(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau

(43) International Publication Date





(10) International Publication Number WO 2016/145184 A3

15 September 2016 (15.09.2016)

(51) International Patent Classification:

F24J 2/38 (2006.01) **G01B** 11/27 (2006.01) G01S 3/786 (2006.01)

F24J 2/54 (2006.01)

(21) International Application Number: PCT/US2016/021753

(22) International Filing Date:

10 March 2016 (10.03.2016)

(25) Filing Language: (26) Publication Language: English English

(30) Priority Data:

62/130,986

10 March 2015 (10.03.2015)

US

- (71) Applicant: KRISHNAN, Neel [US/US]; 48 Whipple Street, #1B, Brooklyn, NY 11206 (US).
- (72) Inventor; and
- Applicant: TIBBOTT, Gina [US/US]; 1230 Montrose (71)Street, Philadelphia, PA 19147 (US).

- Agents: LIU, Wansheng, Jerry et al.; Fox Rothschild LLP, 997 Lenox Drive, Building 3, Lawrenceville, NJ 08648-2311 (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, BN, 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, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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,

[Continued on next page]

(54) Title: A SYSTEM AND METHOD FOR CONTINUOUSLY REORIENTING THE SURFACE OF A SOLAR COLLECTION DEVICE

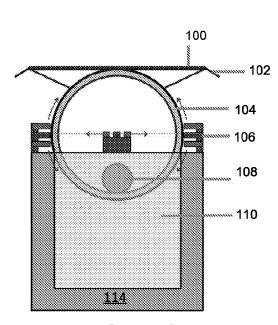


FIG. 1C

(57) Abstract: A solar tracking system is disclosed, the system comprising: a plurality of light sensors (102) arranged at an angular displacement to a light sensitive upper surface of a solar collecting device (100) fixed on a support structure, and a processor equipped with a software program for translating outputs of the light sensors (102) into activations of actuators (106) to move the light sensitive upper surface of the solar collecting device (100) in response to sun movements through moving the support structure.



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, KM, ML, MR, NE, SN, TD, TG). (88) Date of publication of the international search report: 17 November 2016

Published:

— with international search report (Art. 21(3))

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/021753

PCT/US2016/021753 a. classification of subject matter INV. F24J2/38 F24J2 F24J2/38 F24J2/54 G01B11/27 G01S3/786 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) F24J G01B G01S 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. Χ US 4 317 031 A (FINDELL MAX) 1-3. 6-11,50,23 February 1982 (1982-02-23) column 8, line 33 - column 9, line 53; claim 2; figures 4-9 1-7,9, 11,50,51 US 4 287 411 A (BEUCCI MARCELLO) Χ 1 September 1981 (1981-09-01) column 1, line 62 - column 2, line 27; figures column 5, line 17 - line 18 JP S64 26211 A (AARUDE SYST KK) 27 January 1989 (1989-01-27) abstract; figures χ 1-6,9, 11,50,51 -/--Х Χ Further documents are listed in the continuation of Box C. See patent family annex. Special categories of cited documents: "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 "A" document defining the general state of the art which is not considered to be of particular relevance earlier application or patent but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive filing date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be special reason (as specified) 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 "O" document referring to an oral disclosure, use, exhibition or other document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report

1

20 June 2016

NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016

European Patent Office, P.B. 5818 Patentlaan 2

Name and mailing address of the ISA/

01/09/2016

Mootz, Frank

Authorized officer

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/021753

C(Continua	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Х	JP S59 36818 A (TOKYO SHIBAURA ELECTRIC CO) 29 February 1984 (1984-02-29) abstract; figures	1-6,11, 50,51
Х	US 4 419 981 A (MORI KEI [JP]) 13 December 1983 (1983-12-13) column 3, line 5 - line 14; figures 1,3	1-5,9, 11,50,51
X	GB 1 578 996 A (BENLLOCH LLORACH A) 12 November 1980 (1980-11-12) page 2, line 40 - line 63; figures 2,3	1-5,7,9, 11,50,51

1

International application No. PCT/US2016/021753

INTERNATIONAL SEARCH REPORT

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:					
Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:					
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					
As all required additional search fees were timely paid by the applicant, this international search report covers all searchable 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.: 1-11, 50, 51					
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: 1-11, 50, 51

Solar tracking system with inclined light sensors

2. claims: 12-49

Solar tracking system with ball shaped casing

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2016/021753

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 4317031 A	23-02-1982	NONE		•
US 4287411 A	01-09-1981	AU 48447 BR 79051 DE 29252 ES 4820 FR 24350 GB 20304 IT 11030 JP S55376 US 42874 ZA 79031	52 A 22 A1 20 A1 28 A1 3 A 59 B 54 A	06-03-1980 10-02-1981 13-03-1980 16-02-1980 28-03-1980 02-04-1980 14-10-1985 15-03-1980 01-09-1981 25-06-1980
JP S6426211 A	27-01-1989	NONE		
JP S5936818 A	29-02-1984	NONE		
US 4419981 A	13-12-1983	AU 5338 AU 85450 DE 32615 EP 00698 HK 216 JP S5857 MY 87003 NZ 2010 US 44199	88 D1 91 A1 87 A 94 A 66 A	15-12-1983 06-01-1983 24-01-1985 19-01-1983 20-03-1987 13-01-1983 31-12-1987 09-11-1984 13-12-1983
GB 1578996 A	12-11-1980	DE 275576 FR 237556 GB 157896 IL 5356	57 A1 96 A	29-06-1978 21-07-1978 12-11-1980 30-07-1982