in the application the whole document -----	1-9, 12-14
Y	US 4 146 785 A (NEALE STEPHEN D) 27 March 1979 (1979-03-27) cited in the application column 13, line 39 - column 14, line 4; figures 9,12 -----	1-4,7-16
Y	US 4 320 288 A (SCHLARLACK RONALD S) 16 March 1982 (1982-03-16) cited in the application column 3, lines 20-62; figure 2 ----- -/--	1-3, 12-14

☒ 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 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

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6 November 2008

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13/11/2008

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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.
Y	DE 41 16 894 A1 (BROD MICHAEL [DE]) 26 November 1992 (1992-11-26) the whole document	1,2, 12-14
Y	US 4 349 733 A (BEAM BENJAMIN H ET AL) 14 September 1982 (1982-09-14) cited in the application column 2, line 54 - column 5, line 32; figures 1-3	1,2, 12-14
Y	US 2005/212929 A1 (SCHELL STEVE [US] ET AL) 29 September 2005 (2005-09-29) the whole document	1-16
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Y	US 6 809 413 B1 (PETERSON KENNETH A [US] ET AL) 26 October 2004 (2004-10-26) column 1, lines 18-32 column 10, lines 10-21; figure 4a	1-16
Y	US 2004/047050 A1 (BAUER FREDERICK T [US] ET AL) 11 March 2004 (2004-03-11) paragraph [0094]; figure 8	1-16
Y	EP 1 041 628 A (IMEC INTER UNI MICRO ELECTR [BE] IMEC INTER UNI MICRO ELECTR [BE]; CUS) 4 October 2000 (2000-10-04) paragraphs [0025], [0027] - [0031], [0042]; figures 1,3,5	1-16
A	US 4 495 408 A (MORI KEI [JP]) 22 January 1985 (1985-01-22) cited in the application the whole document	1-16
Y	US 4 107 521 A (WINDERS GORDON ROBERT) 15 August 1978 (1978-08-15) cited in the application the whole document	13-16
Y	US 6 087 646 A (DIDINSKY GARRY [US]) 11 July 2000 (2000-07-11) figure 2D	14
Y	US 4 999 483 A (OKAMOTO TSUGUHIKO [JP]) 12 March 1991 (1991-03-12) figure 13	14
X	FR 2 447 017 A (MONTLOIN REGIS MONTLOIN REGIS [FR]) 14 August 1980 (1980-08-14) page 9, line 3; figure 5	17-20
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/021777

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>FR 2 527 748 A (PRAT SERGE [FR]) 2 December 1983 (1983-12-02) the whole document -----</p>	<p>1, 13, 20</p>

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/021777

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 reportcovers 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.:

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/ISA/ 210

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

1. claims: 1-16

sun sensor assembly (as part of a solar concentrator, claims 13-16) with light blocking member and first/second apertures at its base

2. claims: 17-20

method of processing signals from two or more photodetectors (in a sun tracking system, claim 20)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/021777

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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