

Title: SYSTEM AND METHODS FOR CONTROLLING SOLAR MODULE TRACKERS

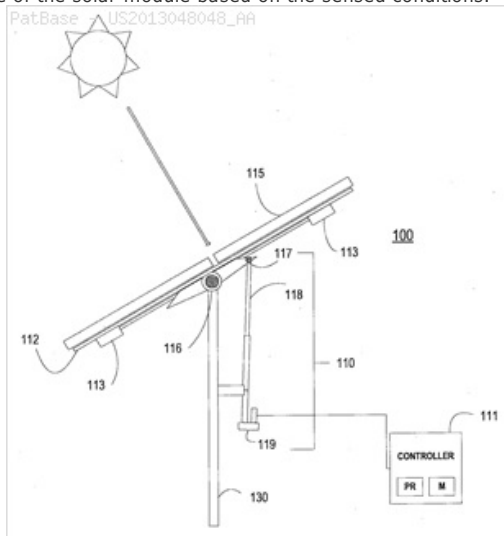
Abstract: A method and apparatus for controlling the inclination angle of a solar module. The apparatus includes a solar module mounted on a rotatable support that is rotated by a mechanism. The apparatus further includes a sensor and a controller for controlling the mechanism to adjust the inclination angle of the solar module based on the sensed conditions.

Classifications:

International (IPC 8-9): F24J2/38 F24J2/40 F24J2/46 F24J2/54
H01L31/042 H01L31/052 (Advanced/Invention)

CPC: Y02E10/47 H02S20/10 F24S30/425 F24S40/20 F24S40/85
F24S50/00 F24S50/20 F24S50/40 F24S2020/16 H02S20/32

US: 136/246



Family:

Publication number	Publication date	Application number	Application date
EP2748538 A2	20140702	EP20120770299	20120821
US2013048048 AA	20130228	US20110214674	20110822
WO13028657 A2	20130228	WO2012US51664	20120821
WO13028657 A3	20131031	WO2012US51664	20120821

Priority:

US20110214674 20110822 WO2012US51664 20120821

Probable Assignee: FIRST SOLAR INC

Assignee(s): (std): COLLINS KEVIN ; FIRST SOLAR INC ; FLANERY KENT

Assignee(s): JPMORGAN CHASE BANK NA

Inventor(s): (std): COLLINS KEVIN ; FLANERY KENT

Agent(s): DEARDEN ANTHONY JAMES; DAMICO THOMAS J

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: NONROTATING PIVOTABLE SOLAR PANEL

Abstract: An apparatus for enabling a solar panel to track a solar or other energy source, comprising a panel; a mast; a first collar slidably receiving the mast; a sleeve slidably receiving the mast and the link tube; a controller second collar slidably receiving the mast; a universal joint comprising a first section and a second section, both sections pivotably joined, the first section fixedly attached to one end of the mast; a first arm fixedly attached to the controller second collar; a second arm fixedly attached to the first collar; a link pivotably joining the first arm and the second arm; a first stop associated with the first collar; wherein the mast is capable of vertical movement within the first collar such that the panel can tilt and be displaced angularly.

Classifications:

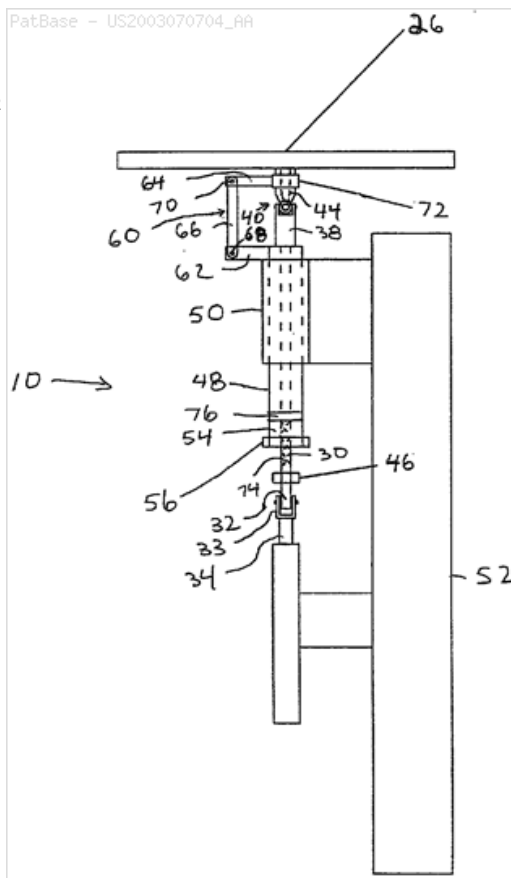
International (IPC 8-9): E04H12/18 F24J2/52 F24J2/54 H01L25/00 H01L31/00 H01L31/02 H01L31/0216 H01L31/042 H01L31/048 (Advanced/Invention); F24J2/00 H01L25/00 H01L31/00 H01L31/02 H01L31/0216 H01L31/042 H01L31/048 (Core/Invention)

International (IPC 1-7): E04H012/18 E04H12/18 F24J2/52 H01L031/042 H01L25/00 H01L31/00 H01L31/02 H01L31/0216 H01L31/042 H01L31/048 H01L31/42

CPC: Y10S136/291 Y02E10/47 F24S25/10 F24S30/425 F24S2030/131 F24S2030/135 F24S2030/17

European: F24J2/54 F24J2/54B4 R24J2/54P14C R24J2/54P8B R24J2/54P8E Y02E10/47

US: 126/600 126/608 136/244 136/246 136/251 136/251S 136/259 136/291 136/291S 160/10 160/351 250/203.4 250/203.400S 257/431



Family:

Publication number	Publication date	Application number	Application date
AU2002301463 AA	20030612	AU20020301463	20021015
AU2002301463 BB	20040520	AU20020301463	20021015
CA2392920 AA	20030416	CA20022392920	20020709
CA2392920 C	20041102	CA20022392920	20020709
MXPA02010175 A1	20041014	MX2002PA10175	20021015
US2003070704 AA	20030417	US20010981139	20011016
US2003070708 AA	20030417	US20020188563	20020702
US6552257 BA	20030422	US20010981139	20011016
US6960717 BB	20051101	US20020188563	20020702

Priority:

US20010981139 20011016 US20020188563 20020702 CA20022392920 20020709

Probable Assignee: AMERICAN SIGNAL CO

Assignee(s): (std): AMERICAN SIGNAL CO ; AMERICAN SIGNAL COMPANY

Assignee(s): HART STEPHEN P ; RYAN PATRICK H ; RYAN PATRICK H JR ; RYAN PATRICK HENRY ; STUART DONALD JOHN ; STUART DONALD J

Inventor(s): (std): HART STEPHEN P ; RYAN JR PATRICK HENRY ; RYAN PATRICK H ; RYAN PATRICK H JR ; RYAN PATRICK HENRY ; STUART DONALD J ; STUART DONALD JOHN ; RYAN JR PATRICK H ; PATRICK HENRY RYAN JR

Inventor(s): RYAN ; JR PATRICK H ; JR ; DONALD JOHN STUART

Agent(s): CULLENS PATENT AND TRADE MARK ATTORNEYS; CULLENS PTY LTD; MOFFAT AND CO; POWELL GOLDSTEIN LLP; JASON A

Title: LIGHTING DEVICE I.E. NETWORK-INDEPENDENT LIGHTING DEVICE, FOR E.G. ROAD, HAS ENERGY STORAGE PROVIDED FOR STORAGE OF PRODUCED ELECTRICAL ENERGY, WHERE SOLAR UNIT AND LIGHTING UNIT ARE ALIGNED INDEPENDENT OF EACH OTHER

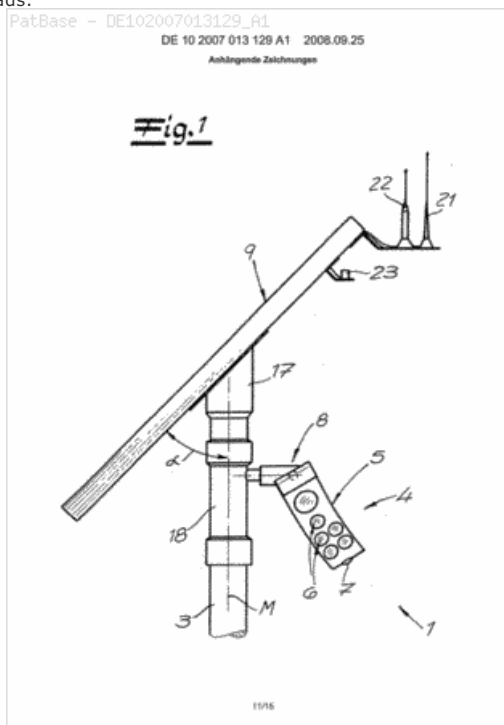
Abstract: The device (1) has a lighting unit (4) aligned on a mast (3) and provided with illuminants (6) e.g. LEDs, for illuminating lighting regions. A solar unit (9) is provided with solar cells for the conversion of solar energy into electrical energy. Energy storage is provided for the storage of the produced electrical energy, where the solar unit and the lighting unit are aligned independent of each other. An adjustable illuminant carrier (5) is fastened on the mast. An independent claim is also included for a lighting combination for lighting of paths and roads.

Classifications:

International (IPC 8-9): F21S6/00 F21S9/03 (Advanced/Invention);
F21S6/00 F21S9/00 (Core/Invention)

CPC: F21S9/035 F21S8/086 F21V21/30 F21V23/0435 F21V23/0442
F21W2131/103 F21Y2115/10 Y02B20/72

European: F21S8/08H2 F21S9/03S F21V23/04R F21V23/04S
R21V21/30 R21W131/103 R21Y101/02



Family:

Publication number	Publication date	Application number	Application date
DE102007013129 A1	20080925	DE200710013129	20070315

Priority:

DE200710013129 20070315

Probable Assignee: STADTFELD ELEKTROTECHNISCHE FA

Assignee(s): (std): STADTFELD ELEKTROTECHNISCHE FA

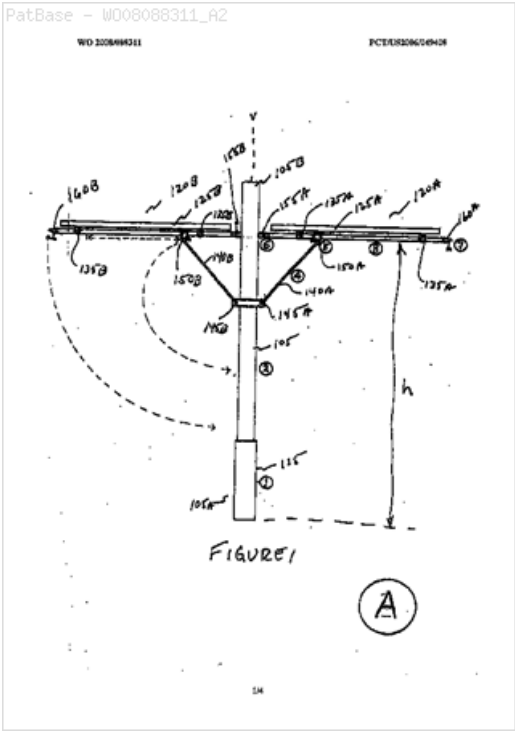
Assignee(s): STADTFELD ELEKTROTECHNISCHE FABRIK GMBH AND CO KG

Inventor(s): (std): KUIPERS ULRICH ; THON CARSTEN

Title: SOLAR PANEL MOUNTING APPARATUS WITH A PLURALITY OF INDEPENDTENTLY ADJUSTABLE ARMS AND ROTATABLE VERTICAL AXIS

Abstract: A solar panel and wind generator mounting apparatus includes a rotatable mast and a plurality of independently adjustable arm assemblies to which solar panels may be attached. Said arm assemblies feature independent pitch and roll adjustments. The mast provides a rotatable vertical axis for yaw adjustment. The top of the mast may be adapted to support a wind generator.

Classifications:
International (ipc 8-9): H01L31/00 H01L31/042 H01L31/045 H02N6/00 (Advanced/Invention); H01L31/00 H01L31/042 H01L31/045 H02N6/00 (Core/Invention)
CPC: Y02E10/47 H02S30/20 F24S25/10 F24S25/70 F24S30/452
European: F24J2/52A30 F24J2/54C2 H01L31/045 R24J2/52A8 Y02E10/47 Y02E10/50



Family:

Publication number	Publication date	Application number	Application date
WO08088311 A2	20080724	WO2006US49408	20061228
WO08088311 A3	20080912	WO2006US49408	20061228

Priority:
WO2006US49408 20061228

Probable Assignee: BOSLEY BRIAN W

Assignee(s): (std): BOSLEY BRIAN W

Inventor(s): (std): BOSLEY BRIAN W

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: WIRELESS COMMUNICATION DEVICE

Abstract: A device utilizing an alternative power source to provide wireless internet and wireless network access.

Classifications:

International (IPC 8-9): H04B1/38 H04L12/54 H04M1/00

H04Q7/00 (Advanced/Invention);

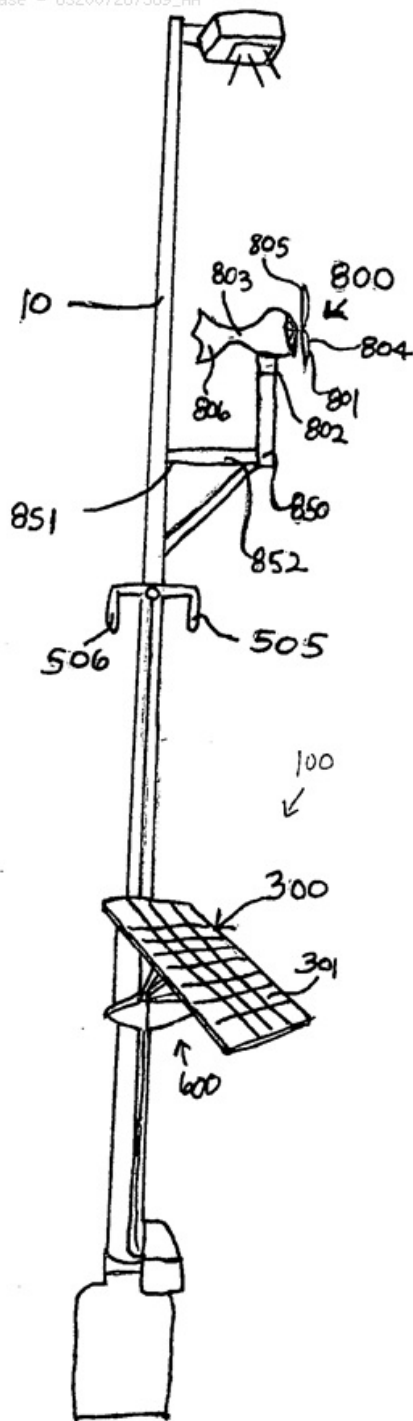
H04B1/38 H04L12/54 H04M1/00 H04Q7/00 (Core/Invention)

CPC: H04B1/1607 H04B1/03

European: H04B1/03 H04B1/16A

US: 455/575.1 455/575.100 455/73

PatBase - US2007287389_AA



Family:

Publication number	Publication date	Application number	Application date
US2007287389 AA	20071213	US20070811962	20070612
WO07146918 A2	20071221	WO2007US70967	20070612
WO07146918 A3	20080619	WO2007US70967	20070612

Priority:

US20060812823P 20060612 US20070811962 20070612

Probable Assignee: R AND R BUSINESS SERVICES DIVISION INC

Assignee(s): (std): MUSTEEN BARRY ; MUSTEEN MICHAEL ; POCKAT SCOTT ; R AND R BUSINESS SERVICES DIVISI

Assignee(s): R AND R BUSINESS SERVICES DIVISION INC

Inventor(s): (std): MUSTEEN BARRY ; MUSTEEN MICHAEL ; POCKAT SCOTT

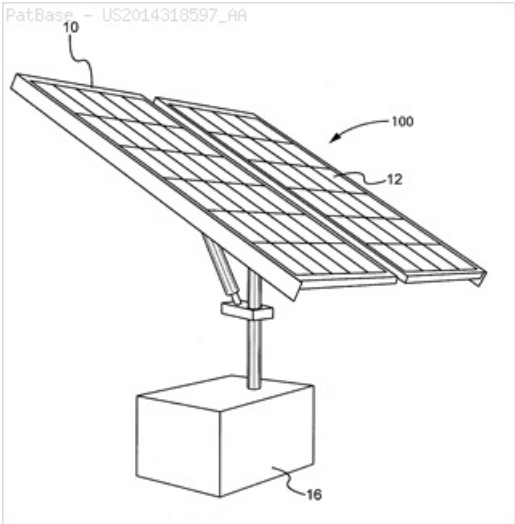
Agent(s): KEISLING PIEPER AND SCOTT PLC, BANK OF AMERICA PLAZA; KEISLING PIEPER AND SCOTT PLC
BANK OF AMERICA PLAZA

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY
CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN
IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW
MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ
TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: HIGH EFFICIENCY SOLAR DEVICE WITH SENSORS

Abstract: Disclosed herein is a solar panel support structure that includes a base, a mounting structure extending from the base, and a frame connected to the mounting structure. The frame is configured to receive a solar panel. The structure further includes a first actuator configured to rotate the frame in a first rotational direction and a second actuator configured to rotate the frame in a second rotational direction. The second rotational direction is perpendicular to the first rotational direction. The structure further includes a light sensor system configured to determine the intensity of light coming from each of a north direction, a south direction, an east direction and a west direction. Finally, the structure includes a controller configured to receive input from the light sensor system and control the first actuator and the second actuator such that the first actuator and the second actuator position the frame such that the frame is at least one of perpendicular and substantially perpendicular to the sun.

Classifications:
International (IPC 8-9): H01L31/052 H02N6/00 (Advanced/Invention)
CPC: H02S20/30 H02S20/32 Y02E10/47 F24S30/452 F24S50/20 F24S2030/115
US: 136/246



Family:

Publication number	Publication date	Application number	Application date
US2014318597 AA	20141030	US20140219626	20140319
WO14178956 A1	20141106	WO2014US31280	20140320

Priority:

US20130816984P 20130429 US20130839154P 20130625 US20140219626 20140319

Probable Assignee: KHAN AZAM

Assignee(s): (std): KHAN AZAM ; RAEBURN BRANDON

Inventor(s): (std): KHAN AZAM ; RAEBURN BRANDON

Agent(s): OLSEN ARLEN L

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: DEVICE FOR SUPPORTING PHOTOVOLTAIC CELL PANELS, SUPPORT SYSTEM AND INSTALLED ASSEMBLY

Abstract: Device for supporting photovoltaic cell panels, which is formed from a section with a height between 5 and 25 cm, comprising a central portion (1), two gutters (2) symmetrical with respect to the support and running along the section over the entire length thereof, a retaining rail (3) at the base, fastening means (4), for fastening two photovoltaic cell panels (5), a thermal insulation, and a complementary sealing device.

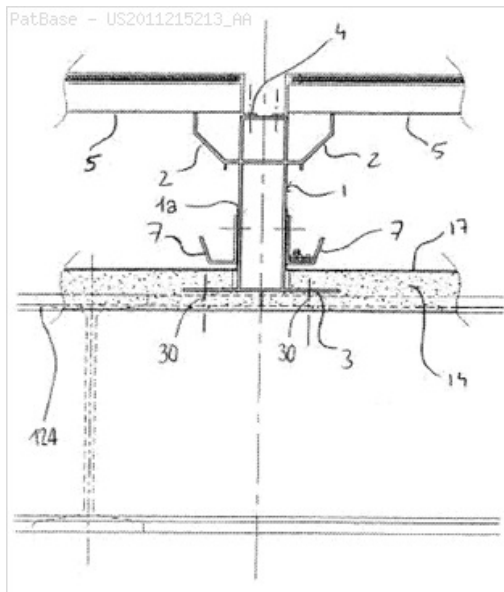
Classifications:

International (IPC 8-9): A01G9/14 A01G9/24 A47B97/00 E04B1/346 E04D13/18 E04D3/40 E04F13/072 F24J2/52 H01L23/12 H01L31/048 H02S20/23 (Advanced/Invention); E04D13/18 F24J2/00 H01L31/048 (Core/Invention)

CPC: Y02B10/12 Y02B10/20 Y02E10/47 Y02E10/44 H01L31/0521 Y02E10/50 H02S20/22 H02S20/26 E04D3/40 E04F13/072 H02S20/23 B25J9/00 Y02A30/62 Y02A40/266 A01G9/243 Y02P60/124 E04B7/163 F24S25/20 F24S25/35 F24S40/44 F24S2025/021 F24S2025/801 F24S20/66 F24S20/67 F24S25/12 F24S25/13 F24S25/636 F24S40/20 F24S2025/013 F24S2025/804 F24S2025/807 F24S20/70 F24S30/422 F24S2030/133 F24S2030/134 F24S2030/145 F24S25/634 F24S80/60 F24S2020/11 F24S2020/17 F24S2025/014 F24S2201/00 F24S25/61 F24S25/00

European: F24J2/46B18B F24J2/52A4B4 F24J2/52A4E H01L31/048B R24J2/52A4P4 R24J2/52P24 Y02B10/12 Y02B10/20 Y02E10/47 Y02E10/50

US: 248/228.2 248/309.1 248/309.100P 248/316.4 248/500 47/17 52/1 52/173.1 52/173.3 52/65 52/741.1 901/50

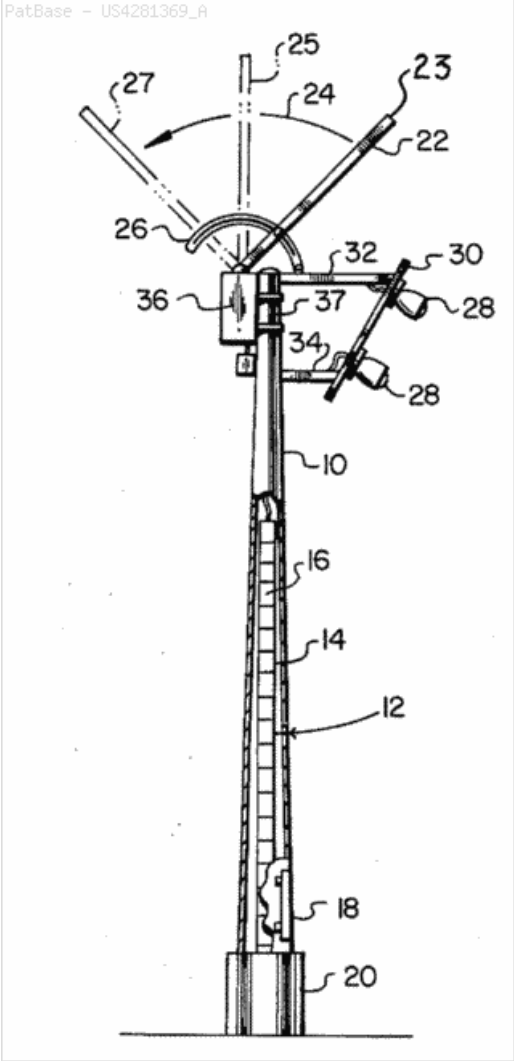


Title: METHOD AND APPARATUS FOR SOLAR POWER LIGHTING

Abstract: Solar powered and/or augmented lighting systems embodied within conventional hollow light pole configuration incorporating a solar power lamp cell. A plurality of solar cells are disposed in an array about an upstanding light pole of conventional design of the type having a hollow interior and laterally extending lighting elements. The lighting element itself is provided in a configuration incorporating a solar cell atop a storage battery atop a light source, such as a bulb, operable from said light power system. The lighting cell is selectively powered by either a storage battery system operable in conjunction with the solar panel array and/or the solar power network incorporated therein. A network of electrical storage cells are disposed within the hollow configuration of the light pole and supported upon an elevator system for facilitating access thereto. In this manner, the overall consumption of energy from conventional power lines may be reduced and/or eliminated. The commercial lines may remain connected to said light poles for augmented power during periods of low solar energization and for purposes of original solar collector orientation.

Classifications:

International (ipc 8-9): F21S8/08 F21S9/03 (Advanced/Invention);
F21S8/08 F21S9/00 (Core/Invention)
International (ipc 1-7): F21M5/02 F21P1/00
CPC: Y10S136/291 Y02B20/72 F21S9/035 F21S8/086 F21W2131/103
European: F21S8/08H2 F21S9/03S R21W131/103
US: 136/291 362/183 362/276 D26/068 D26/68



Family:

Publication number	Publication date	Application number	Application date
US4281369 A	19810728	US19780967962	19781211

Priority:

US19780967962 19781211

Probable Assignee:

BATTE CHRISTOPHER L

Assignee(s): (std):

BATTE CHRISTOPHER L

Inventor(s): (std):

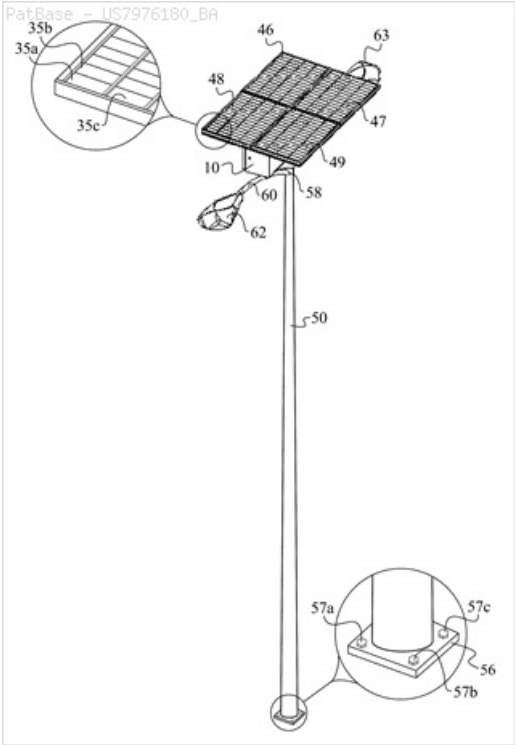
BATTE CHRISTOPHER L

Title: SOLAR POWERED RECHARGEABLE STREET LIGHT WITH TAMPER RESISTANT NETWORKABLE SYSTEM

Abstract: A solar powered rechargeable street light, which can be networked to a system. The modular and tamper resistant street light and system can be used with individual street lights or a network of street lights. The system can be powered from a central controller, which can detect tampering by individuals or harsh weather conditions.

Classifications:

International (ipc 8-9): F21L4/08 (Advanced/Invention)
CPC: F21V15/005 F21S9/035 F21S8/086 F21W2111/06 F21W2131/103 H05B37/00 Y02B20/72
European: F21S8/08H2 F21S9/03S H05B37/00 R21W111/06 R21W131/103 Y02B20/72
US: 362/153.1 362/183 362/192 362/413 362/431



Family:

Publication number	Publication date	Application number	Application date
US7976180 BA	20110712	US20090624188	20091123

Priority:

US20090624188 20091123

Probable Assignee:

SOLARCRAFT INC

Assignee(s): (std):

SOLARCRAFT INC

Assignee(s):

PICO AMERICA INC

Inventor(s): (std):

HAUN DARRELL N ; HAUN DONALD N

Agent(s):

BUSKOP LAW GROUP PC; WENDY

Title: DUAL-AXIS SOLAR TRACKER

Abstract: The invention relates to a two-axle solar tracker, consisting of a moving supporting system for solar panels, which maximises the energy production of said panels and which is formed by a vertical axle and a horizontal axle in relation to which the system rotates in order to track the sun's path. The aforementioned axles are components of a structure supported at the centre and supported peripherally on wheels positioned on a running track or surface. The structure rotates about a fixed central point supporting the vertical axle of the tracker. At least one board is positioned on the horizontal axle of the structure in order to receive the solar modules or panels and said board(s) can rotate about the horizontal axle so that the solar panels are maintained perpendicular to the sun's rays.

Classifications:

International (IPC 8-9): F24J2/10 F24J2/38 F24J2/52 F24J2/54

F24S30/45 F24S30/455 H01L31/042 (Advanced/Invention);

F24J2/38 F24J2/54 H01L31/042 (Advanced/Non-invention);

F24J2/00 F24J2/38 H01L31/042 (Core/Invention);

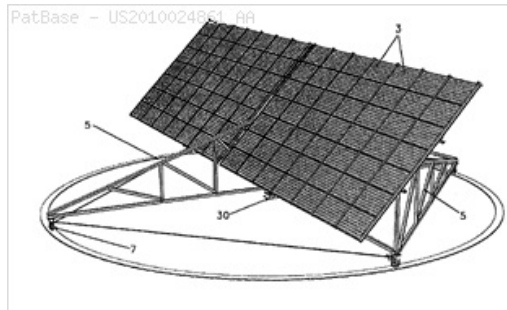
F24J H01L (Subclass/Invention)

International (IPC 1-7): F24J2/54 H01L31/042

CPC: Y02E10/47 F24S30/452 F24S25/13 F24S2030/145

European: F24J2/54C2 R24J2/52A8C R24J2/54P10B Y02E10/47

US: 126/573 126/576 126/600 136/244 136/246 250/203.4



Family:

Publication number	Publication date	Application number	Application date
AU2007306303 AA	20080417	AU20070306303	20071009
AU2007306303 BB	20110901	AU20070306303	20071009
BRPI0715313 A2	20150407	BR2007PI15313	20071009
CA2666520 AA	20090409	CA20072666520	20071009
CN101523128 A	20090902	CN200780037748	20071009
CN101523128 B	20111228	CN200780037748	20071009
CO6180473 A2	20100719	CO20090035821	20090407
EP2072934 A1	20090624	EP20070822981	20071009
EP2072934 A4	20160914	EP20070822981	20071009
ES1064477 UA	20070316	ES20060002756U	20061222
ES1064477 Y1	20070616	ES20060002756U	20061222
ES1064549 UA	20070401	ES20060002226U	20061009
ES1064549 Y1	20070701	ES20060002226U	20061009
ES1065239 UA	20070716	ES20060002371U	20061025
ES1065239 Y1	20071016	ES20060002371U	20061025
IL198041 A0	20091224	IL20070198041	20071009
IN02334DN2009 A	20100528	IN2009DN02334	20090409
JP2010506415 T2	20100225	JP20090531866T	20071009
KR20090077772 A	20090715	KR20097007255	20071009
MA30881 B1	20091102	MA20090031860	20090508
MX2009003667 A1	20090907	MX2009003667	20071009
RU2009112206 A	20101120	RU20090112206	20071009
US2010024861 AA	20100204	US20070444824	20071009
US8237098 BB	20120807	US20070444824	20071009
WO08043871 A1	20080417	WO2007ES00574	20071009
ZA200902403 A	20100331	ZA20090002403	20090407

Priority:

ES20060002226 20061009 ES20060002226U 20061009 ES20060002371U 20061025
 ES20060002756U 20061222 WO2007ES00574 20071009

Probable Assignee: CABANILLAS INGENIEROS SL

Assignee(s): (std): CABANILLAS INGENIEROS S L ; CABANILLAS SALDANA JUAN PABLO ; JUAN PABLO CABANILLAS SALDANA ; PABLO CABANILLAS SALDANA JUAN

Assignee(s): CABANILLAS INGENIEROS SL

Inventor(s): (std): SALDANA JUAN PABLO CABANILLAS ; PABLO CABANILLAS SALDANA JUAN ; CABANILLAS SALDANA JUAN PABLO

Inventor(s): JUAN PABLO CABANILLAS SALDANA

Agent(s): IP SOLVED ANZ PTY LTD; HODGKINSON MCINNES PATENTS; GOWLING LAFLEUR HENDERSON LLP; GONZALEZ ALBERTO RODRIGUEZ NATALIA; SUGHRUE MION PLLC; ARIZTI ACHA MONICA ET AL

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW