

Base : FAMPAT**SEARCH STRATEGY****SS Results**

34	28	33 AND PD <= 2017-06-21
33	33	29 AND 32
32	1269	((SOLAR OR PHOTOVOLTAIC) AND (PANEL+ OR CELL+) AND (TRACK+ OR TRAC+ OR FOLLOW+ AND CLEAN+)/TI/AB/IW
31	1005	29 AND 30
30	27260	((SOLAR OR PHOTOVOLTAIC) AND (PANEL+ OR CELL+) AND (TRACK+ OR TRAC+ OR FOLLOW+ OR CLEAN+))/TI/AB/IW
29	2456	16 AND ((GPS OR LOCATOR OR GLOBAL POSITIONING SYSTEM OR GLOBAL POSITION SYSTEM OR UBICATION OR LOCATION) OR (CLOCK+ OR WATCH+ OR TIM+ OR HOUR) OR (COMMUNICAT+ OR WIRELESS OR NETWORK) OR ACCELEROMETER OR MAGNETOMET+ OR (RAIN SENSOR OR RAIN SWITCH OR HUMIDITY) OR (ANEMOMETER OR ANEMOGRAPH) OR (SOLAR RADIATION SENSOR OR RADIATION SENSOR OR PYRANOMETER OR SOLARIMETER OR ACTINOMETER) OR GYROSCOPE OR SENSOR+) AND MOTOR+
28	2	19 AND GYROSCOPE
27	1	20 AND 22
26	0	21 AND 23
25	102	19 AND MOTOR+
24	5	19 AND (SOLAR RADIATION SENSOR OR RADIATION SENSOR OR PYRANOMETER OR SOLARIMETER OR ACTINOMETER)
23	3	19 AND (ANEMOMETER OR ANEMOGRAPH)
22	25	19 AND (RAIN SENSOR OR RAIN SWITCH OR HUMIDITY)
21	3	19 AND MAGNETOMET+
20	10	19 AND ACCELEROMETER
19	381	18 AND (COMMUNICAT+ OR WIRELESS OR NETWORK)
18	918	17 AND (CLOCK+ OR WATCH+ OR TIM+ OR HOUR)
17	1435	16 AND (GPS OR LOCATOR OR GLOBAL POSITIONING SYSTEM OR GLOBAL POSITION SYSTEM OR UBICATION OR LOCATION)
16	17229	15 AND (CONTROLLER OR PROCESSOR OR MICROCONTROLLER OR MICROPROCESSOR OR COMPUTER OR MICROCOMPUTER OR CONTROL+)
15	46327	13 AND 14
14	99079	((((SOLAR OR PHOTOVOLTAIC) AND (PANEL+ OR CELL+) AND (TRACK+ OR TRAC+ OR FOLLOW+ OR CLEAN+))/TI/AB/IW/CLMS
13	840069	..SEMSEARCH "SOLAR PANEL" 100 "MICROPROCESSOR CONTROLLER" 62 "MOTOR ANGULAR POSITION" 62 "SOLAR THERMAL SURFACE" 61 "METEOROLOGICAL INFORMATION" 60 "TERRESTRIAL CARDINAL POINT" 60 "ROTATION" 59 "COMMUNICATION INTERFACE" 58 "SOLAR RADIATION SENSOR" 57 "RAIN CURRENT" 56 "MOTOR CONTROL UNIT" 55 "PHOTOVOLTAIC PANEL" 55 "INCLINATION ANGLE" 54 "REALTIME CLOCK" 51 "SUN PATH" 50 "SUN RAY" 50 "ACCELEROMETER" 49 "MAGNETOMETER" 48 "WIND ENERGY" 47 "ANEMOMETER" 45 "GYROSCOPE" 44 "AXIS" 42 "GRAVITY" 40 "DATE" 34 "GPS" 31
12	0	(CO20170006103)/PN
11	45	5 AND MOTOR+
10	1	5 AND (SOLAR RADIATION SENSOR OR RADIATION SENSOR OR PYRANOMETER OR SOLARIMETER OR ACTINOMETER)
9	0	5 AND (ANEMOMETER OR ANEMOGRAPH)
8	19	5 AND (RAIN SENSOR OR RAIN SWITCH OR HUMIDITY)
7	2	5 AND MAGNETOMET+
6	2	5 AND ACCELEROMETER
5	119	4 AND (COMMUNICAT+ OR WIRELESS OR NETWORK)
4	220	3 AND (CLOCK+ OR WATCH+ OR TIM+ OR HOUR)
3	289	2 AND (GPS OR LOCATOR OR GLOBAL POSITIONING SYSTEM OR GLOBAL POSITION SYSTEM OR UBICATION OR LOCATION)

2	3599	1 AND (CONTROLLER OR PROCESSOR OR MICROCONTROLLER OR MICROPROCESSOR OR COMPUTER OR MICROCOMPUTER OR CONTROL+)
1	8243	((SOLAR OR PHOTOVOLTAIC) AND (PANEL+ OR CELL+) AND (TRACK+ OR TRAC+ OR FOLLOW+) AND CLEAN+))/TI/AB/IW/CLMS

28 Documents

Publication numbers	Title	Current assignees
IL-222558 A	Solar panel cleaning system	MOSHE SARAF
US4119863 A	Combined high density solar panels and vertical wind turbines	KELLY DONALD A
CN105471377 A	Horizontal single axis sun-tracking support apparatus	SUN MIN, ...
JP2012195548 A	Solar panel with sunlight tracking and wind damage protection functions	KAWAI TSUSHIN
CN101532733 A	Auto-focusing system of solar cooker	BEIJING JIAOTONG UNIVERSITY
KR20120070549 A	Scrolling poster advertisement device that equip solar tracker and lbs(location based service) module	SEO JIN SU
CN104467649 A	Photovoltaic assembly and automatic cleaning device therefor	KASHGAR SOL BRIGHT PHOTOVOLTAIC TECHNOLOGY
CN205407714U U	Solar battery board	WUXI CHANGJIANG ELECTRIC APPLIANCE EQUIPMENT
CN102347400 A	Automatic tracking and automatic cleaning device for solar cell panel	GENG TIANYI, ...
CN102820737 A	Method and device for driving fan blades of clean-energy generator	YANG QINGSHAN
DE202008007802 U1	Cleaning system and method	JAESCHKE STEFAN, ...
WO2011161696 A2	Sun tracking mechanism with automated cleaning arrangement for solar panel	INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
CN202142537U U	Device for automatically tracking and cleaning solar cell panel	CHUNSHENG LIU, ...
CN205049976U U	Solar cell panel sunshine automatic tracking system	GUILIN UNIVERSITY OF ELECTRONIC TECHNOLOGY
CN105680789 A	Automatic cleaning system for solar cell panel	SHANDONG HAOWO ELECTRIC
CN104521698 A	Light-small automatic walk canal feeding type irrigator	NORTH WEST AGRICULTURE & FORESTRY UNIVERSITY
CN105322874 A	Tracking solar panel	CHENGDU 90 DEGREES INDUSTRY PRODUCT DESIGN
CN104320065 A	Solar panel cleaning vehicle with waste water recycling device	ZHEJIANG UNIVERSITY OF TECHNOLOGY
CN205690259U U		

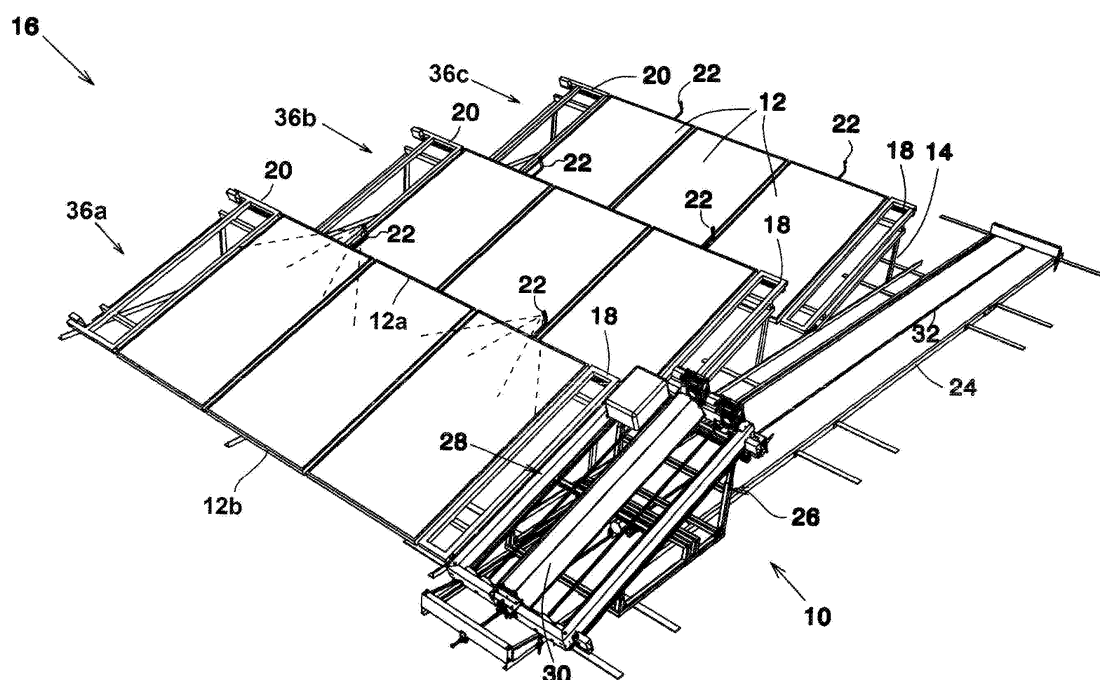
Publication numbers	Title	Current assignees
	Single -axis tracking solar street lamp	TIANJIN JIENENG HENGTONG TECHNOLOGY
CN105675829 A	Solar energy wind energy online multi-parameter water quality monitor	QINGDAO QINGQUAN BIOTECHNOLOGY
CN105889866 A	Uniaxial tracking solar road lamp	TIANJIN JIENENG HENGTONG TECHNOLOGY
CN104550160 A	Efficient and intelligent solar cell panel cleaning device	JIANGSU UNIVERSITY
CN204965244U U	Photovoltaic power generation power supply system based on singlechip	UNIVERSITY ANHUI SCIENCE & TECHNOLOGY
CN204517742U U	The regular dust collector of guide tracked solar cell panel array	QIINGHUA UNIVERSITY
CN203522623U U	Automatic tracking and dust removing photovoltaic power generation device	HUAIAN COLLEGE INF TECHNOLOGY
JP2002273351 A	Method and apparatus for cleaning outer face of solar cell panel	HINO JUSHI
WO2010150030 A2	Wind turbine in a combined nozzle	VRSALOVIC IVAN
CA2608174 A1	Agricultural products	VOON GERARD G V

Family 1/28 - FAMPAT - ©Questel

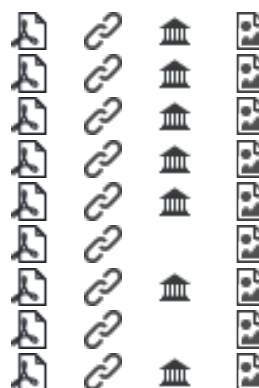
Title

(US8984704)

Solar panel cleaning system

Images**Publication data including kind & date**

IL222558	A	2012-12-31	IL-222558
ES1092407	U	2013-11-04	ES1092407U
IL222558	B	2013-12-31	IL-222558
ES1092407	Y	2014-01-27	ES1092407Y
PT10962	T	2014-04-08	PT--10962T
ITMI20130356	U1	2014-04-19	IT2013MI0356U
US20140109334	A1	2014-04-24	US20140109334
ZA201307732	B	2014-07-30	ZA201307732
US8984704	B2	2015-03-24	US8984704

**Abstract**

(US8984704)

A solar panel cleaning system, comprising: a track, disposed perpendicularly to a plurality of rows of solar panels; a cleaning carriage, comprising a moving mechanism for moving the cleaning carriage along the top and bottom bars of the panels of each of the rows; a conveying carriage, comprising a moving mechanism for conveying thereof along the track, thereby allowing carrying the cleaning carriage from one row to another row; wherein the conveying carriage has a supporting frame on which the cleaning carriage is situated while being moved from one row to another row, and wherein the top bar and the bottom bar of the frame correspond to the top bar and the bottom bar of each of the panels; and a control system, for controlling the movement of the conveying carriage and the movement of the cleaning carriage.

Inventors

SARAF MOSHE

Latest standardized assignees - inventors removed

MOSHE SARAF

Publication dates

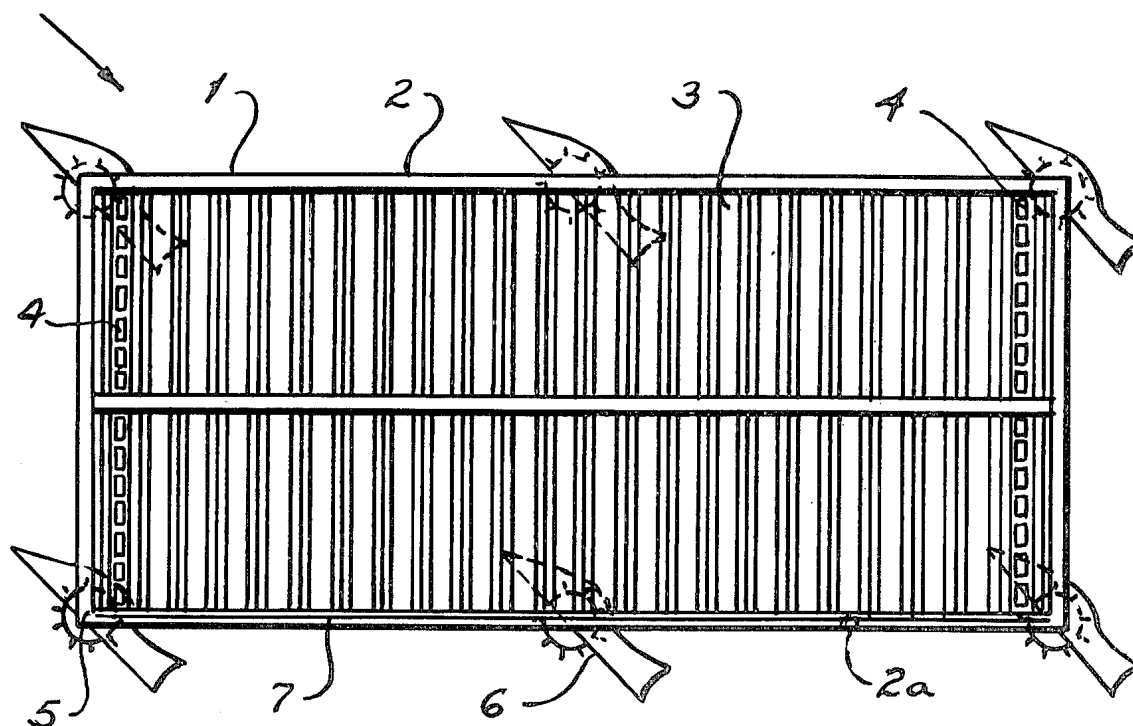
2012-12-31
2013-11-04
2013-12-31
2014-01-27
2014-04-08
2014-04-19
2014-04-24
2014-07-30
2015-03-24

Family 2/28 - FAMPAT - ©Questel

Title

(US4119863)

Combined high density solar panels and vertical wind turbines

Images**Publication data including kind & date**

[US4119863](#)

A 1978-10-10 US4119863

**Abstract**

(US4119863)

The combined high density solar panels and vertical wind turbines consist of multiple solar panels with closely spaced solar cells on both sides which are supported by an open framework and vertical posts.

The adoption of an elevated, rooftop solar panel array, supported by vertical posts makes the basic structure attractive for the inclusion of multiple vertical wind turbines, as a supplementary power source.

This combined natural power conversion arrangement is intended for mounting on the flat roofs of city buildings and other similar flat, limited area sites.

Each solar panel is pivoted within the open framework to follow the sun's excursion relative to the earth, and the solar cells on the panel underside receive the solar energy by way of thin edge reflectors secured to both sides of the solar panels, for a high density exposure configuration.

A washing spray provision is included for the panel array, to keep the panels clean and operation at optimum efficiencies.

Inventors

KELLY DONALD A

Publication dates

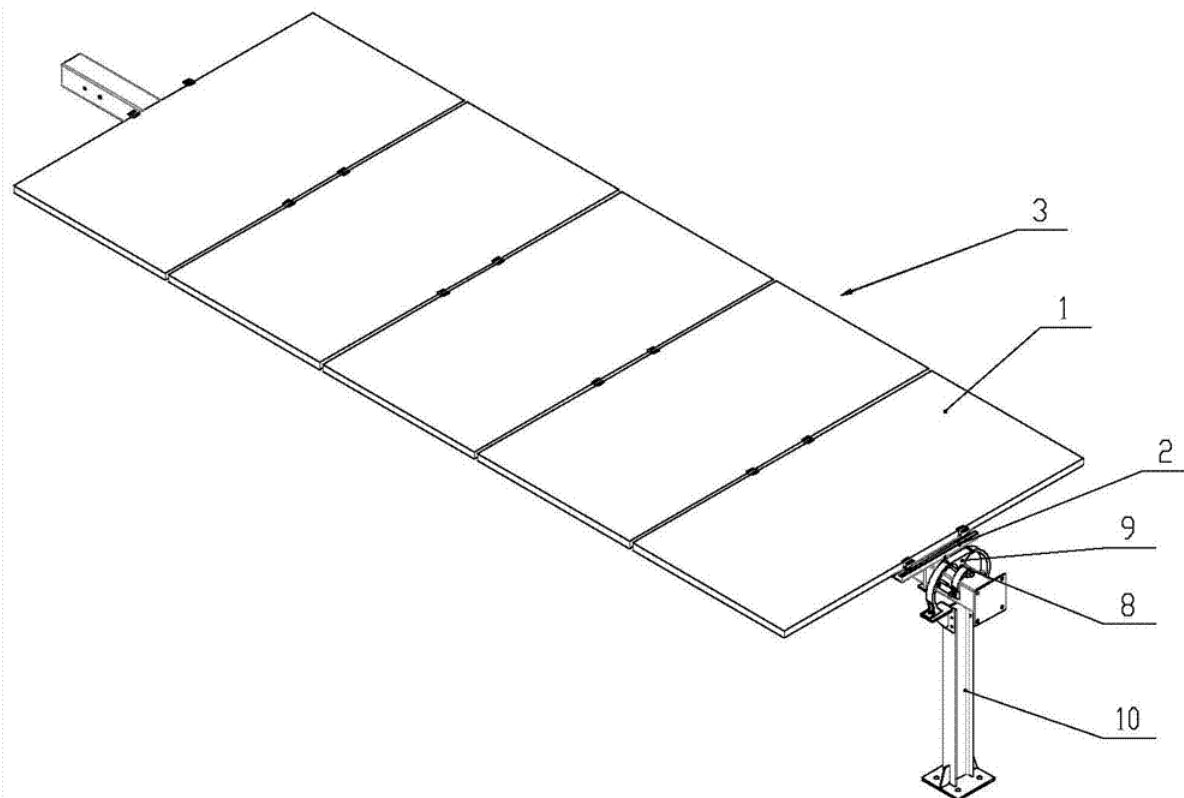
1978-10-10

Family 3/28 - FAMPAT - ©Questel

Title

(CN105471377)

Horizontal single axis sun-tracking support apparatus

Images**Publication data including kind & date**

CN105471377	A	2016-04-06	CN105471377
CN105471377	B	2017-12-26	CN105471377B

**Abstract**

(CN105471377B)

The invention discloses a horizontal single axis sun-tracking support apparatus. The apparatus comprises at least two groups of photovoltaic panel assemblies, wherein the photovoltaic panel assemblies each consist of a photovoltaic panel and a fastener that is used for fixing the photovoltaic panel. The photovoltaic panel assembly is fixed on a drive tube that can drive the photovoltaic panel assembly to rotate. The photovoltaic panel assembly and the drive tube are symmetrically arranged on both sides of a rotary reducer, and the drive tube is connected to an output end of the rotary reducer. The rotary reducer is mounted on a main supporting pillar, and is connected to a motor that supplies a power source to the rotary reducer. An aligning structure with a self-lubricating bearing disposed inside is arranged on the drive tube that is on a side end of each photovoltaic panel assembly away from the rotary reducer. Each aligning structure is correspondingly disposed on a subordinate supporting pillar. The apparatus has the advantages that a "0" eccentric design is implemented by adding the aligning structure, so as to achieve a self-balancing effect; functions of autonomous drive and control and self-cleaning and the like are implemented; and no external power supply is required to supply power, so that cables are less used, and the apparatus is applicable to different sizes of photovoltaic power plants.

Inventors

WANG YAN

SUN MIN

Publication dates

2016-04-06

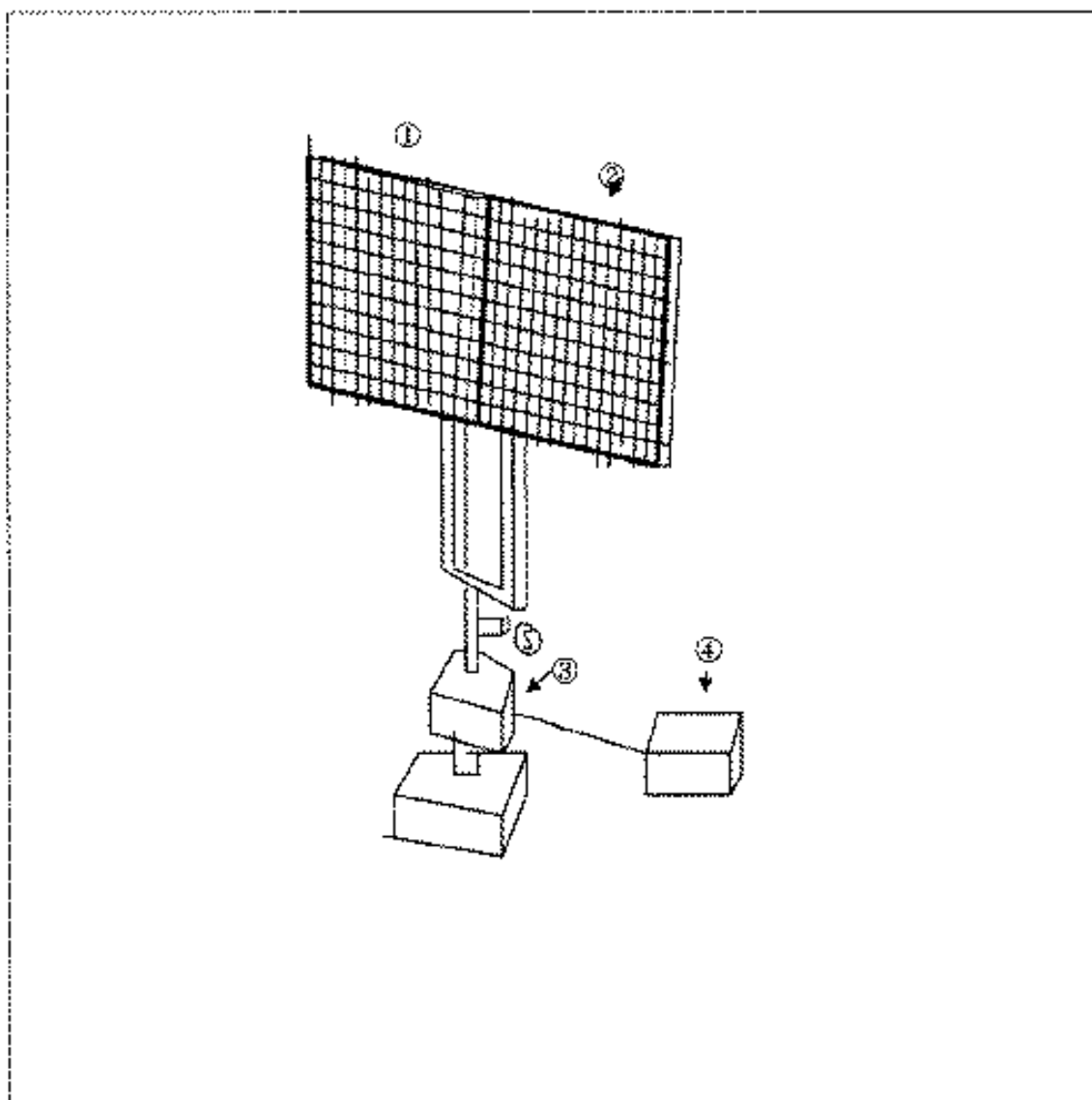
2017-12-26

Family 4/28 - FAMPAT - ©Questel

Title

(JP2012195548)

Solar panel with sunlight tracking and wind damage protection functions

Images**Publication data including kind & date**[JP2012195548](#)

A 2012-10-11 JP2012195548

**Abstract**

(JP2012195548)

PROBLEM TO BE SOLVED: To provide a device of cleaning the panel surface timely while preventing the position of a panel from being displaced by the power of wind hitting the panel. **SOLUTION:** The direction of sunlight, and the time series location data of the earth and the sun are stored in a control box, and the panel is made to track the direction of sunlight automatically. Meanwhile, the pressure of wind hitting the panel is measured by means of a load cell, and the load cell is folded and turned downward and housed when the wind power is strong. Cleaning of the panel surface is carried out, every certain period of time, with the wind power from a cylinder or a fan.

Inventors

NAKAMURA YASUMASA

Latest standardized assignees - inventors removed

KAWAI TSUSHIN

Publication dates

2012-10-11

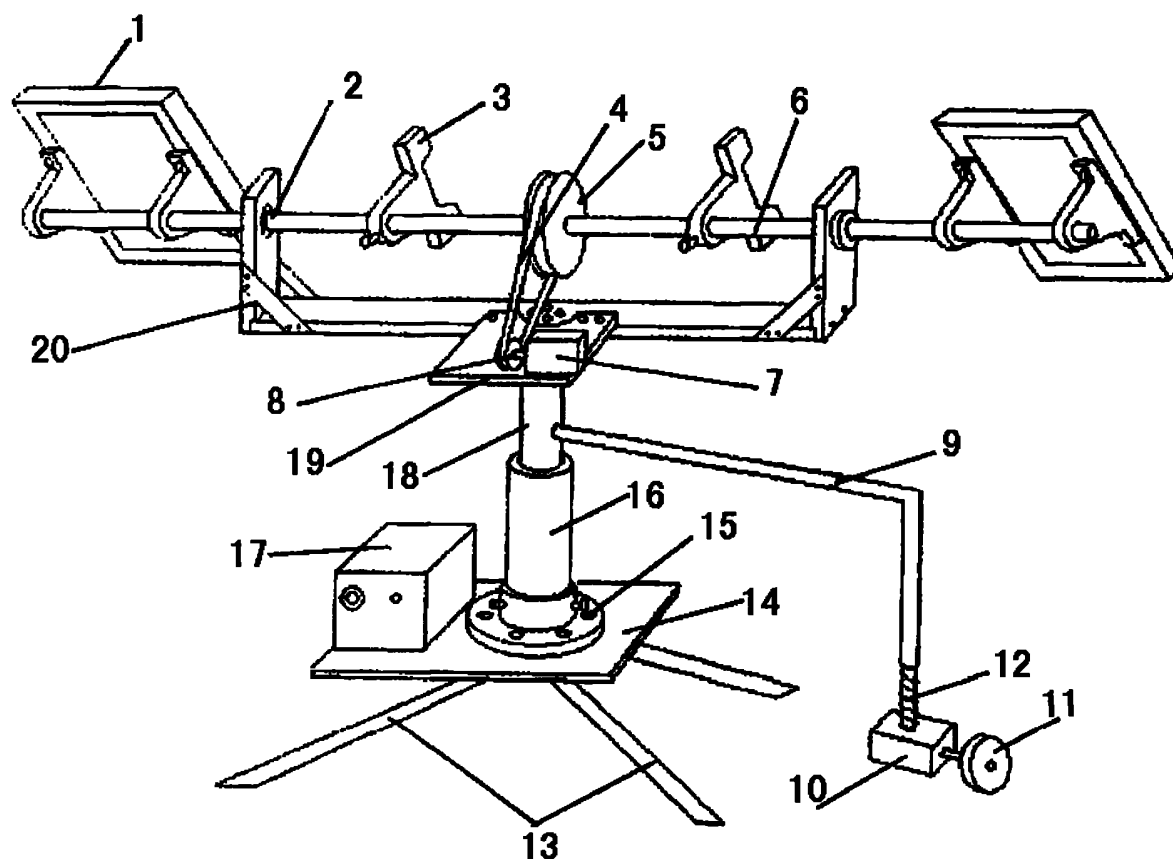
Family 5/28 - FAMPAT - ©Questel

Title

(CN101532733B)

Auto-focusing system of solar cooker

Images



Publication data including kind & date

CN101532733	A	2009-09-16	CN101532733
CN101532733	B	2011-01-19	CN101532733B



Abstract

(CN101532733B)

The invention discloses an auto-focusing system of a solar cooker, belonging to the technical field of clean energy. A central axis sleeve and a control box are fixed at a base plate, a horizontal rotation axis is inserted into the central axis sleeve, a mechanical leg or other horizontal rotation devices are fixed at the horizontal rotation axis, a luffing motion mechanism is fixed at the top end of the horizontal rotation axis, a luffing motion drive motor is arranged on a luffing motor mounting board at one side of a luffing motion bracket of the solar cooker, and a luffing rotation axis for mounting the solar cooker and a solar cell plate is propped in the bearing of luffing motion bracket. The invention adopts a brand-new mechanism and a motion mode, simultaneously, adopts the solar cell to trace the system power supply and keeps the synchronous sun tracing state of the solar cell and the solar cooker so as to facilitate the solar cell to play in full swing. When the solar cooker is unused or the light condition is poor, the system does not work to reduce energy consumption at utmost. The energy collected by the solar cell can be stored in a storage cell.

Inventors

YIZHU GUO

Latest standardized assignees - inventors removed

BEIJING JIAOTONG UNIVERSITY

Publication dates

2009-09-16

2011-01-19

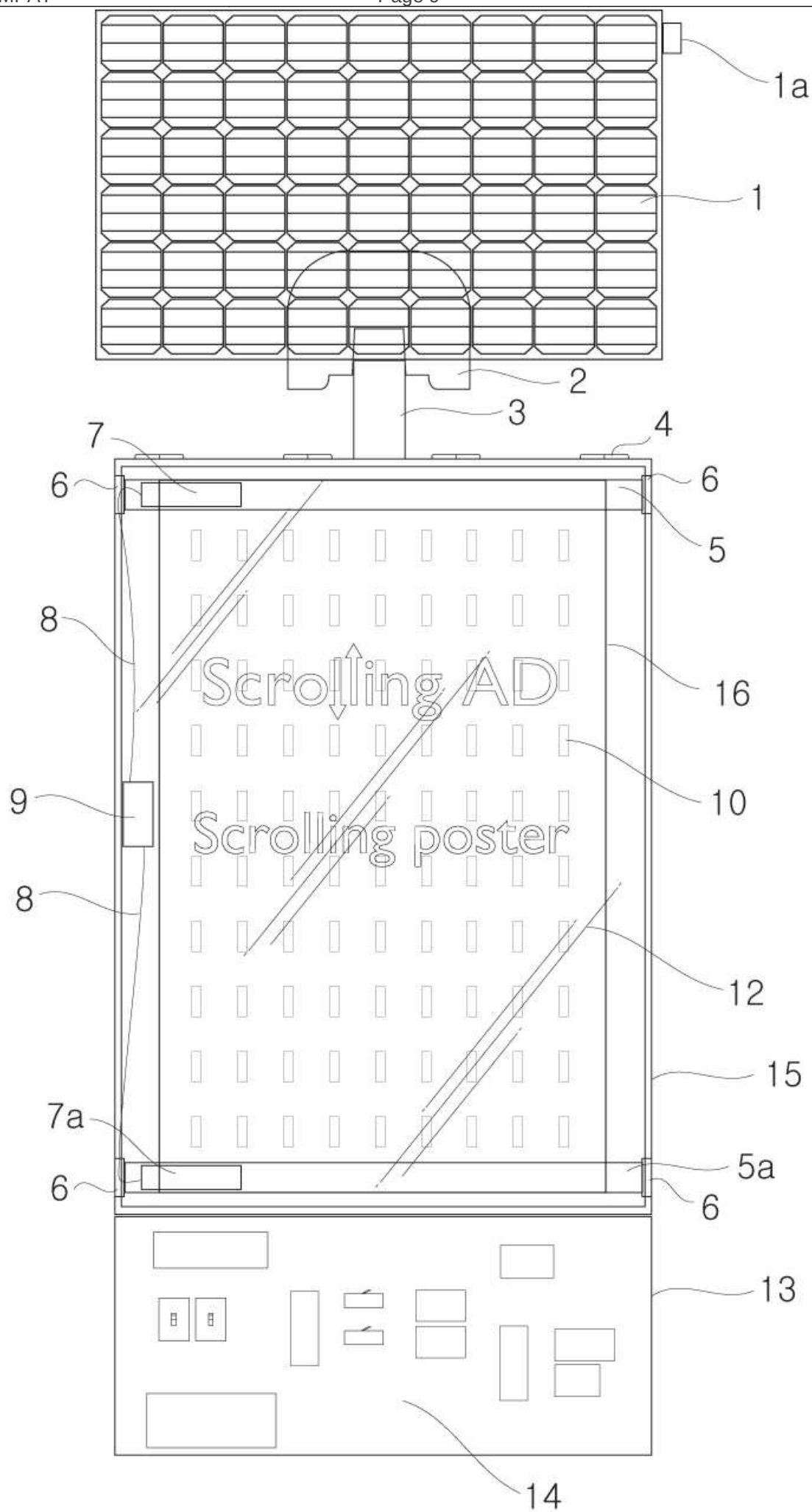
Family 6/28 - FAMPAT - ©Questel

Title

(KR20120070549)

Scrolling poster advertisement device that equip solar tracker and lbs(location based service) module

Images



Publication data including kind & date[KR20120070549](#)

A

2012-06-29

KR20120070549

**Abstract**

(KR20120070549)

PURPOSE: A scrolling poster advertisement device with a solar tracker and an LBS(Location Based Service) module are provided to supply power to an advertisement media by using solar energy which is clean energy.**CONSTITUTION:** A solar tracker(2) is connected to a solar panel(1) producing power by collecting solar energy.A scrolling poster advertisement device increases an advertising effect by exposing several pieces of actual image print-outs with intermittent forward and reverse drive of upper and lower electric motors(7,7a).A control unit(14) controls the power produced from the scrolling poster advertisement device and the solar panel.The power produced from the solar tracker is stored in a battery by a solar controller.The stored power runs the electric motor of a scrolling foster.An internal lighting member(10) is driven by a timer from the sunset to predetermined time.

Inventors

SEO JIN SU

Publication dates

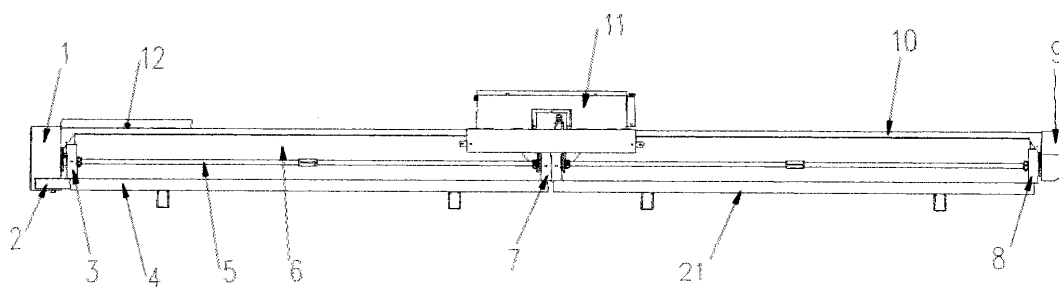
2012-06-29

Family 7/28 - FAMPAT - ©Questel

Title

(WO2016206204)

Photovoltaic assembly and automatic cleaning device therefor

Images**图 1 / Fig. 1****Publication data including kind & date**[CN104467649](#)

A

2015-03-25

CN104467649

[CN104917452](#)

A

2015-09-16

CN104917452

[CN204810222](#)

U

2015-11-25

CN204810222U

[WO2016101325](#)

A1

2016-06-30

WO2016101325

[WO2016206204](#)

A1

2016-12-29

WO2016206204

[CN104917452](#)

B

2018-01-16

CN104917452B

**Abstract**

(WO2016206204)

A photovoltaic assembly and automatic cleaning device therefor.The device comprises: a frame having a middle portion (5) parallel to a photovoltaic panel (18) to be cleaned when mounted across the photovoltaic panel (18) to be cleaned; a moving unit configured to drive the automatic cleaning device to move along the photovoltaic panel (18) to be cleaned; a guiding unit configured to restrict a moving trajectory of the moving unit; a cleaning unit configured to clean the photovoltaic panel (18) to be cleaned while the automatic cleaning device is moving; a drive unit comprising a motor (12) and a transmission portion and configured to provide a dynamical power to the cleaning unit and moving unit; an intelligent control system (13) configured to intelligently control the motor (12) to be on/off; and a power supply unit connected to the

motor (12) and the intelligent control system (13), having a photovoltaic power generation assembly (8) to generate off-grid power, and configured to supply power to the automatic cleaning device. The device can automatically clean a photovoltaic panel (18) and provide the energy required for cleaning to itself via self-generation of electricity.

Inventors

ZHANG YILING

Latest standardized assignees - inventors removed

KASHGAR SOL BRIGHT PHOTOVOLTAIC TECHNOLOGY

Publication dates

2015-03-25

2015-09-16

2015-11-25

2016-06-30

2016-12-29

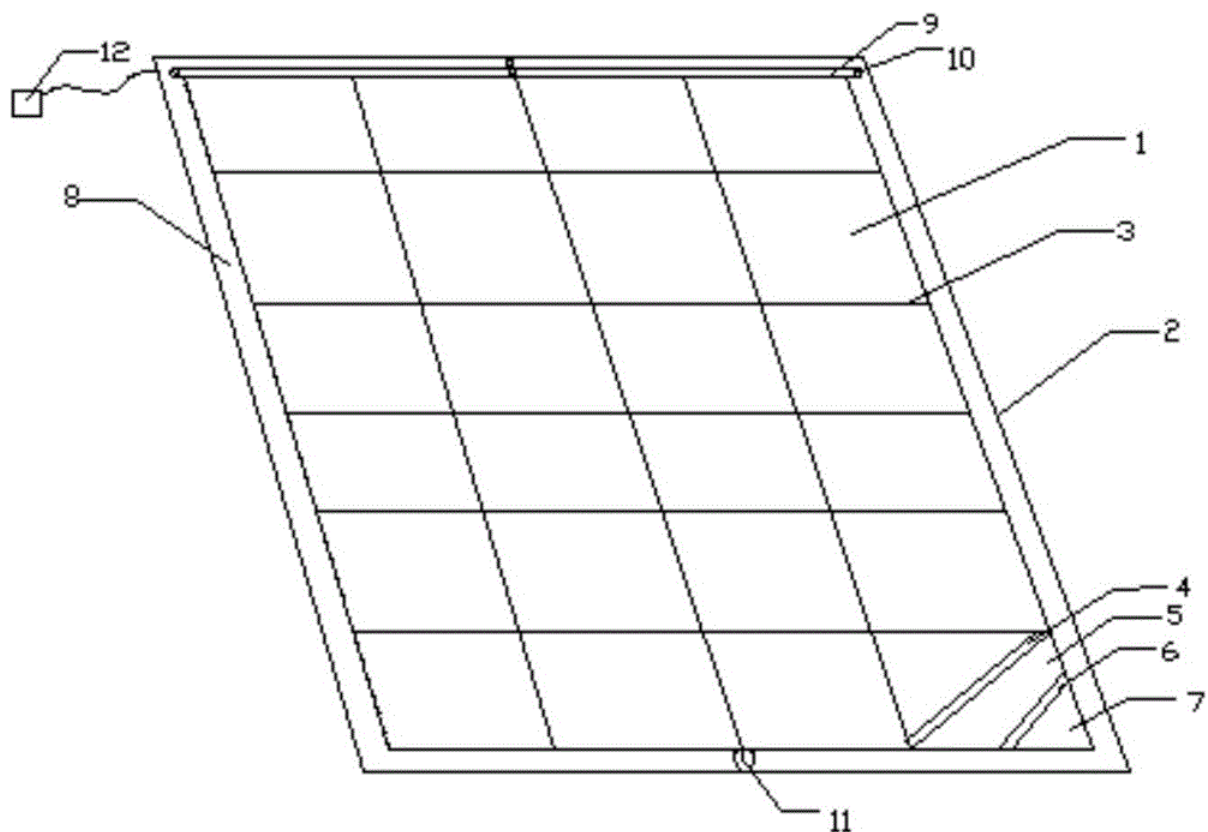
2018-01-16

Family 8/28 - FAMPAT - ©Questel

Title

(CN205407714U)

Solar battery board

Images**Publication data including kind & date**[CN205407714](#)

U

2016-07-27

CN205407714U

**Abstract**

(CN205407714U)

The utility model discloses a solar battery board, including the panel body to and the frame around locating the panel body, panel body from outside to inside toughened glass, EVA upper strata, battery piece, EVA lower floor and backplate has set gradually, the frame both sides be equipped with the track, the frame upside be equipped with the windshield wiper, the windshield wiper both ends be equipped with the pulley, the pulley be connected with drive arrangement, the frame downside be equipped with display device, compare with current technical scheme, the utility model discloses a solar

battery board, install the windshield wiper in the draw -in groove of frame one side, the end -to -end connection of windshield wiper has drive arrangement, be equipped with display device at the frame opposite side, regular time the singlechip give the direct current motor signal, thereby it rotates to make direct current motor drive the pulley, the pulley drives the windshield wiper in the enterprising cleanness of track, the effectual generating efficiency of guaranteeing the panel, on the other hand display device can show the voltage and the electric current of panel in real time, the operating condition of control batteries board effectively of being convenient for.

Inventors

ZHANG JIADIAN

Latest standardized assignees - inventors removed

WUXI CHANGJIANG ELECTRIC APPLIANCE EQUIPMENT

Publication dates

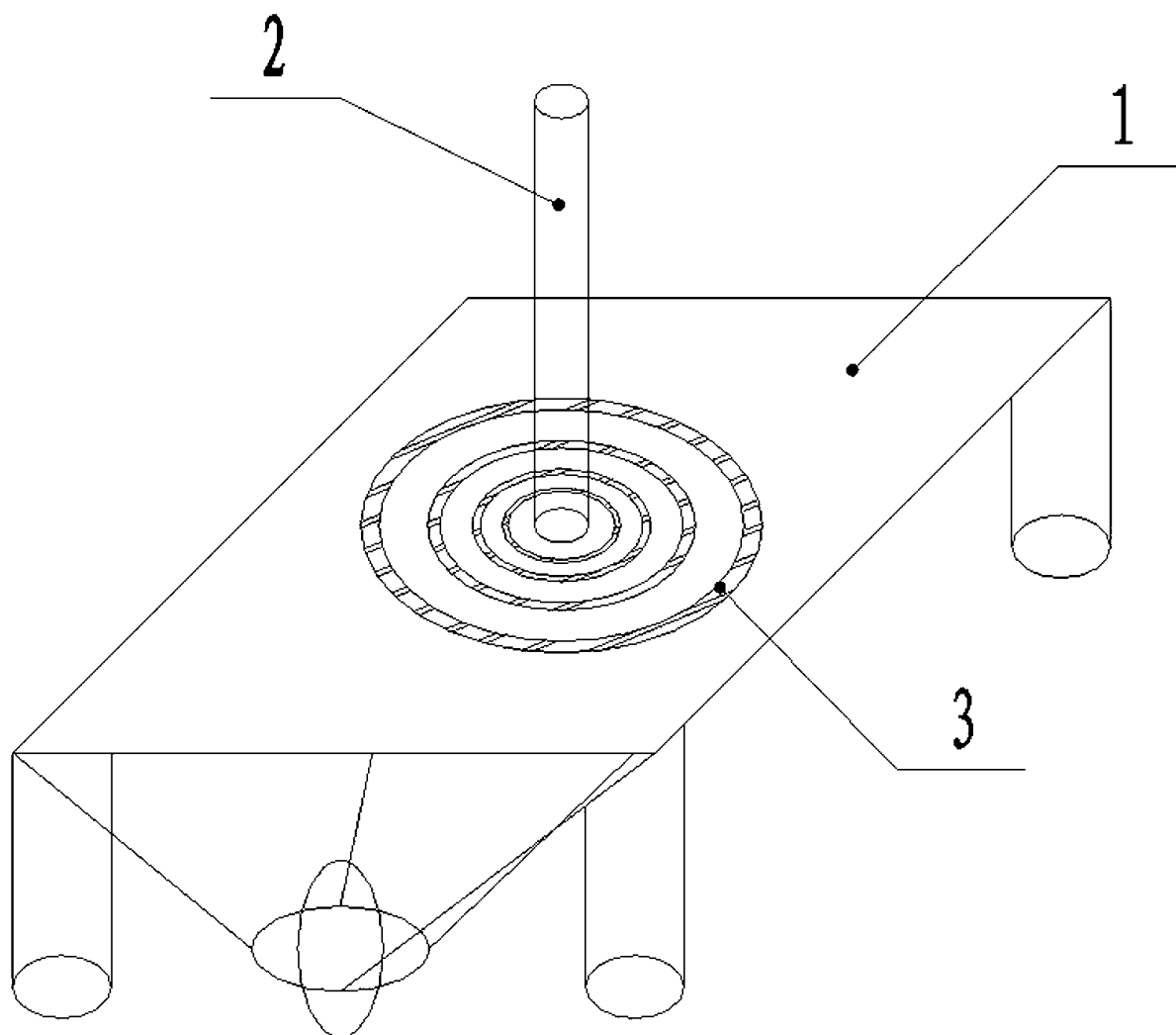
2016-07-27

Family 9/28 - FAMPAT - ©Questel

Title

(CN102347400B)

Automatic tracking and automatic cleaning device for solar cell panel

Images**Publication data including kind & date**

CN102347400	A	2012-02-08	CN102347400
CN102347400	B	2013-04-24	CN102347400B

**Abstract**

(CN102347400B)

The invention relates to a solar cell panel control device, and in particular relates to an automatic tracking and automatic cleaning device for a solar cell panel. The invention solves the problem of currently lacking a device capable of ensuring that sunlight vertically irradiates the surface of a solar cell panel all the time and capable of automatically cleaning the surface of the solar cell panel. The automatic tracking and automatic cleaning device for the solar cell panel comprises a sun positioning and tracking device, a solar cell panel moving device, a solar cell panel surface dust automatic cleaning device and a master controller, wherein the sun positioning and tracking device comprises a bottom plate, a projection pole, a solar cell array circular array and a first hydraulic system; and the solar cell panel moving device comprises a base and a second hydraulic system. The invention effectively solves the problem of currently lacking the device capable of ensuring that sunlight vertically irradiates the surface of the solar cell panel all the time and capable of automatically cleaning the surface of the solar cell panel, and the automatic tracking and automatic cleaning device for the solar cell panel is suitable for a solar power station.

Inventors

WU ZHONGJU

GENG TIANYI

LIU CHUNSHENG

Publication dates

2012-02-08

2013-04-24

Family 10/28 - FAMPAT - ©Questel

Title

(WO201423102)

Method and device for driving fan blades of clean-energy generator

Images

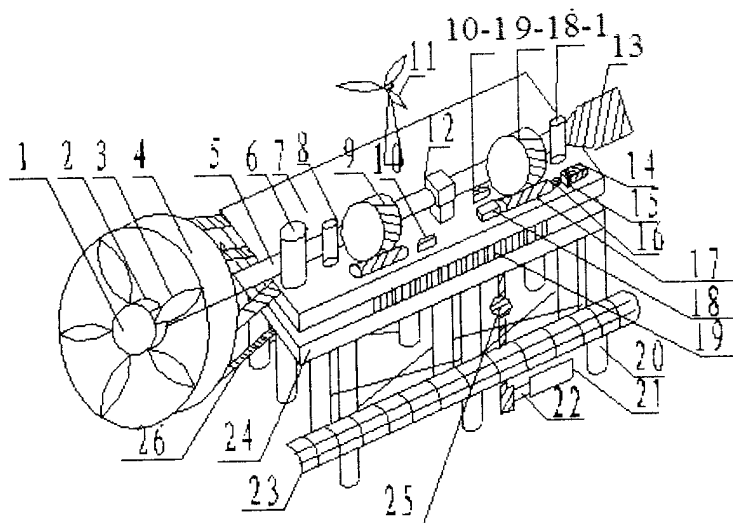


图 1 / Fig. 1

Publication data including kind & date

CN102820737	A	2012-12-12	CN102820737
WO2014023084	A1	2014-02-13	WO201423084
WO2014023102	A1	2014-02-13	WO201423102



Abstract

(WO201423102)

A method for driving fan blades of a clean-energy generator comprises: setting a magnetic suspension rotation device. A hub (1) is arranged in the magnetic suspension rotation device. Multiple fan blades (3) arranged in a radial direction are

embedded on a fender trim (2).Top ends of the fan blades (3) are mounted with bearings, and are embedded on a ring-shaped magnetic suspension running track (4).The hub (1) is provided with a long through rotation axis (5), and is embedded with multiple groups of magnetic suspension devices.Gears (9) having an inertia effect are embedded on the axis to drive a storage generator (10) on a tower platform, so as to charge a storage battery (14) and supply power through a rectification voltage stabilizer to start a motor and a magnetic suspension device.Also disclosed is a device for driving fan blades of a clean-energy generator.The device comprises: a bearing support being fixed on a platform (7), an auxiliary motor (18) being connected with a fan-shaped gear (17) on the platform, a digital controller adjusting and controlling a direction of an auxiliary turn table (19), and a gear box (12) on the platform being extended to the ground through a guiding rod to be connected with a generator (21), or the long through rotation axis (5) being directly connected with the generator (21).Supporting pipes arranged in a matrix form are arranged below the platform, and a non-crystal silicon photovoltaic panel (25) is arranged below the platform, and is connected with the storage battery (14) through a wire, so that the generator operates continuously.

Inventors

YANG QINGSHAN

YANG PENG

YANG JINXIN

TIAN GUODONG

YANG JINTAO

ZHANG TINGTING

YANG YANG

Publication dates

2012-12-12

2014-02-13

2014-02-13

Family 11/28 - FAMPAT - ©Questel

Title

(EP2288857)

Cleaning system and method

Images

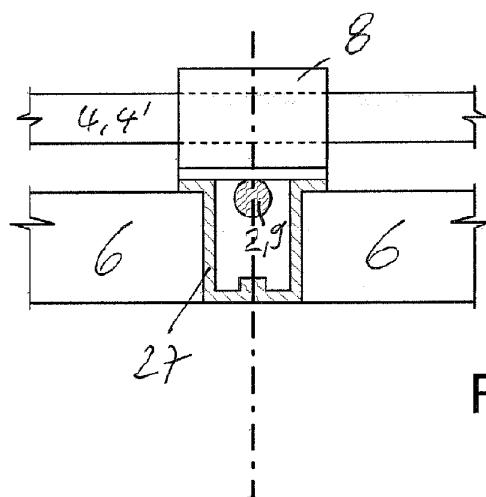
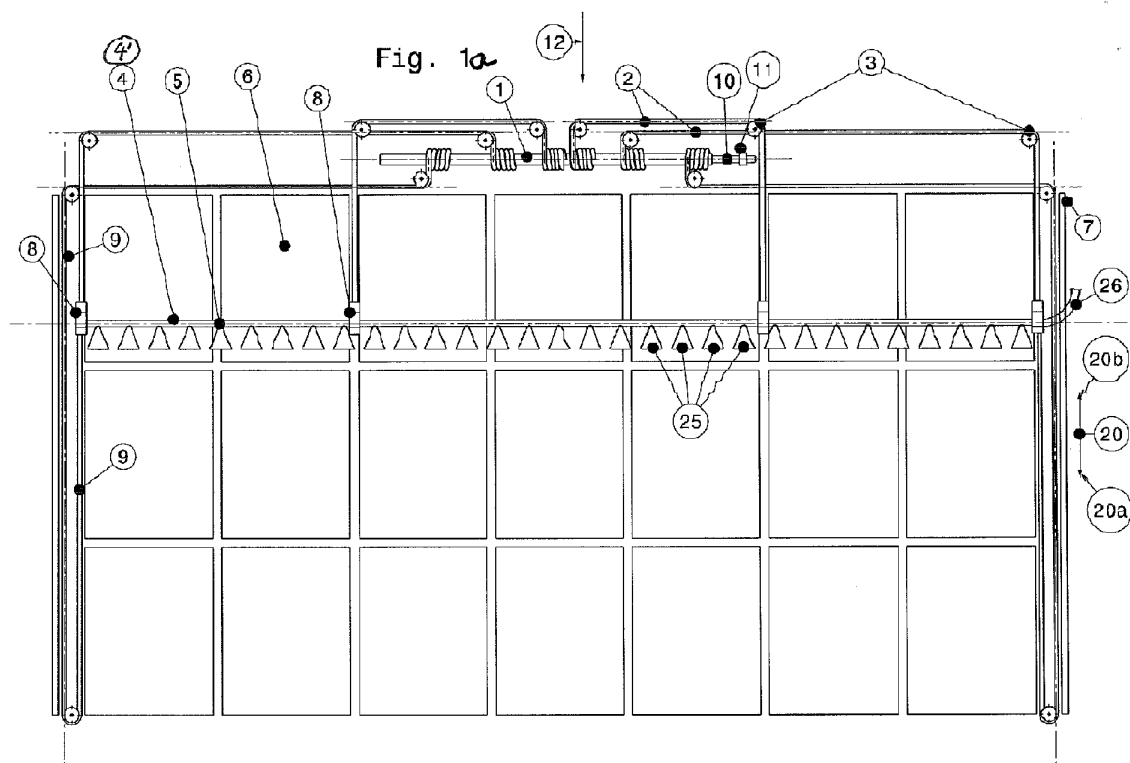


Fig. 1b

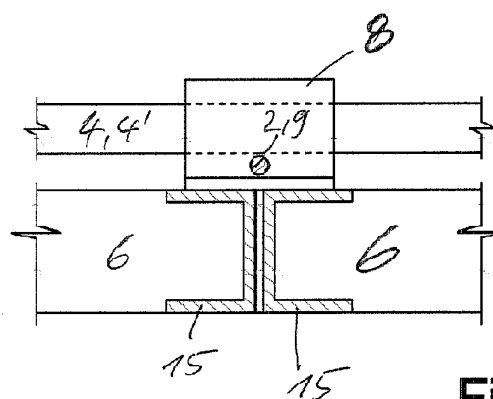


Fig. 1c

Publication data including kind & date

DE202008007802	U1	2008-09-18	DE202008007802
WO2009146753	A1	2009-12-10	WO2009146753
EP2288857	A1	2011-03-02	EP2288857
EP2288857	B1	2013-01-16	EP2288857



Abstract

(EP2288857)

The invention relates to a cleaning system for solar cell surfaces, wherein the working pipe, particularly a spray pipe, is moved by means of an endless cable wound up and present on only one side of the surface that is significantly shorter than the surface to be cleaned.

Inventors

SCHNEEWEIS HERBERT

JAESCHKE STEFAN

Latest standardized assignees - inventors removed

JAESCHKE STEFAN

SCHNEEWEIS HERBERT

Publication dates

2008-09-18

2009-12-10

2011-03-02

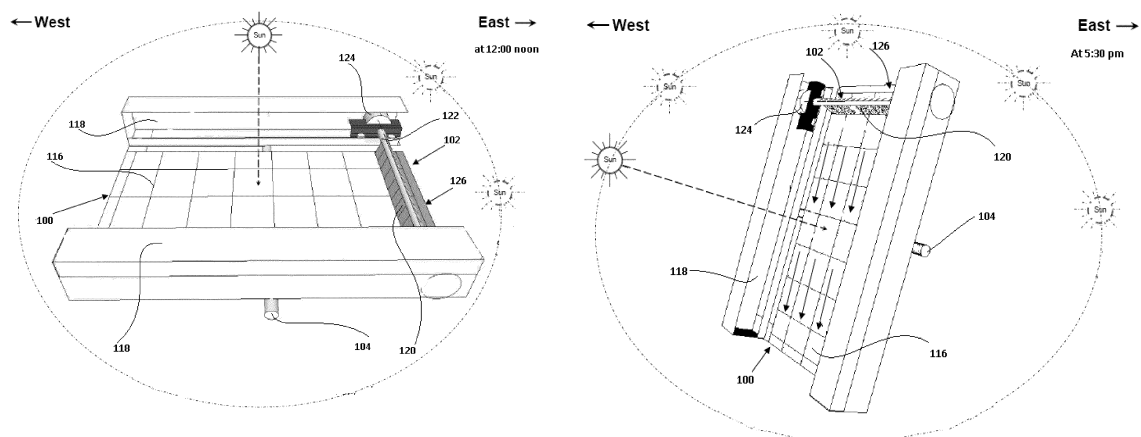
2013-01-16

Family 12/28 - FAMPAT - ©Questel

Title

(WO2011161696)

Sun tracking mechanism with automated cleaning arrangement for solar panel

Images**Publication data including kind & date**

WO2011161696	A2	2011-12-29	WO2011161696
WO2011161696	A3	2012-02-16	WO2011161696
IN1838/MUM/2010	A	2012-07-27	IN2010MU01838
US20130086761	A1	2013-04-11	US20130086761
US8650693	B2	2014-02-18	US8650693

**Abstract**

(WO2011161696)

A solar panel 100 comprising a cleaning assembly 102, the solar panel 100 being mounted for rotation about a horizontal axis along a semi-circular path and the cleaning assembly 102 comprises an oblong brush 120 held across the front face 116 of the solar panel 100 and slidable back and forth along the front face 116 of the solar panel 100 (FIG. 2).

Inventors

SINGH SOLANKI CHETAN

RAVI TEJWANI

Latest standardized assignees - inventors removed

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

Publication dates

2011-12-29

2012-02-16

2012-07-27

2013-04-11

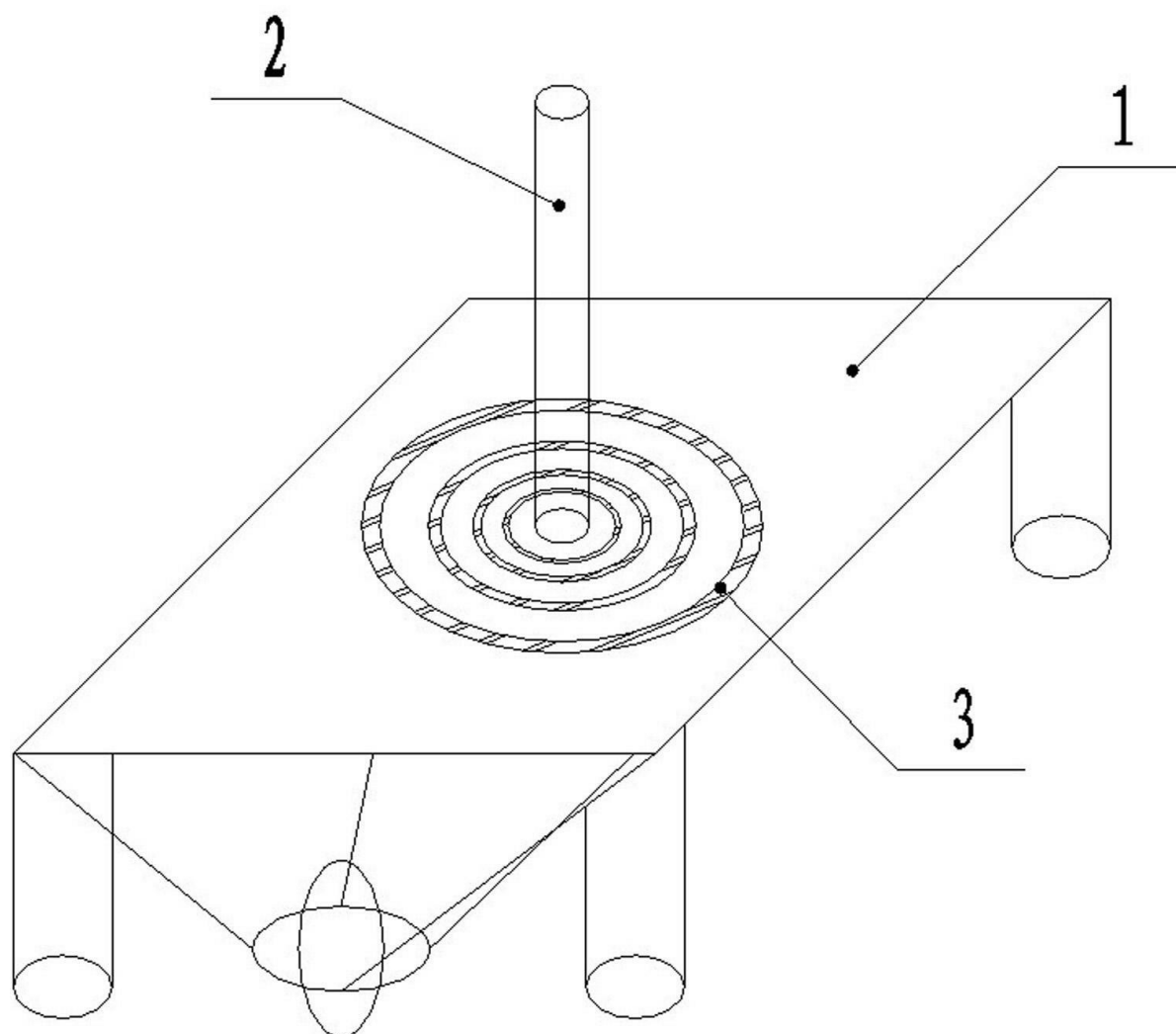
2014-02-18

Family 13/28 - FAMPAT - ©Questel

Title

(CN202142537U)

Device for automatically tracking and cleaning solar cell panel

Images**Publication data including kind & date**[CN202142537](#)

U

2012-02-08

CN202142537U

**Abstract**

(CN202142537U)

The utility model relates to a solar cell panel control device, specifically to a device for automatically tracking and cleaning a solar cell panel, thereby solving the problem that currently there is no such a device that can guarantee surfaces of solar cell panels are always be vertically irradiated by sunlights and is capable of automatically cleaning surfaces of solar cell panels. The device comprises a sun positioning and tracking unit, a solar cell panel actuating unit, an automatic solar cell panel surface dust-cleaning unit and a main controller. The sun positioning and tracking unit comprises a bottom plate, a shadow bar, an annular solar cell pack array and a first hydraulic system, and the solar cell panel actuating unit comprises

a base and a second hydraulic system. The device of the utility model effectively solves the problem that currently there is no such a device that can guarantee surfaces of solar cell panels are always be vertically irradiated by sunlights and is capable of automatically cleaning surfaces of solar cell panels, and is suitable for solar power stations.

Inventors

ZHONGJU WU

TIANYI GENG

CHUNSHENG LIU

Publication dates

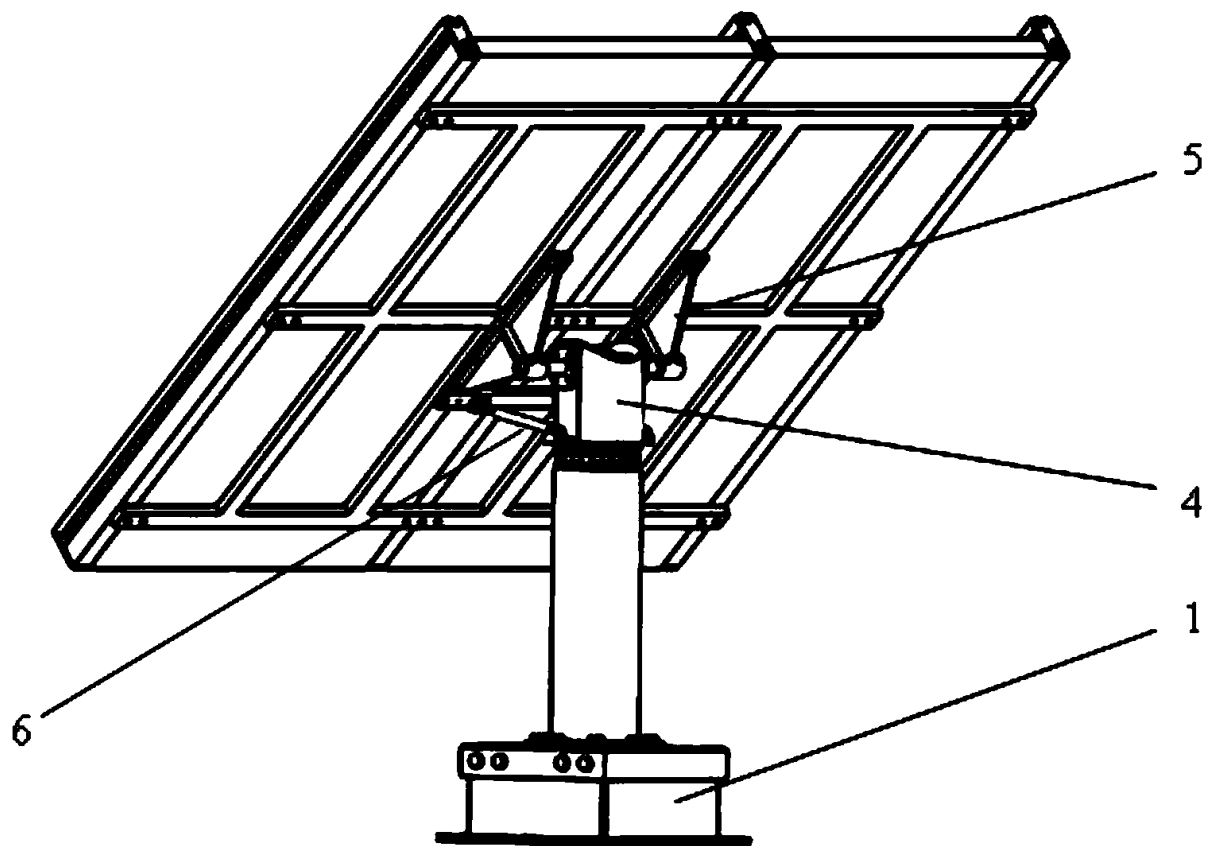
2012-02-08

Family 14/28 - FAMPAT - ©Questel

Title

(CN205049976U)

Solar cell panel sunshine automatic tracking system

Images**Publication data including kind & date**[CN205049976](#)

U

2016-02-24

CN205049976U

**Abstract**

(CN205049976U)

The utility model relates to a solar cell panel sunshine automatic tracking system, its central treater connect clock module, the procedure of with good grounds current time and the geographical direction control solar cell panel gesture of this system, and its output signal inserts elevating angle and bearing tracking driving motor. Drive elevating angle rotation axis and azimuth rotation axle are connected through upper and lower step down gear mechanism respectively to two motors. The elevating angle rotation axis is installed in the azimuth rotation epaxially, and the solar cell panel support frame is fixed in the elevating angle rotation axis. Support frame bottom surface installation air spring is with the outrigger anti - wind. Drive mechanism's upper and lower worm axle is the irreversible worm. Solar cell panel has a dust collector including the cleaning roller, and gravity makes the cleaning roller dust removal of rolling on the panel. This system still is furnished with lightning protection device. Each part has the anticorrosive treatment layer. The utility model discloses need not the

sensor, making the panel all the time just to the sunshine incident direction according to sun position, improve the generating efficiency, tracking accuracy is high, and simple structure and cost are low.

Inventors

LI XUEMEI

LIAO XINLONG

ZHONG YUANXIN

CHEN GUANMING

WU LINLI

Latest standardized assignees - inventors removed

GUILIN UNIVERSITY OF ELECTRONIC TECHNOLOGY

Publication dates

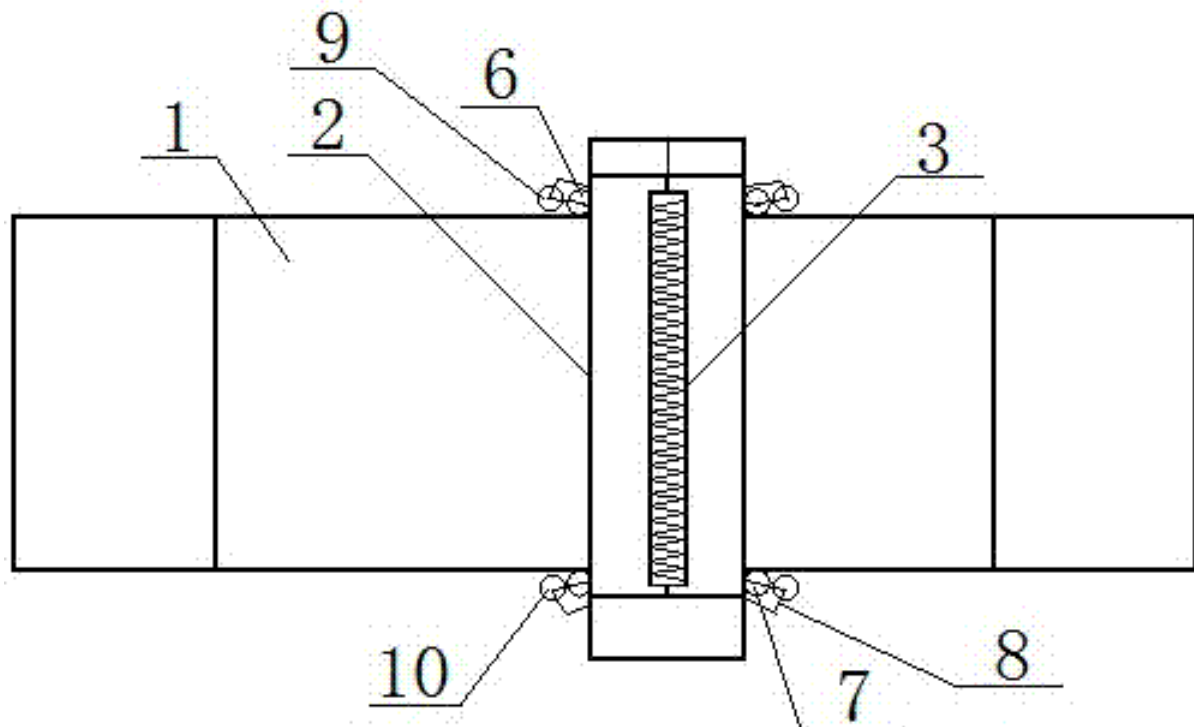
2016-02-24

Family 15/28 - FAMPAT - ©Questel

Title

(CN105680789)

Automatic cleaning system for solar cell panel

Images**Publication data including kind & date**

CN105680789	A	2016-06-15	CN105680789
CN105680789	B	2017-08-01	CN105680789B

**Abstract**

(CN105680789B)

The invention relates to an automatic cleaning system for a solar cell panel. The automatic cleaning system comprises the solar cell panel, wherein a cleaning car is arranged on the solar cell panel, and is provided with a cleaning hairbrush; the cleaning hairbrush is integrally manufactured; road wheel groups are arranged at the bottom part of the cleaning car; a power transmission case is arranged at the upper part of the bottom part of the cleaning car; driving wheel groups are arranged at the bottom part of the power transmission case; driven wheel groups are arranged at the lower part of the bottom part of the cleaning car; and caterpillar tracks are arranged outside the driving wheel groups, the driven wheel groups and the load wheel groups respectively. The automatic cleaning system for the solar cell panel has the beneficial effects that the integral hairbrush is relatively clean to clean, and can also effectively clean when a relatively large gap or

height difference is formed between the solar cell panels or the relatively large gap and height difference are formed between the solar cell panels; background display and central control room control can also be achieved; and the functions of position display fault alarm, remote startup, remote parking, alarm and the like of the cleaning car of the solar cell panel are achieved.

Inventors

CUI XINYUAN

XUE KE

ZHANG MENG

Latest standardized assignees - inventors removed

SHANDONG HAOWO ELECTRIC

Publication dates

2016-06-15

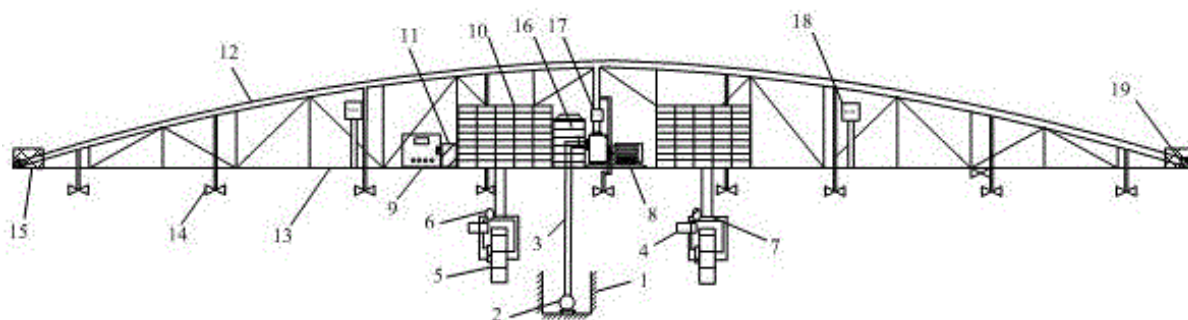
2017-08-01

Family 16/28 - FAMPAT - ©Questel

Title

(CN104521698)

Light-small automatic walk canal feeding type irrigator

Images**Publication data including kind & date**

CN104521698	A	2015-04-22	CN104521698
CN104521698	B	2017-01-25	CN104521698B

**Abstract**

(CN104521698B)

The invention discloses a light-small automatic walk canal feeding type irrigator, including a water sucking hose, a first reduction driving motor, a driving wheel, a steering device, a main beam, a self sucking pump, a main water supply line, a truss, a low-pressure spray head, a foam baffle, a bottom drain valve, a water intaking filtering device, a controller, a solar photovoltaic power generation system, a storage battery, a fertilizer apparatus, an infrared correction navigation system. The irrigator integrates the opto-mechatronics and the efficient solar utilization technology, is powered by the clean solar energy, utilizes infrared correction to adjust the walk errors during the walking process of the irrigator, and thereby achieves the navigation straight walking of the unit. Meanwhile, the maximum power point tracing control technology based on solar mechanical tracing and the maximum power point tracing control technology based on fixation and installation of photovoltaic cell panels are adopted. In a word, the irrigator has the advantages of being convenient to move, saving in labor and time, high in irrigation accuracy, good in water saving effect and strong in adaptability.

Inventors

ZHU DELAN

WANG CHANGWEI

WU PUTE

ZHANG LIN

ZHU JINFU

WANG BIN

Latest standardized assignees - inventors removed

NORTH WEST AGRICULTURE & FORESTRY UNIVERSITY

Publication dates

2015-04-22

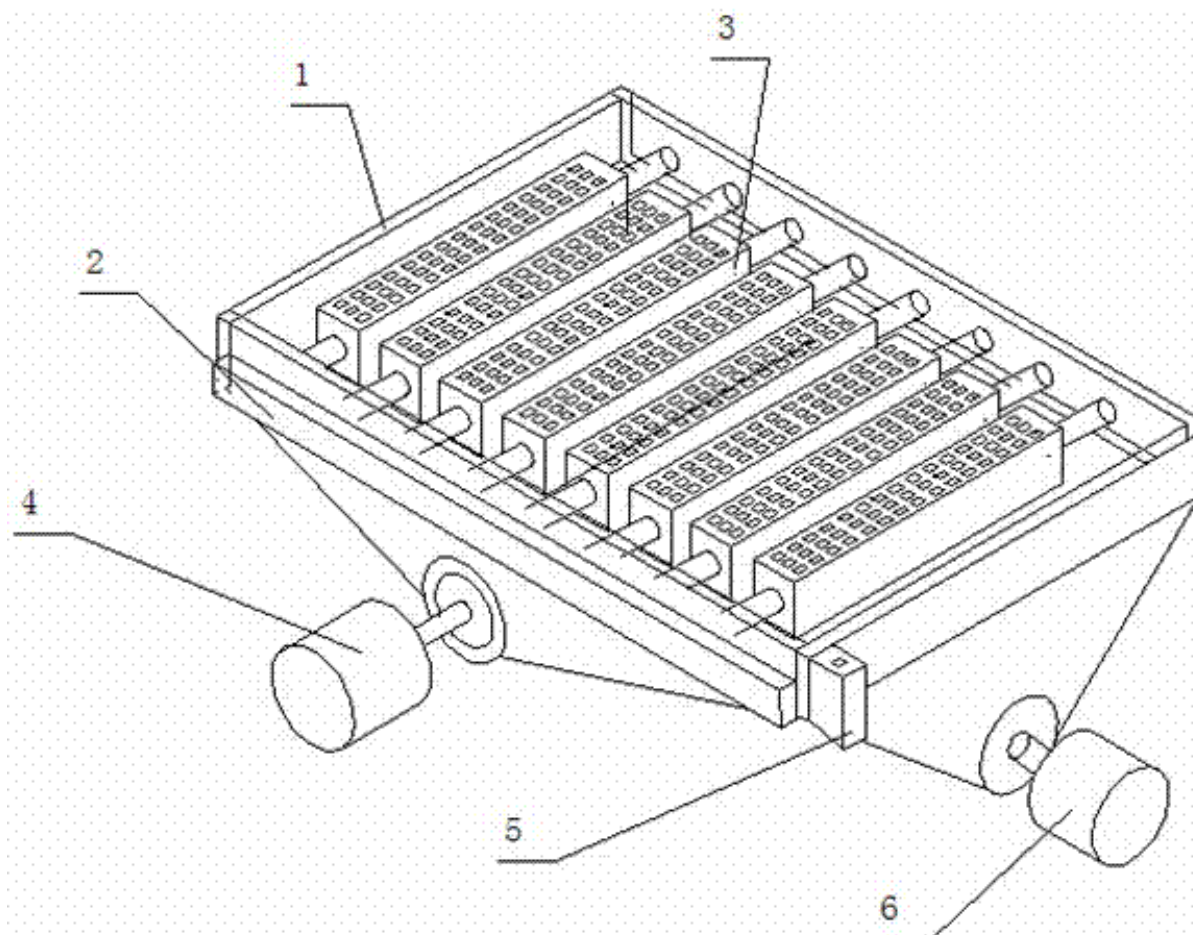
2017-01-25

Family 17/28 - FAMPAT - ©Questel

Title

(CN105322874)

Tracking solar panel

Images**Publication data including kind & date**

CN105322874	A	2016-02-10	CN105322874
CN105322874	B	2018-02-06	CN105322874B
CN107733345	A	2018-02-23	CN107733345

**Abstract**

(CN105322874B)

The invention relates to a tracking solar panel, which comprises a fixed frame, a photovoltaic module, an incident light detector, a rotating mechanism, a controller and a cleaning device, wherein the angle of receiving solar energy by the solar panel can be adjusted by rotating the fixed frame, so that the solar panel can relatively effectively receive the solar energy and efficient utilization of the solar energy is achieved. In addition, effective utilization of the solar energy with different illumination intensities is also achieved through different effects of a plurality of different solar cells, so that the utilization rate and the conversion rate of the solar energy are improved; convenience is brought for life; and the service lifetime of solar wafers is prolonged. A transverse rotating motor and a longitudinal rotating motor are separately adjusted and are adjusted by stages to reduce a misoperation, so that the control pressure of a PLC is relieved; accurate control can be achieved; automatic adjustment can be achieved through rotation of the sunlight; the accurate control is achieved; and the

stability of the solar panel is improved.

Inventors

XIAO YONG

Latest standardized assignees - inventors removed

CHENGDU 90 DEGREES INDUSTRY PRODUCT DESIGN

Publication dates

2016-02-10

2018-02-06

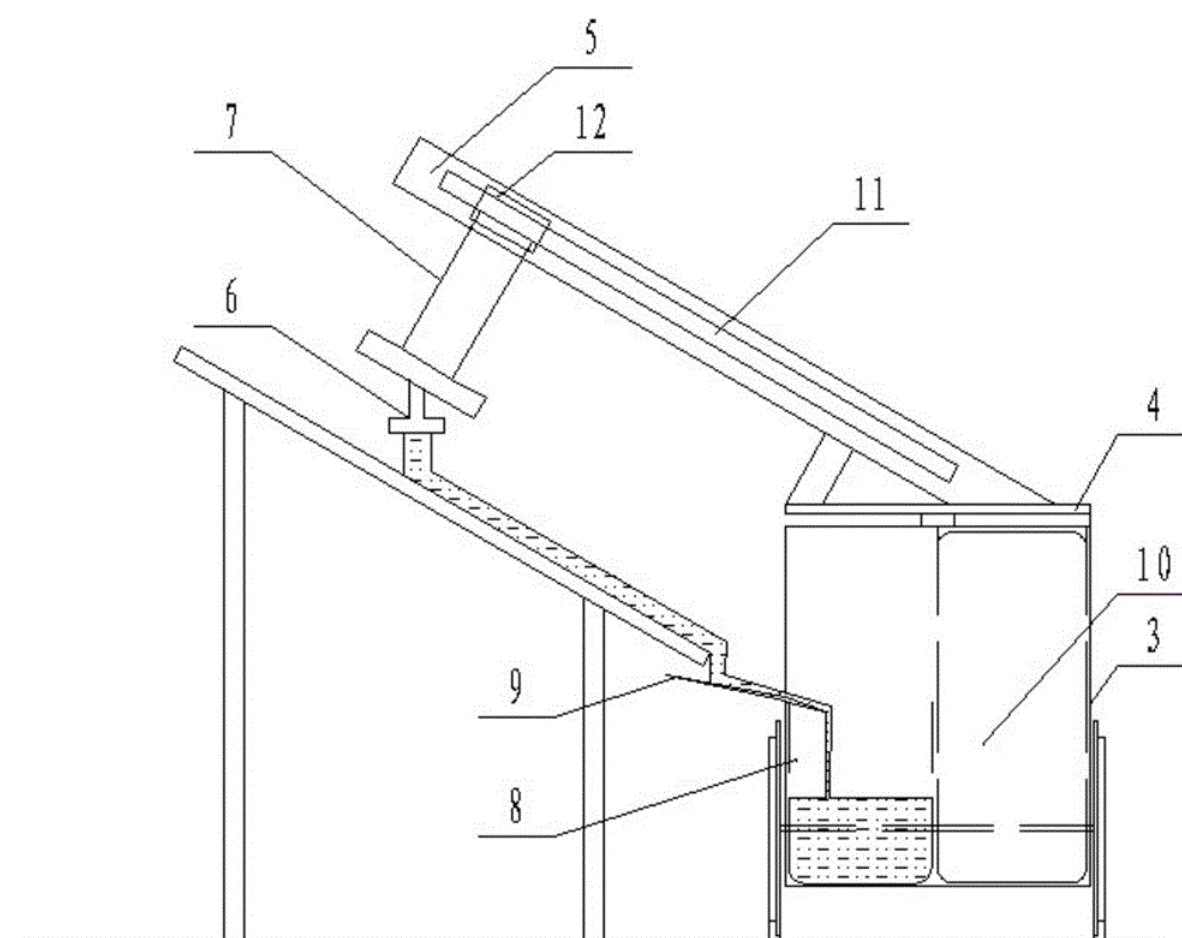
2018-02-23

Family 18/28 - FAMPAT - ©Questel

Title

(CN104320065)

Solar panel cleaning vehicle with waste water recycling device

Images**Publication data including kind & date**

CN104320065	A	2015-01-28	CN104320065
CN104320065	B	2017-01-18	CN104320065B

**Abstract**

(CN104320065B)

The invention relates to the field of energy, and specifically relates to a solar panel cleaning vehicle with a waste water recycling device, comprising a track pre-laid beside solar panels, a tracked cleaning vehicle, and a flushing unit. The flushing unit is mounted on the tracked cleaning vehicle. The tracked cleaning vehicle is self-driven and runs along the track. The tracked cleaning vehicle is provided with the flushing unit including a camera shooting station, a foam spraying station, a water spraying station, a wiping station and a blowing station. Flushing is monitored in real time by a camera, and a region which is not well flushed can be flushed repeatedly until the region is qualified. Solar panels are flushed by the pre-

laid track and the tracked cleaning vehicle, the whole process is automated without the need for any manual operation, and the wage expenditure of workers is saved. After flushing, waste water flows to a waste water tank through a waste water guide slot, and waste water in the waste water tank flows back to a clean water tank after passing through a filtering plate, so that waste water recycle and reuse is realized, and resources are saved.

Inventors

JIANG JIANDONG

ZHAO YINGDI

Latest standardized assignees - inventors removed

ZHEJIANG UNIVERSITY OF TECHNOLOGY

Publication dates

2015-01-28

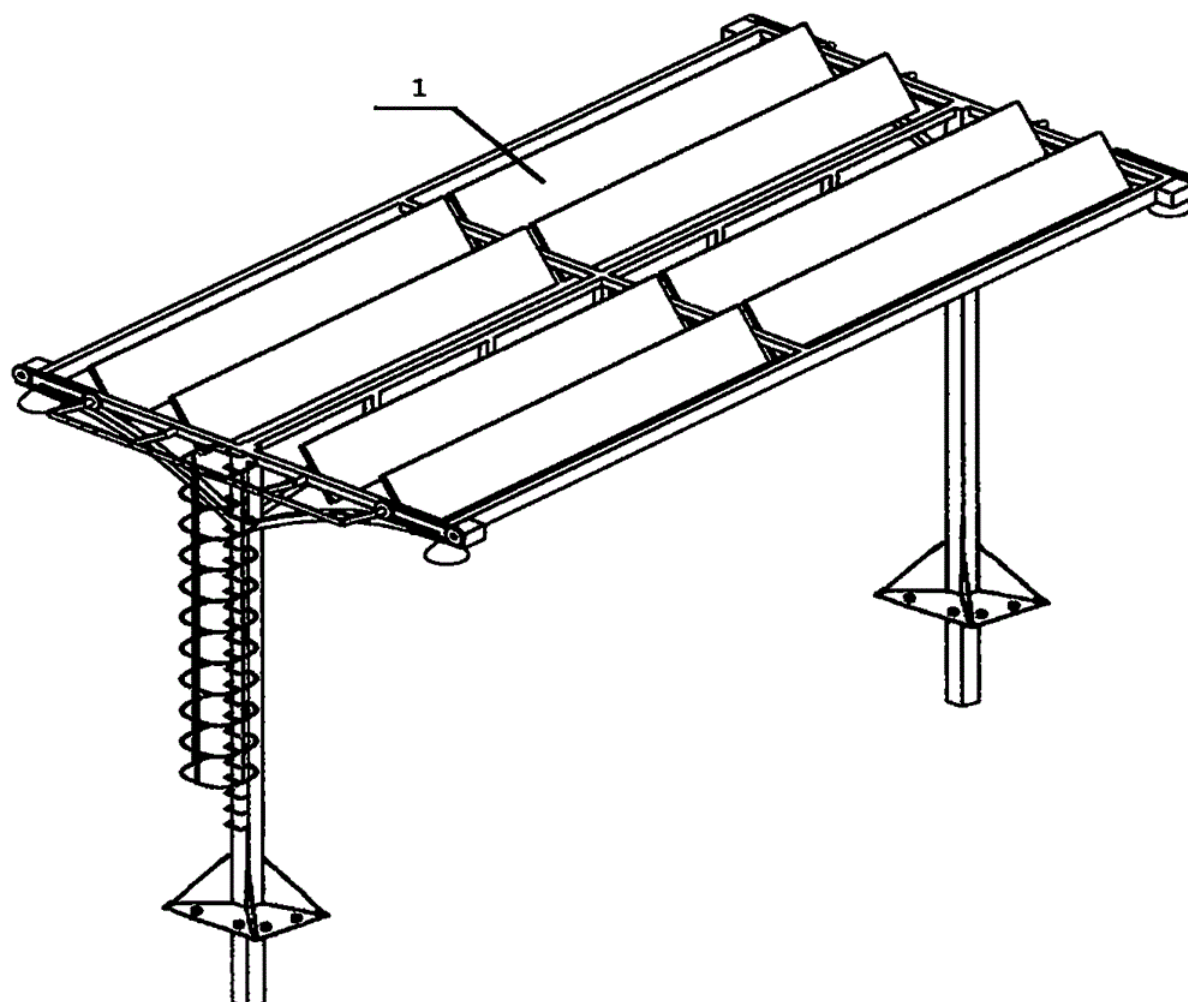
2017-01-18

Family 19/28 - FAMPAT - ©Questel

Title

(CN205690259U)

Single -axis tracking solar street lamp

Images**Publication data including kind & date**[CN205690259](#)

U

2016-11-16

CN205690259U

**Abstract**

(CN205690259U)

The utility model discloses a single -axis tracking solar street lamp falls " people " style of calligraphy by two and put up " T " type roof beam and connect, constitutes the lighting fixture main part, a large amount of solar cell panel are installed to rethread solar cell panel support frame, through " check " type carriage installation multiunit solar cell panel support frame,

through drive motor drive gear chain and transfer line, position tracking control when realizing the multicomponent batteries board can improve generated energy about 30%, improves the utilization ratio of panel, through falling the side -mounting of " people " style of calligraphy frame ladder of ascending a height, and there is the security fence protection, the clean maintenance of being convenient for, be equipped with embedding slot in the ground, imbed the below ground with the street lamp for the street lamp installation is more firm, other ordinary street lamps, sun -tracking ware and connected to the grid can be supplied with to the electric energy that sends.

Inventors

CHEN YONG

YANG CHENGLI

ZHAO MING

Latest standardized assignees - inventors removed

TIANJIN JIENENG HENGTONG TECHNOLOGY

Publication dates

2016-11-16

Family 20/28 - FAMPAT - ©Questel

Title

(CN105675829)

Solar energy wind energy online multi-parameter water quality monitor

Publication data including kind & date[CN105675829](#)

A

2016-06-15

CN105675829

**Abstract**

(CN105675829)

The present invention discloses a solar energy wind energy online multi-parameter water quality monitor characterized by comprising three parts of a top cover, a middle-section floating body and a connecting sleeve pipe, the top cover includes a solar photovoltaic panel, a wind power generation windmill, a data processing control system and a GPRS data transmission antenna; a cavity of the middle-section floating body is internally fixedly provided with a main machine control box, a storage battery and a water taking room, the solar photovoltaic panel and the wind power generation windmill are in parallel connection on the storage battery, the water taking room comprises a detecting box and a multi-water-level automatic sampling pump, the detecting box is internally provided with a water quality testing head, and the water quality testing head is connected with the data transmission antenna; the bottom of the middle-section floating body is in communication connection with the connecting sleeve pipe, and a cleaning brush is attached to the upper end of the outer end of the connecting sleeve pipe. The beneficial effects are as follows: wind power generation is added on the basis of prior art, two power generation systems coexist to provide power guarantee for on-line monitoring, buoy service life is increased, the cleaning brush is additionally arranged outside a telescoping tube, the water quality monitor can be cleaned regularly, and the accuracy of sampling results can be ensured.

Inventors

WANG ZUGANG

Latest standardized assignees - inventors removed

QINGDAO QINGQUAN BIOTECHNOLOGY

Publication dates

2016-06-15

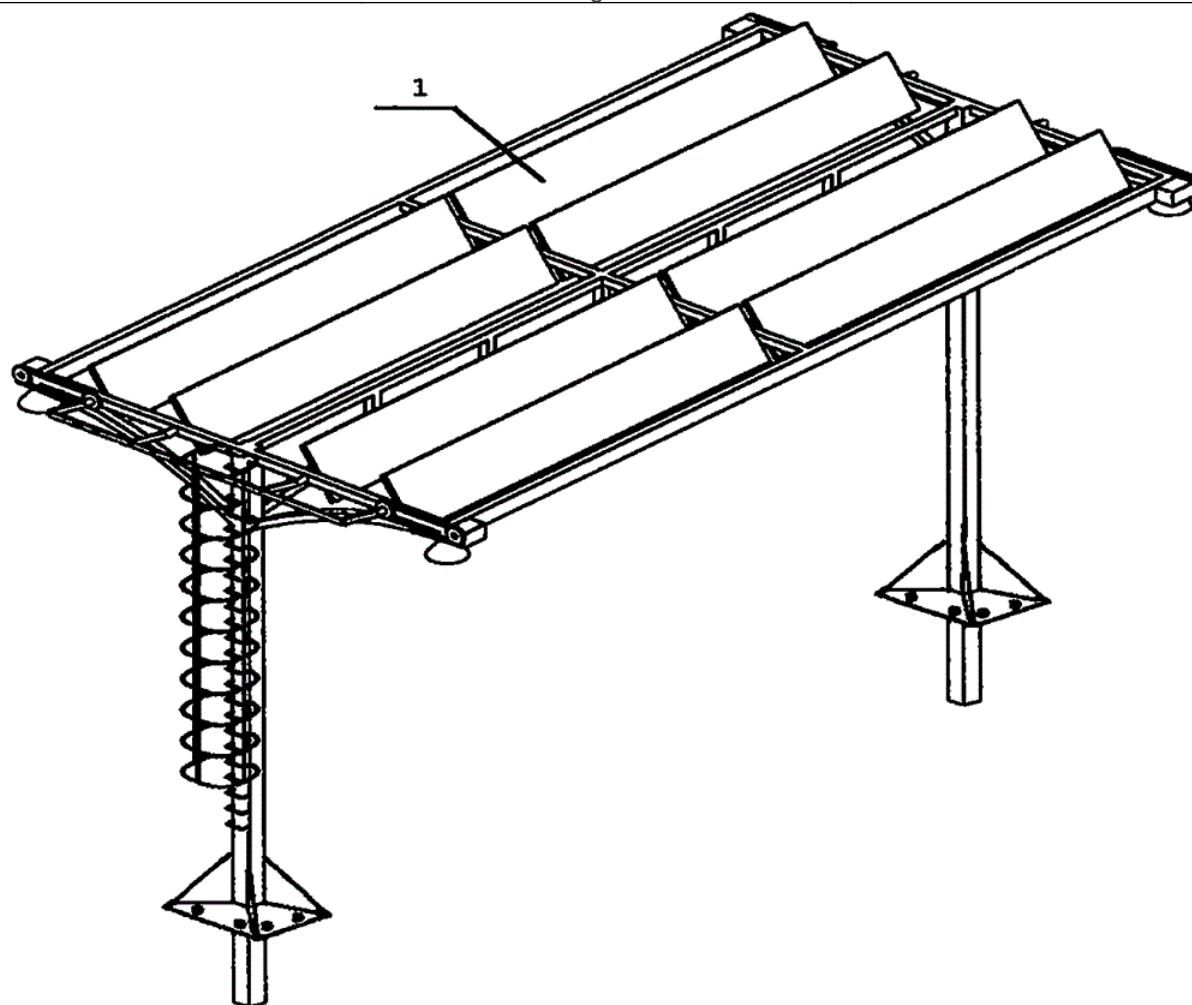
Family 21/28 - FAMPAT - ©Questel

Title

(CN105889866)

Uniaxial tracking solar road lamp

Images

**Publication data including kind & date**[CN105889866](#)

A

2016-08-24

CN105889866

**Abstract**

(CN105889866)

The invention discloses a uniaxial tracking solar road lamp. Two inverted herringbone frames are connected through a T beam so that a lamp bracket body is formed; a plurality of solar cell panels are mounted through a solar cell panel support frame; a plurality of groups of solar cell panel support frames are mounted through a lattice type supportive framework; driving motors are used for driving a gear chain and a transmission rod, so that simultaneous azimuth tracking control on the plurality of groups of the cell panels is realized, generating capacity can be increased by 30%, and the utilization rate of the cell panel is increased; a climbing ladder is mounted on the side surfaces of the inverted herringbone frames, and safe barriers are arranged for protection; the uniaxial tracking solar road lamp is convenient to clean and maintain; pre-embedded grooves are formed in a foundation, and road lamps are embedded under the ground, so that the road lamps are firmly mounted; emitted electric energy can be supplied to other general road lamps, and solar trackers and can be merged into electrical power grids.

Inventors

CHEN YONG

YANG CHENGLI

ZHAO MING

Latest standardized assignees - inventors removed

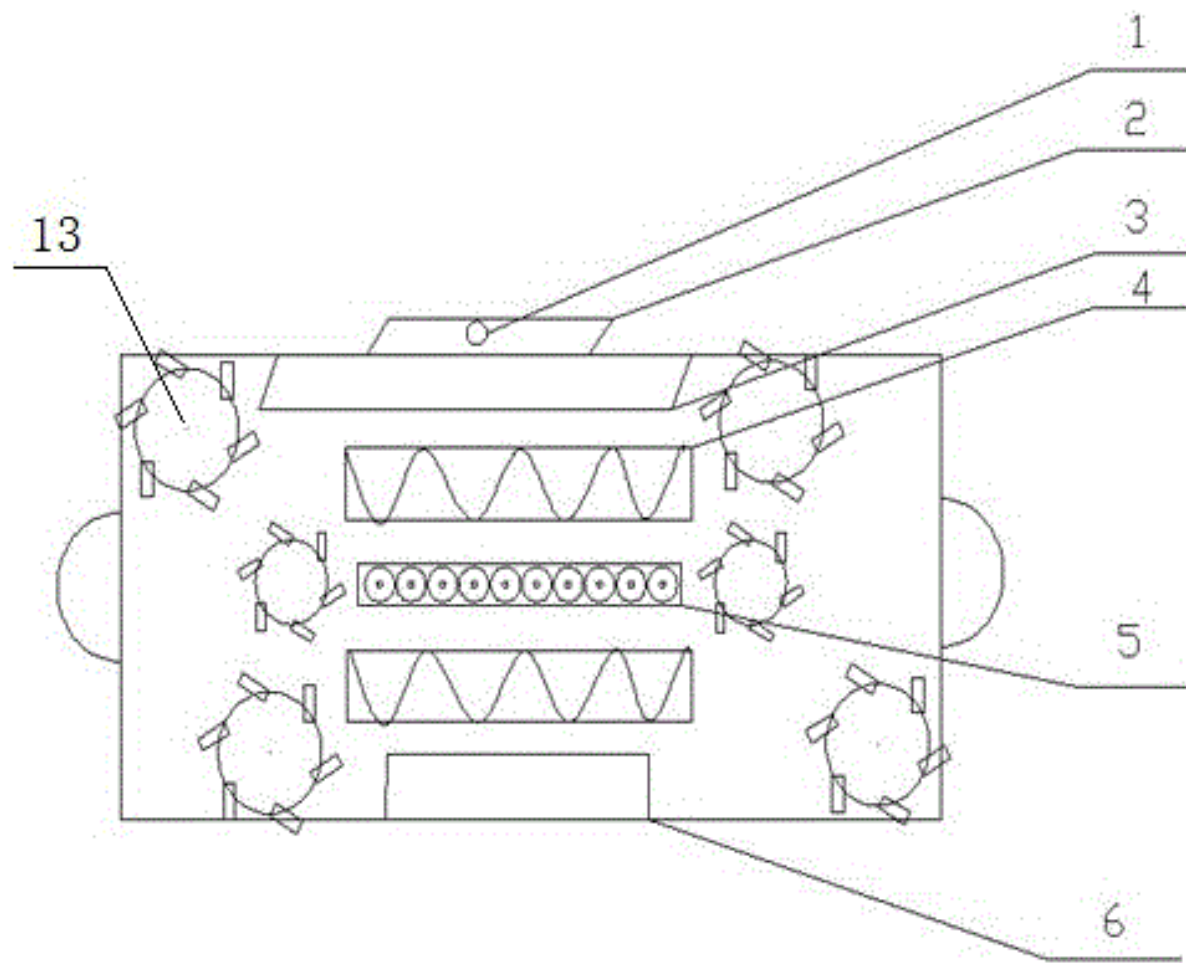
TIANJIN JIENENG HENG TONG TECHNOLOGY

Publication dates

2016-08-24

(CN104550160)

Efficient and intelligent solar cell panel cleaning device

Images**Publication data including kind & date**[CN104550160](#)

A

2015-04-29

CN104550160

[CN104550160](#)

B

2017-05-31

CN104550160B

**Abstract**

(CN104550160B)

The invention relates to cleaning devices, particularly to an efficient and intelligent solar cell panel cleaning device. The efficient and intelligent solar cell panel cleaning device is characterized by comprising a device body; in the moving direction of the device body, the left end and the right end of the lower surface of the device body are provided with three six-stage hairbrush devices respectively which are distributed in an S shape; meanwhile, the middle of the lower surface of the device body is provided with an efficient atomizing spray device, and the upper side and the lower side of the efficient atomizing spray device are provided with roller type hairbrushes; the rear end of the lower surface of the device body is provided with an absorbing port, and correspondingly, the front end of the lower surface of the device body is provided with a traction plate; the front surface of the device body is fixedly provided with a glass sheet; the glass sheet is provided with a rain sensor; the upper surface of the device body is fixedly provided with a water pipe, one end of the water pipe is connected with a water tank device fixed onto one side surface of the device body, and the other end of the water pipe is connected with the efficient atomizing spray device. The efficient and intelligent solar cell panel cleaning device can clean solar cell panels scientifically and efficiently.

Inventors

SHI AIPING

XU GUANJIE

YE LIHUA

PANG YIXIANG

WU LICHENG
ZHENG QINGMING
LI CHENG
SHEN CHENGBIN

Latest standardized assignees - inventors removed

JIANGSU UNIVERSITY

Publication dates

2015-04-29

2017-05-31

Family 23/28 - FAMPAT - ©Questel

Title

(CN204965244U)

Photovoltaic power generation power supply system based on singlechip

Publication data including kind & date

[CN204965244](#)

U

2016-01-13

CN204965244U

**Abstract**

(CN204965244U)

Solar energy is that current society has the pollution -free of development prospect can palingenetic green clean energy most, utilizes clear solar energy power generation, is one of effective means of solving current energy shortage, the utility model discloses a photovoltaic power generation power supply system based on singlechip including solar PV cells tracking and the combination of MPPT controller and load two parts, has realized the maximum power point tracking in the system, has solved the not enough shortcoming of ordinary measurement formula control photovoltaic cell angle precision, makes angel position control more accurate, has improved the light energy utilization efficiency, carries out furthest's absorption utilization to solar energy.

Inventors

LUO QIAN
LIU JUN
PENG JIECAI
YANG JIE
JIN PEIFENG
LIU DONG

Latest standardized assignees - inventors removed

UNIVERSITY ANHUI SCIENCE & TECHNOLOGY

Publication dates

2016-01-13

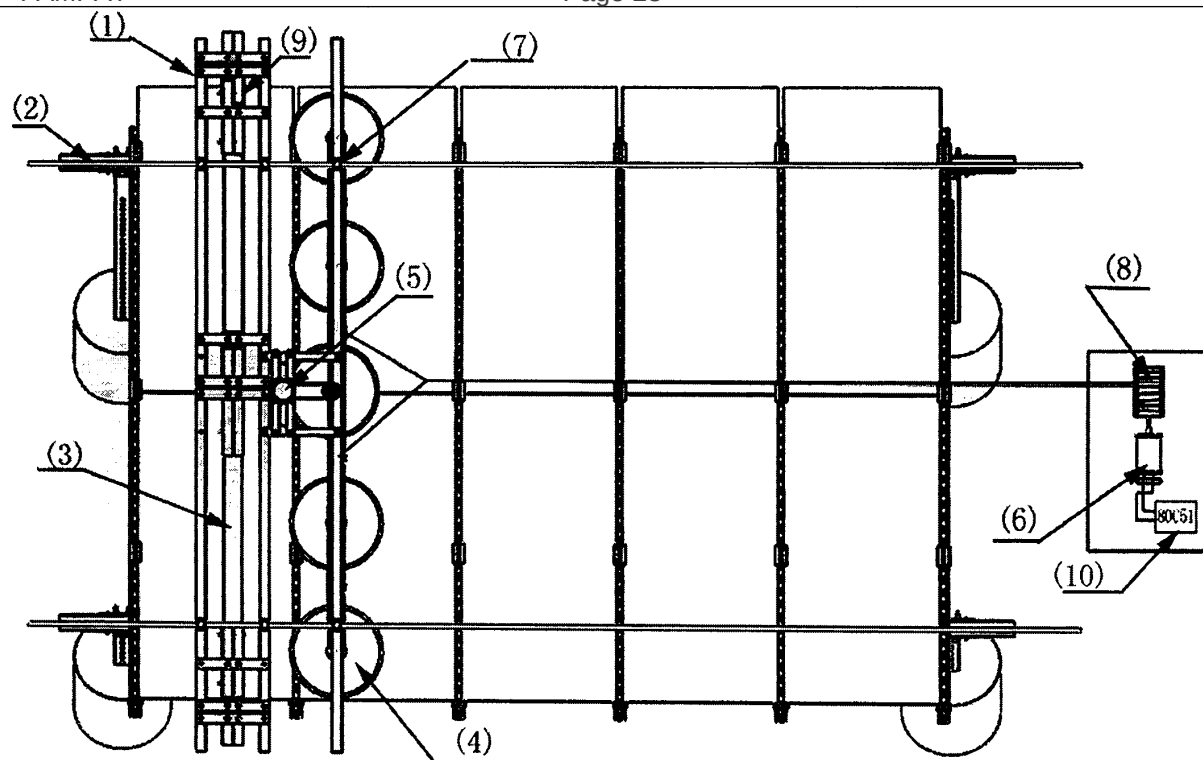
Family 24/28 - FAMPAT - ©Questel

Title

(CN204517742U)

The regular dust collector of guide tracked solar cell panel array

Images

**Publication data including kind & date**

CN204517742

U 2015-07-29 CN204517742U

**Abstract**

(CN204517742U)

The utility model discloses a guide tracked solar cell panel array is dust collector regularly: including frame, slider, guide rail, compound bar brush, pressure sensor, disc brush, disc brush driving motor, traction motor, and the drum. When the dust accumulates the certain degree on the panel, by the singlechip to traction motor signals, traction motor drive drum rotates, steel cord on the drum links to each other with dust removal mechanism. Under the drive of steel cord, whole device passes through guide rail along traction force direction motion, and rotary motion is to disc drive motor drive disc brush simultaneously, destroys the microstructure structure of the superficial dust of solar cell panel to compound bar brush more thoroughly's dust removal. The utility model discloses can be according to the surrounding enviroment at solar cell panel deposition degree and photovoltaic power generation station, flexible change timing parameter. Regularly the time no. 1 arrive, the device is automatic to the panel surface cleaning. This device energy consumption is relatively low, can replace the manual work to accomplish large-scale photovoltaic array's dust removal work, its simple structure, and low cost, the dough stability is strong, is particularly suitable for being used for the large-scale photovoltaic power plant's that the water resource is poor, the labour is in short supply dust removal work.

Inventors

WANG SHAN

GAO DEDONG

MENG GUANGSHUANG

XIN YUANQING

Latest standardized assignees - inventors removed

QIINGHUA UNIVERSITY

Publication dates

2015-07-29

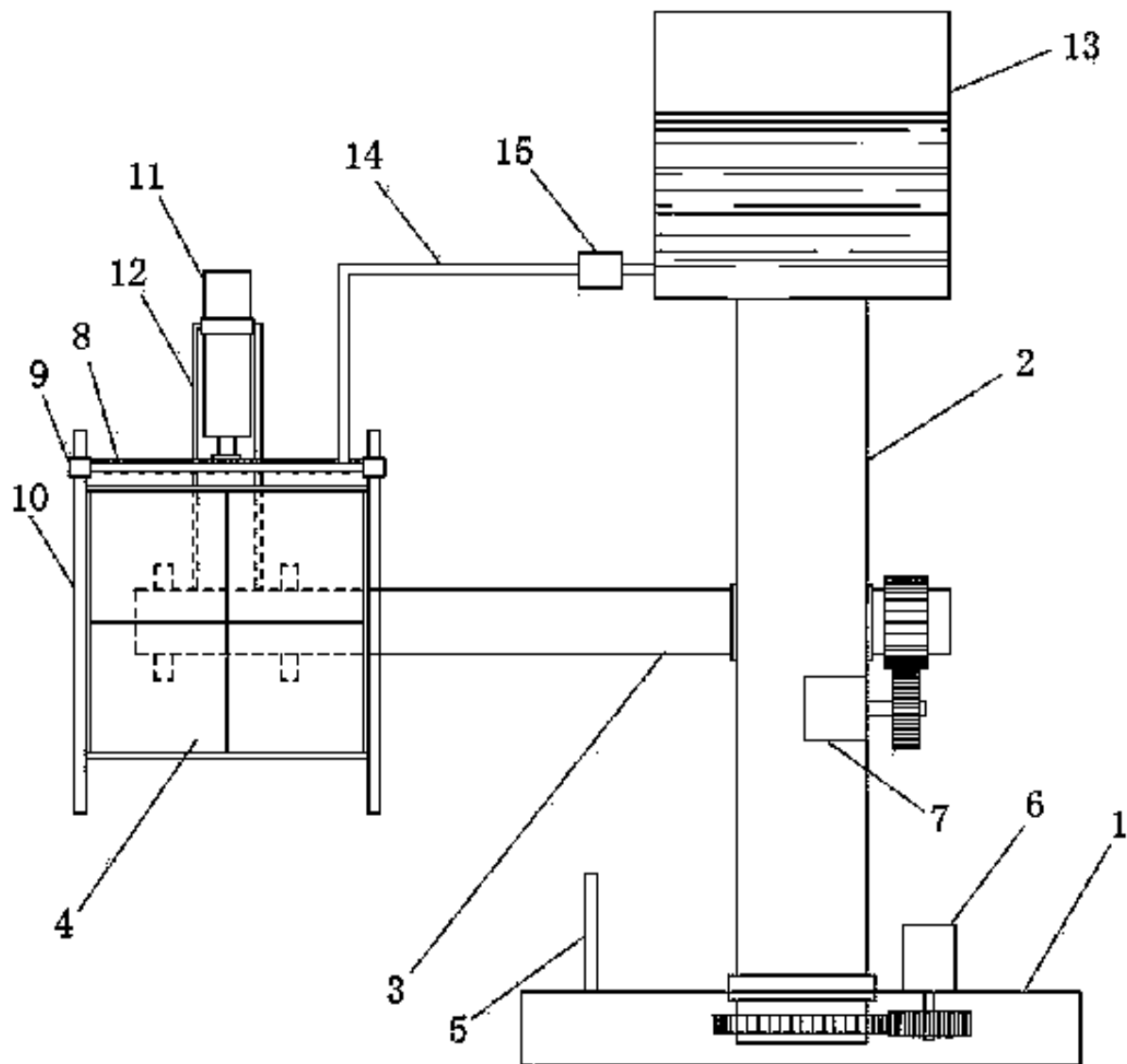
Family 25/28 - FAMPAT - ©Questel

Title

(CN203522623U)

Automatic tracking and dust removing photovoltaic power generation device

Images

**Publication data including kind & date**

CN203522623

U

2014-04-02

CN203522623U

**Abstract**

(CN203522623U)

The utility model discloses an automatic tracking and dust removing photovoltaic power generation device which comprises a base and a vertical rotating shaft which is rotatably connected to the base. The vertical rotating shaft is rotatably connected with a horizontal rotating shaft. A solar panel is fixed on the horizontal rotating shaft. The vertical rotating shaft and the horizontal rotating shaft are in transmission with a motor A and a motor B. The device also comprises a controller, a sun azimuth photoelectric detector and a cleaning device. The controller controls the motor A and the motor B according to the detection signal of the sun azimuth photoelectric detector such that the normal line of the solar panel points to the sun. The controller starts the cleaning device regularly to clean the solar panel. The device has the functions of automatic tracking and cleaning at the same time, the maximization of the solar cell conversion efficiency is maintained, the generation capacity is raised, the electric energy manufacture cost is reduced, and the economic benefits are raised. The automatic control is achieved, the equipment maintenance difficulty and investment are reduced, and the operational cost of a photovoltaic power generation device is reduced.

Inventors

SUN YUNLONG

CHEN LIANG

MU YAN

Latest standardized assignees - inventors removed

HUAIAN COLLEGE INF TECHNOLOGY

Publication dates

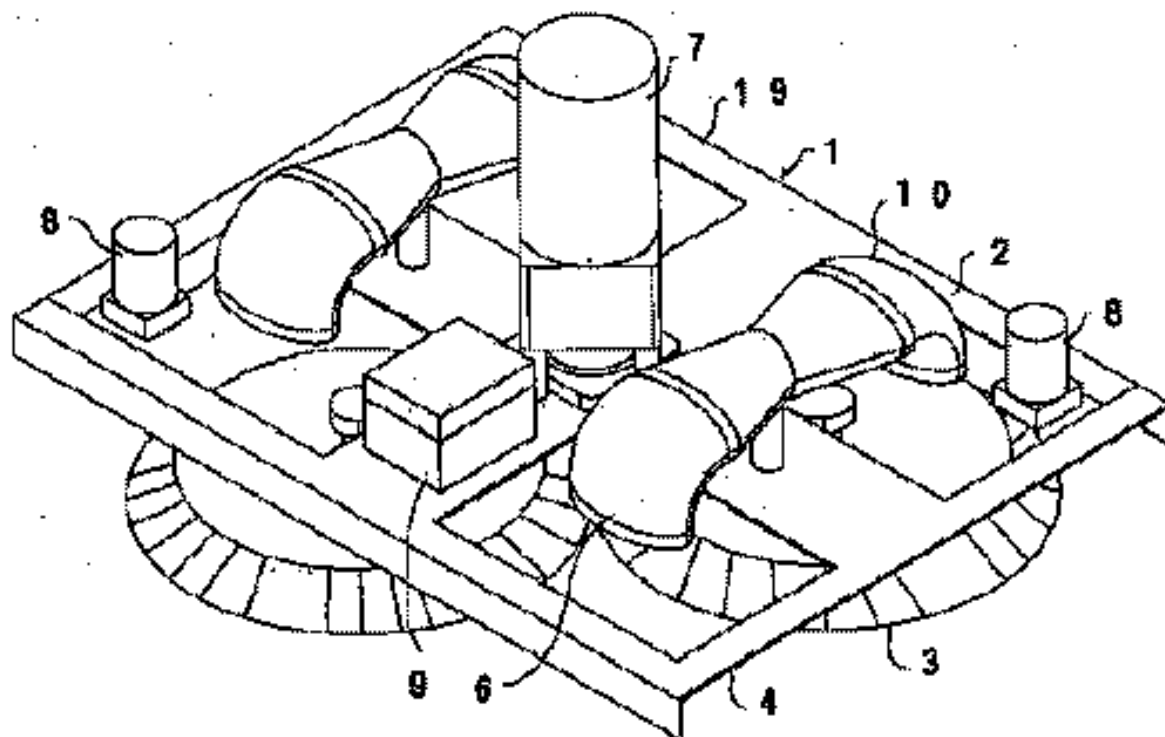
2014-04-02

Family 26/28 - FAMPAT - ©Questel

Title

(JP2002273351)

Method and apparatus for cleaning outer face of solar cell panel

Images

- 1 クリーニング装置
- 2 洗浄装置本体
- 3 洗浄ブラシ
- 4 本体フレーム
- 5 洗浄水ノズル
- 7 ブラシ駆動モーター
- 8 上下左右駆動用モーター
- 9 制御ボックス
- 10 車体一体型架車
- 19 クリーナーユニット

[JP2002273351](#)

A 2002-09-24 JP2002273351

Abstract

(JP2002273351)

PROBLEM TO BE SOLVED: To provide a method suitable for efficient cleaning work for cleaning the outer face of a solar cell panel with a rotation brush and a cleaning apparatus which is simplified, efficiently functional, and made lightweight and compact. SOLUTION: The apparatus for cleaning the outer face of the solar cell panel comprises mounting rails attached in the upper end and the lower end of the solar cell panel in the longitudinal direction and a vehicle-united type track mounting a washing apparatus body equipped with a rotation brush for washing the panel outer face, and the washing apparatus body is made movable up and down in the vertical direction and the track is made movable right and left in the lateral direction and the rotation brush is made movable along the panel outer face in the direction at right angles with regard to the vertical and the lateral directions so as to avoid portions left unclean. Consequently, cleaning work of the outer face of the panel installed in a high position is made possible and the cleaning work is carried out efficiently with such a simplified, lightweight and compact cleaner unit to lessen the workload.

Inventors

HIRAHARA TOYOJI

MATSUZAKI TERUMI

Latest standardized assignees - inventors removed

HINO JUSHI

Publication dates

2002-09-24

Family 27/28 - FAMPAT - ©Questel

Title

(WO2010150030)

Wind turbine in a combined nozzle

Images

The intensive activity for the more powerful, cleaner, renewable and profitable power sources directed us towards a completely new construction of wind turbines. The wind turbine in the combined nozzle is a new electro energy facility, which converts the long term weaker "free" flow of air into the "concentrated" and "regulated", thereby increasing its power and productivity multiple times. The increase in wind speed, and consequently in power, occurs when the turbine rotor is built in the neck of the combined nozzle. Greater power on the turbine comes from the cube of doubly elevated speed on the rotor, and the decrease of exit speed in the diffuser. Wind turbines in the combined nozzle can be of swerving and fixed construction, and of small, medium and large power with the appropriate regulation system. However, the sloped lower collector surface of the combined nozzle is very suitable for the installation of photo-voltaic solar panels, and the swerving mechanism of the wind turbine, with the aid of a special program, can successfully follow the movement of the sun. So, the same facility can very profitably produce energy from the wind and the sun. If the fixed wind turbines in the combined nozzle are installed one next to the other, the result is a wind shield, which protects the lee, and can produce very large quantities of electrical energy, which fact is suitable for the surrounding area of Senj, where approximately 90% of energy comes from the north-eastern winds (bora).

Inventors

VRSALOVIC IVAN

Publication dates

2010-12-29

2010-12-31

2011-02-28

2011-06-16

2011-12-31

Family 28/28 - FAMPAT - ©Questel

Title

(CA2608174)

Agricultural products

Publication data including kind & date

[CA2608174](#)

A1 2009-04-30 CA2608174



Abstract

(CA2608174)

We plan to grow algae, bamboo, sugar cane and corn to make ethanol. The sugar cane will be shredded and its liquids squeezed out for ethanol. The remaining fibers will be shredded and cut to an optimal length for agricultural use. Sugar is a form of fertilizer. These fibers will be cooked in manure tea (stirred even blended to instil fertilizing potency - wider blend of nutrients) and rolled and squeezed and cooked in manure tea (stirred even blended to instil fertilizing potency - wider blend of nutrients) rolled and squeezed (depending on whether the results of such a process - high quality organic fertilizer are worthwhile). The fertilizer can even be pelletized. The tea manure as well as the powdered sugar cane can be used to grow algae. The algae could be bagged with transparent bags and solar panels underneath the bags could further make the most use of the site by both producing energy; Solar panel energy and algae converted into ethanol. A self brewed medium for algae includes Glucose, Na₂HPO₄, KH₂PO₄, NH₄Cl, NaCl, MgSO₄, CaCl₂... The sugar cane fibers as well as the corn shredded husks can also be used to make soil substrate (GP 0.05%) as well as biodegradable seeding and trans planting and all planting pots, biodegradable packaging, bags, imitation cardboard, pulp and paper, envelopes, books, treated with preservatives and mixed with adhesive and compressed to produce a form of gypsum; fiber board, faux wood cabinetry, door, frames, posts, exterior finishing, all construction usage, including wood floors, wood ceilings, roofing, shutters, closet doors, faux wood furniture 2%, all housing, all office, all real estate, all condominiums, all sky scrappers, all apartments, all wood finishings, all shelves, (all decorations 5%), all wood decks, all gazebos, all wood structures, all sheds, all extra wood structures (eg. pool house or tree house), The powdered sugar cane fiber and powdered corn husks can be mixed with resin; As well as the 3-dimensional modeling printer, we could also build plastic/resin (perhaps mixed with particle/gypsum board) or glues/adhesives structures. We are the first to make and sell the following novel products because they are to be developed using mix with nano particles or nano fibres or biodegradable substances such as shredded and powdered corn

husks) possibly sprayed or spun/woven and) create strong/durable and yet flexible (if need be) and light weight products (where the addition of nano material or the 3 - dimensional model creator can be used to make a better product - or at least a niche). New products include all sportsobjects/accessories, all construction materials and all aeroplane (flying) parts, all boating parts, all electronic parts and accessories, all furnishings, all infrastructure (eg. roads and bridges) materials, carpets, all toys, all fabrics, all frames and cages, all floating devices, all containers, all packaging materials, spray on collagen or other biodegradable structural products for tissue culture, all windows, all metal frames, all mechanical parts, all kitchen ware and utensils, all appliances, all heaters / all air conditioners, skeletal structures, all stationary, all ink - photo and laser and ink jet qualities, all business to consumer, all business to business, all infrastructure products, all hard ware--soft ware-communications products, all coverings, faux constructions and decorative objects, all handles, locks, all glass and glass substitutes, all vehicles parts, all consumer products, all industrial parts and machines and safety gears, all cups-spoons-forks- knives-mugs--glasses, all racks, all hangers, all storage bins, lightings - street lamps to candles to bulbs, furnaces, lawn mower parts, vacuum cleaners, shells for engines, engine parts, indoor/outdoor furnishings and their parts, bricks and mortar - barbecues and buildings, all wheels, all tires, all inner tubes, chains, cosmetics, toiletries, all wires, all cables, all televisions - all electronic audio/video entertainment products, all construction tools, all elastics, all tethers, all erasers, all stationary, eg. all pencils, all pens, all pencil cases, all liquid paper...all board game parts, all lenses, all eye glass frames, all fitting tools for assembly of parts for all the products herein listed, all contact lenses, all wiping clothes for wind shields and eye glasses, all wiping cloths for CD's and DVD's, carrying cases for all products, from soft (eg. leather or other skins) to faux fur, all buttons metal and plastic, all lasers and cameras and all their components, all garbage bins, all radios, all DVD players, all CD players, all servers... all railways, all monorails (intercity), all highspeed trains, all cargo trains, all cargo ships, all pleasure boats, all fishing boats, all cruise ships, all yachts, all small boats/dingy, all life boats, all life jackets, all diver's suits, all plastic and all paper bags, all plastic house

Inventors

VOON GERARD

Publication dates

2009-04-30